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The forgotten half? Women in the forest management and development discourse in Africa: A review

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Numerous theoretical and empirical studies examining women's engagement in sustainable forest management (SFM) have shown that women bring distinctive interests and values to forest management. However, their effective engagement is still low due to bottlenecks such as rules of entry, ownership, labor division, social norms, perceptions, rules of practice, personal endowments, institutional outcomes, and other organizational cultures. Key among those are the gendered perceptions that marginalize them from the onset. As a result, women's potential to promote SFM in Africa has not been exploited effectively, yet. This raises concerns for gender and social equity as the current practice socially excludes groups that hold specific ecological knowledge, skills, and interests that influence SFM practices. By critically reviewing systematically selected 104 studies conducted on gender issues and forest management in Africa, this paper explores how women's role in forest management and the broader development discourse is constrained. It also characterizes the prevailing engagement models and shows how they influence inclusive processes of deploying SFM practices. Women's engagement in SFM is dominated by public/civic engagement and significantly lags in effectively engaging them as stakeholders, experts, or households. Of the 104 studies reviewed, 54% ($n = 57$) characterized women's engagement as largely through public meetings compared to 5% ($n = 5$) as stakeholders and 4% ($n = 4$) as experts. Thirty-four percent ($n = 36$) did not clearly categorize the engagement type. Women's engagement in SFM is merely to fill the gender 'representation' requirements and any effective roles such as decision making, ownership, and benefits are not under the control of women at large. As a result, women's potential to promote forest management and avert ongoing forest loss is not exploited. There is a need to transition from mere representation to a meaningful engagement of women in the sector for inclusive forest management to flourish. In general, capturing, recognizing, and effectively utilizing women's voices and potential in forest management and development discourse requires institutions that deliberately embrace inclusivity and promote equity in general and across gender.

KEYWORDS

women, sustainable forest management, Africa, engagement models, gender

Introduction

Sustainable forest management (SFM) is the holistic utilization and management of forests and forest lands to meet current and future societal needs without compromising their regeneration, productivity, and functioning (Tatarnikova et al., 2020). Many state governments are progressively recognizing the role forest resources play for ensuring environmental stability while directly contributing to the socio-economic development of their respective countries. However, Food and Agriculture Organization (FAO)'s 2015 Global Forest Resources Assessment (FAO, 2016) shows that, although SFM is gaining ground globally, numerous economic, social, and cultural, policy and governance, institutional, technical, and environmental challenges hamper its progress (Geldenhuis et al., 2011). Subsequently, destructive logging practices and other ecosystem degrading interventions have continued unabated resulting in significant biological and socio-economic risks and contributing to the continued decline in the native forest cover of the continent. Nonetheless, there are still many SFM projects that seek to reduce deforestation and forest degradation and contribute to poverty reduction and other socio-economic benefits.

Decentralizing natural resource management to enhance equity and efficiency in benefit-sharing and decision-making by local communities is becoming popular in many African countries (Ribot, 2012). It takes many different forms, including community forest management (CFM), village forest committees (VFCs), and participatory forest management (PFM), among others, with a shared goal of promoting co-management of forest resources with central and local government institutions. For the local communities to enter into such co-management arrangements legally, they need to form an association that demonstrates their interest in managing a given forest area (Piabuo et al., 2018). Many of such institutional constellations in the continent, however, suffer from the traditionally gendered nature of their governance, where men are given the superior role in decision-making and benefit-sharing. Such gendered patterns were also reported by Franks and Cleaver (2007) concerning access to forest products and participation in forest governance. Mogotsi et al. (2016) reinforce this by stating that the extent to which leadership structures are all-encompassing determines how community-managed resources are accessed and controlled.

Men and women have distinct roles to play in forestry operations in developing countries (FAO, 2015). In addition, they have differentiated interests in forest and tree goods and services, with the women's interests largely revolving around the supply of food and energy for their households, while

men are mainly driven by commercial interests (Muthee et al., 2021). Numerous case studies in Asia, Africa, and Latin America have shown the positive impact of women's participation in forest governance and SFM (Westermann et al., 2005; Acharya and Gentle, 2006; Agrawal and Chhatre, 2006; Agarwal, 2009; Coleman and Mwangi, 2013). Women are recognized to play a key role in the management of forests and forest products. They have traditional knowledge of forest rehabilitation activities, managing forestry products, and improved forest governance, including executing management plans (Abuquah, 1996; Azeez et al., 2013; Stiem and Krause, 2016). Thus, the current gendered approach to forest management which puts women on the margins affects the success of forest management goals as their knowledge is very crucial. Even with a social lens, it is possible to overlook the diverse roles of women and men in forestry, and the bearing of gender on resource access, tenure security, and control over benefits, if gender analytical considerations are placed front and center from the start (Marin and Kuriakose, 2017). Colfer et al. (2016) emphasize the need to recognize the preferences, knowledge and use preferences of both men and women as their choices shape effective engagement pathways.

Although women are the major stakeholders in forests resources use and management, their engagement and decision-making level are inadequate (Leone, 2019), with their representation in formal forest user groups in Africa estimated at 18% (Sunderland et al., 2014; Stiem and Krause, 2016). They disproportionately bear the costs of tree and forest management but realize only a part of the benefits and are typically enlisted in decision making when forest and tree resources are degraded or after conflict (Agrawal and Chhatre, 2006; Mwangi et al., 2011). Women rely on forests for half of their income thus requiring secure access and use rights to these resources (World Bank, 2016) and inclusion in implementing SFM projects. Neglecting their role in forest decision-making can risk project outcomes, as women's specific livelihood needs and preferences are often overlooked (Marin and Kuriakose, 2017). Several studies outlined the vital role women play when put at the center of whatever decisions are made about managing forest resources (Wynberg and Laird, 2007; Saguye, 2011). They could become agents of change if they are recognized and allowed to voice their opinions and that lack of equity in decision-making risks the well-being of women and, subsequently, the family and society (Agarwal, 2009, 2010). Women's participation is also crucial for the success of community forests (Agarwal, 2001; Kaphle, 2011; Leone, 2019). They are central in implementing adaptation measures, decreasing deforestation, and developing and implementing new forest conservation initiatives, such as REDD+, which have implications for climate change and natural resources. Despite this, women's involvement is often characterized by

unequal power relations and, a lack of effective models to accommodate women to integrate their views collectively, inequitable benefits sharing, and non-inclusive integration toward forest resource use and management (Brown and Lassoie, 2010; Brown, 2011; Gurung and Setyowati, 2012; Leone, 2019).

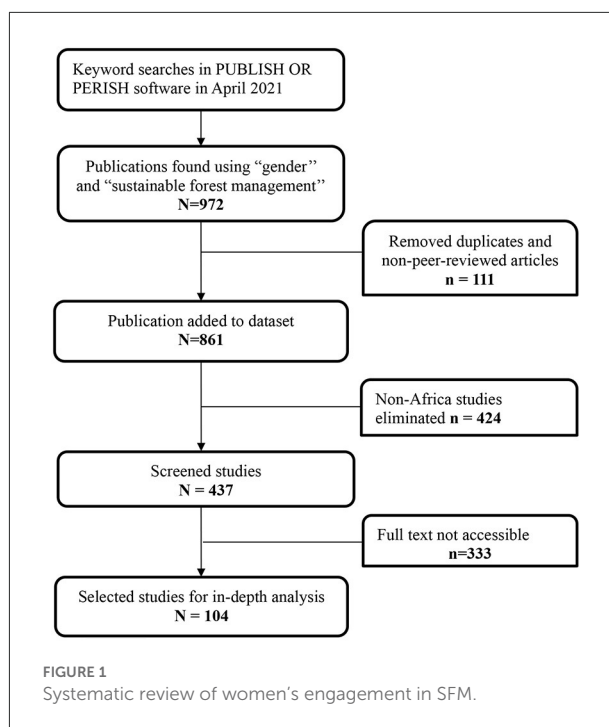
In this paper, we examine different engagement models describing women's engagement in forest management, the effectiveness of the models toward enhancing women's contributions, and how they can be enhanced or advanced to integrate women's valuable knowledge and decisions toward SFM inclusively. We address these questions by assessing 104 studies sourced from Africa through a meta-analysis method. Africa was chosen for this study as there is a strong gendered approach to natural resources management that has systematically marginalized women for actively engaging in forest management roles (Phiri et al., 2022). This study fills the existing gap in terms of understanding the current state of engagement by pulling together accessible technical documents and publications that covered multiple countries across the continent.

Methodology

Relevant studies were identified through a database search in April 2021. Figure 1 shows the process of the systematic review adopted. Two keywords were used in the initial search - 'gender' and 'sustainable forest management.' We intentionally did not use 'women' or 'female' or other gender-reorienting words to avoid any exclusionary bias from the onset. The issues of gender in forest management could be better understood by inclusive studies rather than those only focusing on women.

The initial search using the combinations of "gender" and "sustainable forest management" returned 972 studies. The references were exported to Mendeley from Publish or Perish software¹ in Microsoft Excel format. Duplicates were removed, and there remained 861 studies. Four hundred thirty-seven studies focusing on Africa were retained for further assessment after eliminating 424 studies not focusing on Africa. The abstracts and titles were screened followed by full-text articles assessment to ensure they fulfill the eligibility criteria. Only studies published in accessible forms were retained for the final analysis resulting in 104 studies. Data extracted were summarized based on the following pre-defined key items: Interests and values, rules of entry, labor division, social norms, perceptions, rules of practice, personal endowments, institutional outcomes (such as levels of conflict and rule fairness),

¹ Publish or Perish on Microsoft Windows (www.harzing.com).



organizational cultures, the activity involved in, number of women engaged, products and type of landscape. The meta-analytic data set was then compiled and used for data reporting.

While the study covered several documents, it was not possible to get access to a significant number of the published materials dealing with the topic due to restrictions in accessing them. In this case, of the total publications that specifically focused on Africa, 333 were discarded as the authors could not access the full text of the published documents as they are subscription-based. The other aspect of limitation is also that the screening focused on published materials that are written in English language while Africa as a continent has varied linguistic categories among which French is the dominant ones. This means that publications from many of west and central Africa, dominantly French-speaking countries, may have been omitted.

From a theoretical point of view, the study adopted the framing described in Varghese and Reed (2012). The authors proposed the characterization of engagement in three—expert-based (where the professional skills and expertise of the participants are the emphases), stakeholder-based (where the emphasis is on engaging community groups as stakeholders households as key actors and or in the form of household heads, etc.), public or civic engagement (where the engagement is involving a large number of people in the form of meeting participants to give their opinion on meeting agenda). Building on this framework, we also added household-based engagement as one of the key engagement typologies. This was found crucial

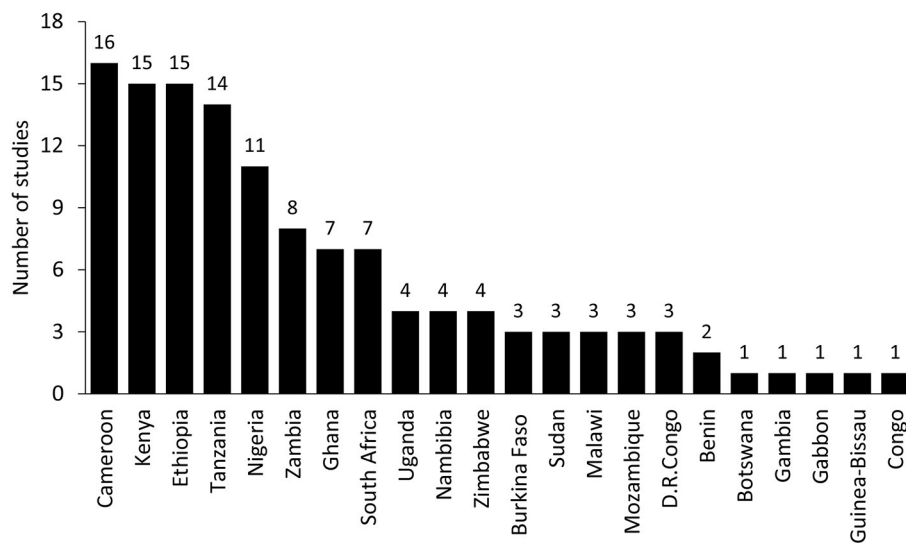


FIGURE 2

Distribution of publications focusing on women's participation in SFM studies in Africa. Number of studies covered multiple countries and hence the total sum of the frequencies goes above 104 studies.

because most of the representations in forest management also come in the form of household-level actions.

Results and discussion

The nature and distribution of the studies highlighting women engagement in SFM in Africa

The studies selected for this analysis ($n = 104$) were conducted in 22 countries distributed across Africa. Most of the studies focused on a single country except seven studies that focused on multiple countries. The seven studies focused on the eastern, central, southern, northern, and sub-Saharan Africa regions. Figure 2 shows the distribution of the number of studies touching on the various countries in Africa. Most of the studies focused on Cameroon (16 studies), Kenya (15 studies), Ethiopia (15 studies), Tanzania (14 studies) and Nigeria (11 studies).

Notably, there is an unequal distribution of the reviewed studies. Several reasons can be attributed to this. First, the final selected studies for analysis were those in English and were open-access in nature. This excluded a good number of studies in Central and West Africa where the dominant language is French. Additionally, African countries are diverse in terms of levels of policies and socio-cultures, which have attracted different levels of research. To illustrate, sustainable forestry policies and approaches are well documented and implemented in Cameroon, Kenya and Ethiopia, explaining the reasons why the countries are attracting huge research

interests compared to other African countries. In agreement, a study by [Muthée et al. \(2022\)](#) which adopted almost a similar methodology also ranked the three countries as the leading in terms of agroforestry studies and research interests. The frequency of publications dealing with gender and forestry issues has increased gradually, which further agrees with [Muthée et al. \(2022\)](#) on the increased research interest in sustainable management of (agro)forests over time. Figure 3 shows the yearly distribution of the studies selected by the year of publication.

Characterizing the engagement attributes

The section below discusses each of the key engagement attributes of women in forest management related matters and how the selected studies contextualize the status.

Interests and values

The most common uses noted from the study were non-timber forest products (NTFPs) collection (99 studies—94%) whereby the exploitation of products such as snails, mushrooms, gum arabic, grass, salt, butterfly pupae, caterpillars, medicinal plants, among other products are collected. Forest use for fuelwood (57 studies—54%) which is the core role performed by women was also pronounced. Other various uses noted include the provision of fodder (12 studies—11%), food (21 studies—20%), timber (34 studies—32%), charcoal and poles

(18 studies—16%), shade (seven studies), cultural values (12 studies), hunting for bushmeat (15 studies), beekeeping (seven studies). Soil fertility (four studies), and carbon offset (three studies) are also valued benefits of African forests; however not highly valued. The results indicate that most forests in Africa are valued for providing economic benefits that could, directly and indirectly, improve the livelihoods of the communities.

Rules of entry in women's participation

Most of the communities in the studies access the forest through local institutions (26%), including village councils, local administrations, and traditional leaders. Secondly, they access through forest user groups (19%) followed by community forest associations (12%), forest community members (11%), unrestricted access (8%), cooperatives (6%), women groups (7%), among others such as ethnic groups, legal rights, government agencies, PFM institutional arrangements, joining PFM, etc.

Labor division

Most of the women are engaged in collecting fuelwood (15 studies—14%) and NTFPs (29 studies—28%). They are also involved in the cultivation of fields and food crops, fetching water, and cooking food. Women also engage in weeding (four studies) around naturally regenerating and nursery management (four studies). The findings show that although women are as not actively involved in SFM and their level of participation lags behind as [Olajuyigbe et al. \(2020\)](#) notes. Men are involved in activities that are commercially oriented, for example, extraction of forest products for sale such as timber management (six studies), charcoal production (seven studies), hunting for game meat (seven studies), and cultivation of cash crops (two studies). They also engage in more energy-consuming activities such as firefighting (two studies), forest patrol, and forest monitoring. However, both men and women participate in forest patrol, although women to a lesser extent than men in SFM activities. Nursery management and forest rehabilitation are also done by both genders whereby they involve in establishing tree seedling nurseries and conduct nursery operations (women- 5 studies; men- 3 studies). Both engage in boundary cleaning (two studies). The lesser involvement of women in tree planting (four studies); men (seven studies) reflect women's lack of resources, particularly land, tree tenure security, and heavy workload.

Social norms

Women lack control over land and land-use decisions, and ownership rights are more pronounced in 26 studies (23%). Inheritance of land is mostly for men and or the boys. Tree tenure security is also such that men make all decisions concerning the management of trees and have power over the

trees. Women get discouraged from investing in trees and they cannot have a say regarding their management. They also have forest use rights but not full access rights to most products. Traditional rules inhibiting women's effective participation include submissiveness (10 studies), where women's restriction on talking when in mixed-gender meetings is not valued in decision making. Gender roles (13 studies – 12%) also hinder women from participating in forest management meetings as they are overwhelmed with household chores.

Community perceptions

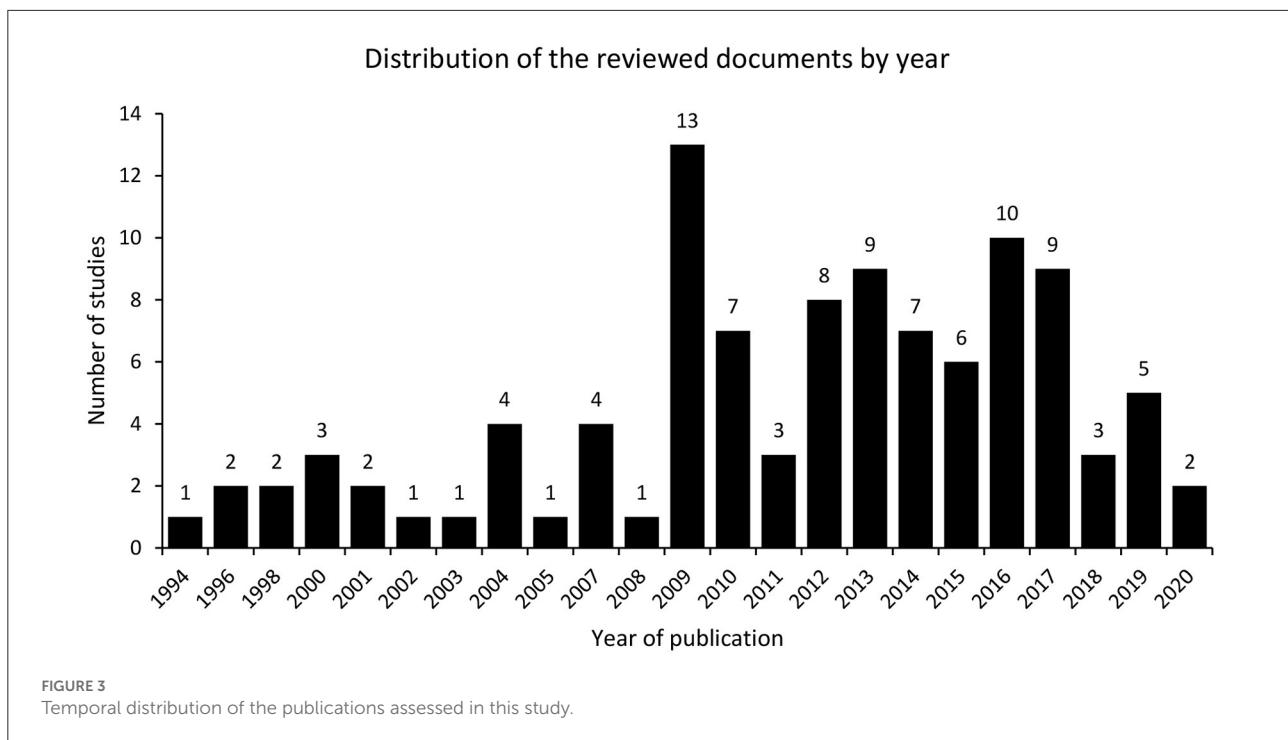
One of the major concerns is that women should be given special slots for benefits and opportunities (15%) and that women's groups promote women's participation more than a mixed-gender group (15%). Reconciling gender equity at policy and legal levels with custom and attitude (7%) was considered to break the traditional customs. Women empowerment was also considered critical (4%). Matters concerning land tenure at the core were majorly perceived to be enhanced by resolving land and tree tenure restrictions for rural women. These findings note that with proper resources, women do take part in the activities.

Rules of practice in SFM for women

Punishing the perpetrators who did not comply with the forest customary rules was pronounced (27%). Fining those who did not comply with the forest utilization rules was a frequent practice (20%). Others included membership subscriptions (13%), issuing permits (13%), taboos (7%), restricted access to some resources if not a member of the PFM group, and excluding outsiders.

Women's involvement in SFM in Africa

This study acknowledges that there are cases where women are involved and engaged in sustainable forest management, though at different levels. To illustrate, [Grundy et al. \(2004\)](#) and [Samndong and Kjosavik \(2017\)](#) found out that women are invited to project meetings and their voices are somewhat included in the final deliberations, though not entirely as would be expected. In addition, women are involved in forest-related decisions only at the household level, such as where and when to cultivate, and what crops to plant in the different fields, among others ([Salomão and Matose, 2007](#); [Samndong and Kjosavik, 2017](#)). Women are significantly engaged in the Southern Africa region. For instance, women were the majority contacted as producers to identify key policy issues requiring further investigations into Marula conservation in South Africa ([Wynberg and Laird, 2007](#)). Further, the democratic working environment found in most South African rural areas have the potential to make women the drivers



of Community-Based Forest Management (CBFM) programs (Bwalya, 2004; Chirwa et al., 2008; Cocks et al., 2012; Sharaunga, 2012). Women are also engaged as experts in profession fields in different instances. For example in the Gologolo Joint Forest Management Project in Tanzania, women were part of the forest officers and considered consultants (Iddi, 2000; Abane, 2007). However, women participation in higher ranks of research, policymaking, and industry is extremely low (Bisong and Ajake, 2001; Atmadja et al., 2019). Abruquah (1996) established that women occupying top positions in the timber industry and management were notably few in the Nkawie Forest District of Ghana, further supporting the argument the number of women in high-level management positions in forestry is low.

Women are not involved in making forest-related decisions (Saguye, 2011) and are powerless against local conservation activities (Costa et al., 2017). They tend to be overlooked during the planning and implementation processes of forestry activities (Mogaka et al., 2001) and are not consulted during the design of empowerment programs (Abruquah, 1996). In Congo Basin, for example, Freeman et al. (2009) found out that women had no right to take part in consultation and negotiation processes; these processes only involved local political leaders thus sidelining women who were considered to have little voice. Samndong and Kjosavik (2017) in their study in the Équateur Province of the Democratic Republic of Congo (DRC) also found that women were not included in the negotiations because they have no access and control over forestland.

Social institutions define rights and responsibilities for managing natural resources (Atmadja et al., 2019). The gendered pattern of forest access and participation in forest governance institutions (Franks and Cleaver, 2007), and the extent to which leadership structures are all-encompassing determine how community resources are accessed and controlled (Mogotsi et al., 2016). Although it is important to foster women's participation in developing forest management plans, the representation of women and minority groups in leadership often lacks to make an impact on the leadership decision-making (Ombogoh and Mwangi, 2019). Women are mostly given ordinary leadership positions with passive roles. For example, Mogotsi et al. (2016) in their study in Namibia found that for most of the community forests (CFs) with leadership committees in place, women and minority group representations in these structures were low and occupied the low-ranking non-decision-making positions while the executive positions were men-dominated. Omare et al. (2013) also found that women hold insignificant positions that may not even require their decision-making contributions. Similarly, Mogoi et al. (2012) state that women were mostly relegated to less powerful/visible positions which demanded much work with minimum benefits. Men mostly held the positions of chairperson or vice-chairperson—positions that had a lot of visibility and power in decision-making in Kenya (Mogoi et al., 2012). Men are believed to own the highest position in society (Adeyemo, 2004; Ongugo et al., 2017). In other countries, such as Cameroon, the local custom did not permit women to

hold any key leadership positions in the indigenous structure (Nkemnyi et al., 2016). Only women from rural families with a specific inherited title (“mafua” or “mofor2”) were allowed to take part in leadership; however, they often participate as observers.

The lack of democratic powers in electing committee representatives in community forests further excludes women. In village assemblies, especially during the election of leaders, democracy is minimal as Kujinga et al. (2012) notes. For example, in the South region of Cameroon, committee members were elected by consensus, self-appointment, and a few democratically elected (Piabuo et al., 2018). Elites or chiefs in villages often appointed themselves and their dependents (Piabuo et al., 2018), subsequently excluding women. The existing succession strategies further deny women opportunities in elective positions. Membership in community forest associations (CFAs) is also skewed toward men (Agevi et al., 2014). For example, Pfliegner (2010) found out that belonging to the VFC membership in the Morogoro region in Tanzania is based on residency, social status in the village, and personal interest of the village leaders that excluded women.

Several studies found that forest committees are mostly male-dominated, including Pfliegner (2010) and Stiem and Krause (2016), with no gender modalities in decision-making and benefits. In some countries, they had gender rules in such committees though not given due attention, e.g., in Ethiopia (Teshoma, 2010; Tesfaye, 2011; Gashu and Aminu, 2019). A study by Saguye (2011) showed that the inclusion of women in one-third of the total committee positions was termed mandatory, but most forest committees (FCs) often breached this. The positions occupied by women were mainly in the category of regular members that carried less responsibility as Babalola (2009) argued. Elsewhere in Namibia, the traditional local authority preferred male nominations in CF (Community Forestry) committees (Mogotsi et al., 2016) as women lacked the confidence to take up leadership.

Many female officials were elected because of pressure from organizations promoting gender equality and/or PFM (Obonyo and Mogoi, 2009). Mogoi et al. (2012), Lydia et al. (2016), and Samndong and Kjosavik (2017) revealed that women were given leadership positions but did not have access to decision-making, and their voices are often ignored. Further, Samndong and Kjosavik (2017) found out that women are invited to project meetings to sit for nominal participation and their voices are shattered as the general assembly made all the decisions. In addition, women are involved in forest-related decisions only at the household level, such as where and when to cultivate, and what crops to plant in the different fields, among others (Samndong and Kjosavik, 2017). Exceptions are rare, such as in South Africa, where they embrace gender. For instance, women were

the majority contacted as producers to identify key policy issues requiring further investigations into Marula conservation in South Africa (Wynberg and Laird, 2007). Further, the democratic working environment found in most South African rural areas has the potential to make women the drivers of Community-Based Forest Management (CBFM) programs (Chirwa et al., 2008; Cocks et al., 2012; Sharaunga, 2012).

Women’s limited participation in CF activities leads to their reliance on their partners for most community-level information (Mogotsi et al., 2016). Furthermore, the lack of information about meetings and the lack of accountability among leaders affected participation in Tanzania (Munishi, 2013). Rantala et al. (2012) found out that women were discriminated against and not invited where allowances were paid in the case of the Usambara Mountains of Tanzania. In some cases, women became aware of decisions once activities start but are powerless to say anything. In others, males did not share most community-level information on CFs with women (Mogotsi et al., 2016). Khatun et al. (2015) found that men were better informed about projects than women.

Social hierarchies also hinder women from accessing forest benefits (Magessa et al., 2020) and participating in activities that could have contributed to their income. For example, women sampled from Mt Kenya, Aberdares, Kakamega, and Mau forests in Kenya lacked equal chances of receiving information (Obonyo and Mogoi, 2009; Andole et al., 2020). In Cameroon, the local tradition of the Bakweri people was so strict and firm on women’s position in society and consider them only suitable for domestic activities (Lydia et al., 2016). Further, women were not considered part of decision-making and achieved their interest through male representation hindering their access and control over natural resources, including forest management (Darr et al., 2009). Meetings in the Loita forest community in Kenya were also held based on the Oloibon institution, whose agenda and frequency are decided by the council of male elders (Mbuvi et al., 2015), which later affects women’s participation. Similarly, indigenous structures are customarily responsible for governance at the local community level (village) in Cameroon (Nkemnyi et al., 2016).

Some membership groups needed membership fees that excludes the poor, especially women (Nhantumbo et al., 2003). The physical nature (Phiri, 2009) and distance (Atmadja et al., 2019) further hinder women from accessing some resources and taking part in some forest activities. Women also engage in low-paying products more than men (Pfliegner, 2010), which may further limit their decision-making powers. Often, men control the valuable forest resources that can be sold on the market, such as timber (Aguilar et al., 2011; FAO, 2015). Women’s control over resources is more commonly centered on the management and use of fuelwood, fodder, and non-timber products.

Engagement models for women's involvement in forest management

Public engagement model dominated other assessed models including household-based, stakeholder-based and expert-based, as a means of involving women in decision making which were expressed in terms of village assemblies (Figure 4). The level of women's exclusion in these meetings is pronounced, hence becoming a critical constraint to women's participation. Women notably lack the voice to give their input and attend CFAs meetings (Mbuvi et al., 2018) and their voices were not equally placed to voice their priorities in planning forest protection (Kassa et al., 2009). Their suggestions on forest management are unheard (Lydia et al., 2016). Traditionally women were not expected to speak at these meetings in the DRC (Stiem and Krause, 2016) despite their engagement being in public consultations.

Public/civic engagement

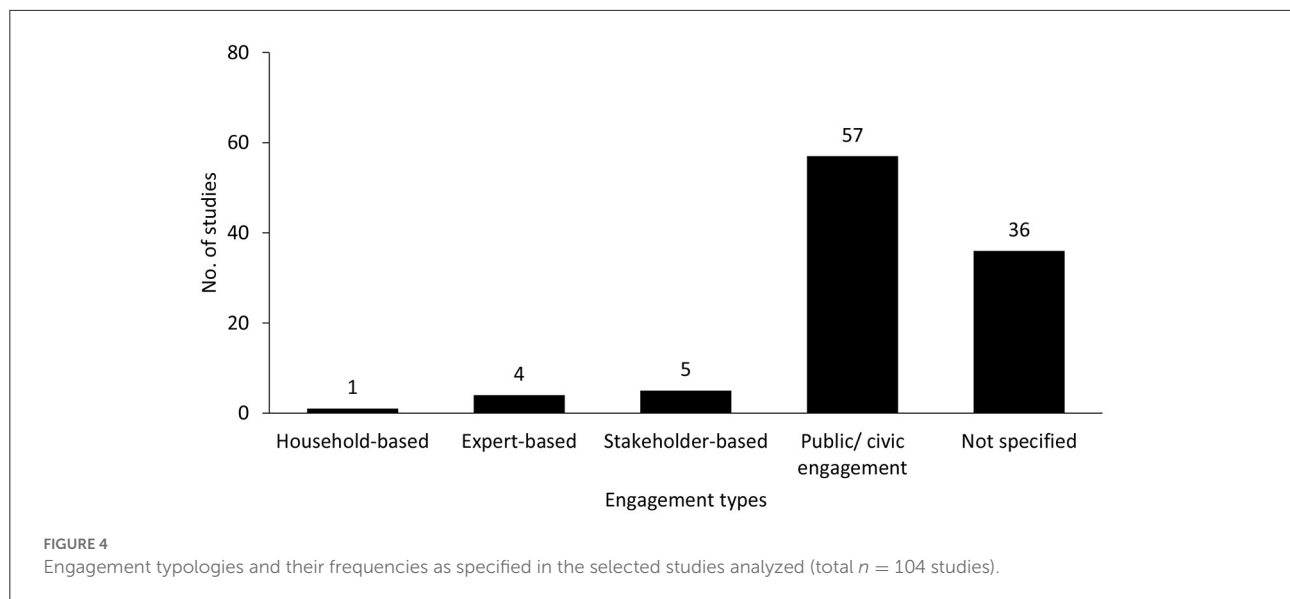
Gender composition of forest committees/organizational structures and the socio-cultural backgrounds of women significantly affects their attendance in meetings and the probability that they may voice their opinions (Samndong and Kjosavik, 2017). Most women are engaged in forest management through public meetings or civic engagements which are either imposed on a project to meet the gender participation quota. As a norm, the number of women involved in forest conservation projects is lower than men; thus, men can easily dominate decision-making (Mbuvi et al., 2015). Underrepresentation of women in village assemblies was also common (Rantala et al., 2012; Stiem and Krause, 2016). Due to their low representation, their voices are not heard as decisions are taken without their consent, in their absence, and oftentimes, their opinions do not count. Furthermore, women from low-income families and marginalized groups face most challenges that inhibit their participation (Mogotsi et al., 2016).

Lack of equity in decision-making risks the well-being of women and, so, the family and society. As exemplified in the DRC, more men than women are invited to both village meetings and those organized by external development agents (Stiem and Krause, 2016). Agarwal (2010) argues that raising the ratio of female representation to 30% would already give a stronger voice to women in decision-making. Women are sometimes present, but their participation is still mostly passive (Stiem and Krause, 2016) and their opinions are not reflected in the final decisions (Adams et al., 2017). Stellmacher and Mollinga (2009) and Fikadu et al. (2016) both agree that although there was an improvement in women's participation in Ethiopia, they did not speak up, and the power to influence decision-making was low. Further, men speak more in meetings than women since they are considered household heads (Phiri, 2009; Rantala et al., 2012; Mbuvi et al., 2015). Male dominance during

community meetings seems to discourage women from actively participating (Mogotsi et al., 2016). Women present in meetings do not speak unless asked to and if they speak their opinions carry little weight thus, they attend meetings but do not talk (Saguye, 2011). Due to various sociocultural pressures, women in the continent have low self-confidence in contributing to decisions (Stiem and Krause, 2016). They are often shy in meetings because they are intimidated by men and are only seen to be able to engage meaningfully in discussions when they are formally educated in the DRC (Stiem and Krause, 2016). In other cases, men made decisions and conclusions before the formal meeting in Tanzania, and forest issues were easily bypassed in village assemblies (Haule, 2010; Rantala et al., 2012). Women's influencing power in decision-making was weak, and they only accept what is decided by the committees.

Social norms further marginalize women from contributing to public meetings, for example, women not speaking up in front of men and not being expected to speak in mixed-gender meetings (Stiem and Krause, 2016) are setbacks to public engagement. This has contributed to cynicism among women on how and what the meetings can help them and the subsequent outcomes. Some even prefer doing some other activities than attending the village meetings; for example, in their study, Rantala et al. (2012) noted that women in the Usambara mountains of Tanzania, opted to go to their farms rather than attend meetings due to a lack of benefits. In some parts of Cameroon, women were prohibited from speaking in public as it is a symbol of disrespect for the elders in the village. In rural Ethiopia, women are often reluctant to express their opinions in the presence of males (Irwin and Mitiku, 2004; Duguma et al., 2009). They, therefore, speak less in the presence of men, consequently losing their valuable views as Gobeze et al. (2009) established. This makes them less committed, and some even considered meetings boring. Freeman et al. (2009) noted that even if present at meetings, women may also not pay much attention, as they know they have no influence. Women are further constrained by the perception of their femaleness which hinders their participation in forest management activities, and they are submissive to men's decisions (Fikadu et al., 2016; Mulugo et al., 2019).

Women are also noted to be obedient to tradition and accept their position as they prefer men to take decisions on their behalf in Équateur Province, DRC, women believed in religion/doctrine by being submissive, respectful, and obedient to their husbands (Samndong and Kjosavik, 2017). This includes seeking the approval of their husbands to participate in any kind of communal activity including CF activities (Stiem and Krause, 2016) whereby in some cases men discouraged women from attending preferring them to work instead (Rantala et al., 2012). Forestry is further perceived as a male-dominated field (Obonyo and Mogoi, 2009). Gender roles additionally hinder women's participation in meetings (Saguye, 2011; Engida and Mengistu, 2013; Fikadu et al., 2016; Costa et al., 2017) and in



attending training workshops (Samndong and Kjosavik, 2017). This agrees with Grassi et al. (2015) who noted that women's work burdens within the household pose constraints to the time women can allocate to forestry and agroforestry income-generating activities.

Women also achieve their interest through male representation (Lukama, 2000; Lydia et al., 2016) whereby women are consulted in private, but only men are allowed to speak on behalf of the household. Women also became free to contribute particularly to meetings that excluded men (Costa et al., 2017). Akinsoji (2013) noted that the formation of women groups enhanced decision-making. Ongugo et al. (2017) argue that where women's participation is allowed, women outnumber men. For example, more women than men took part in PFM in Arabuko-Sokoke forest in Kenya (Mbuvi and Musyoki, 2013). At a group level, the participation of women around Mount Cameroon National Park was found influential because 70% of projects in villages consider the needs of women mentioned during consultations (Ngonzo and Munongo, 2014). Elsewhere in the high forest zone of Ghana, women did not comment during the Strategic Planning Workshops but did take part through the women's group (Boafo, 2000), which signifies the need to organize women to enhance their participation and raise their voices as Appiah (2009) suggests.

Household-based engagement

The household-based model also has gender implications. For example, women are likely to be excluded when development programs primarily collaborate with the head of the household (Stiem and Krause, 2016). Furthermore, women's dependence on men for decision-making (Abay, 2013)

is a setback to the household-based model. A narrow focus on one household member to natural resources committees further excludes women (Pfliegner, 2010; Stiem and Krause, 2016). Furthermore, the reliance of women on their male counterparts for information flow contributed to women having little knowledge of the actual activities of the CFs in Namibia (Mogotsi et al., 2016).

Stiem and Krause (2016) posit that neglecting intra-household power relations and viewing the household as a homogenous unit may lead to unfair benefit sharing within a family. The authors further note that when the male head of the household can access and capture benefits from REDD+, women carry an added burden. This ultimately puts a greater burden on women, who bear the costs of conservation in terms of a heavier workload as noted by Abubakar and Dau (2019). This is important because it shows that intra-household power differences affect the full and effective participation of women and might also lead to an added burden in terms of the cost women have to bear due to a change in forest governance practices.

Expert-based engagement

The expert-based model is generally applied using women's knowledge of certain specific forest products. For example, Ackee soap is mainly produced and commercialized by women from specific ethnic groups in Northwest Benin (Ekué et al., 2010) and more women than men have rich knowledge about its use. In Morocco, Argan oil is exclusively prepared by Amazigh women (Charrouf and Guillaume, 2009). Using women's knowledge was the only practical solution and led to the creation

of woman cooperatives producing argan oil, women in return obtained income and jobs (Charrouf and Guillaume, 2009).

Stakeholder-based engagement

Stakeholder engagement included women's groups among other women-based institutions (Jum et al., 2007). For example, women in Cameroon harvesting NTFPs were regarded as stakeholders (Belibi et al., 2015). Already established groups of women were used and trained, resulting in increased harvests and sales, and subsequently gaining income. This increased interest of CF management entities in supporting NTFP harvesting (Belibi et al., 2015) and proves the potential and importance of women's role in CF management. The diagnosis showed that strengthening women groups in NTFP collection and processing could be a gateway to engaging women in SFM. In Cameroon, the Model Forest partnerships were implemented through a management structure based on representatives' stakeholder platforms. In this regard, women groups were engaged in multi-stakeholder dialogue platforms and contributing to SFM responsibly (Tsanga et al., 2014).

Why shattered voices?

Women have traditional knowledge in the management of forestry products (Coulibaly, 1994); however, they feel powerless to control resource degradation (Gautier and Santen, 2014) and management (Barrow et al., 2002). Their voices are not equally placed to voice their priorities in planning forest protection and have long been devalued in forest management decisions (Agarwal, 2001; Mai et al., 2012). The status quo is that women can make suggestions or contribute by supporting a viewpoint but cannot make decisions. In the DRC, their rights to forests were mediated by menfolk (father, husband, or son) and enshrined in the customary tenure of forestland (Samdong and Kjosavik, 2017). Further, women do not have full access rights to most resources (Westholm and Kokko, 2011), thus limiting their decision-making level. As an example, women are not allowed to own trees and believe that men should handle issues on tree management (Coulibaly, 1994). In another example, in Northern Cameroon, women have few rights to trees, and men have the power over trees to make all decisions concerning their management in the parklands and savannas (Gautier and Santen, 2014). Olawoye (1996) argued that it is not adequate to educate rural inhabitants about the need to plant trees if they are barred from doing so by societal norms. Thus, for the effective participation of women in forestry issues, it is crucial to address the power relation issues in the decision-making arena and provide effective pathways for women and men to voice their concerns and interests (Samdong and Kjosavik, 2017).

Customary laws still pose a challenge to women's land and tree ownership, which is of particular concern in

forest restoration and plantation settings, and agroforestry investments (Marin and Kuriakose, 2017). Furthermore, Marin and Kuriakose (2017) note that land ownership is related to socio-economic development and poverty alleviation. Studies show that land rights empower women by improving their bargaining power over resource allocation and control over household income, providing security in case of abandonment, divorce, or death, and increasing their participation in the community and institutions (World Bank, 2009). Women, however, lack land ownership rights and are discriminated against in traditional land inheritance practices, as shown by several studies such as Westholm and Kokko (2011), Ajake and Abua (2015), and Costa et al. (2017). Further, women do not have rights to land use (Nabanoga, 2005) and hence could not decide on land management. For example, in Cameroon, DR Congo, Rwanda, Burundi, and other East African nations, women's rights to access and own land and forests are ignored and this notion is still embedded in traditional, religious, and cultural beliefs (Obua et al., 1998; Barrow et al., 2016).

In some instances, when a woman owns land, it is mostly managed by a man in her family or even by male relatives. Tree management is considered a preserve of men and land rights ownership is linked to rights to trees (Coulibaly, 1994; Gautier and Santen, 2014). Unmarried women are further constrained as they have no rights to land (Barrow et al., 2002). Although women can have access to land through their husbands or other male members of the family, they only enjoy usufruct rights and rarely have decision-making power in terms of family land distribution (Stiem and Krause, 2016). Elsewhere, permission to plant trees is seldom given to women. For instance, in the humid forest zone of Anglophone West and Central Africa, men made reservations about allowing their wives to plant trees (Dykstra et al., 1996). Tree planting by women was allowed depending on the prolonged stay of the wife to ensure that she will not leave the household because if she leaves, she may later come back to claim the fruits of her tree and cause problems for the husband. Furthermore, access to certain species and use of various parts of the tree are also gendered, and in most cases, men have complete authority over valuable products (Kiptot and Franzel, 2012; Ajayi et al., 2013). However, this differs among communities (Kiptot, 2015).

Land allocations for women are further coupled with myriads of disadvantages. Land tenure is associated with the social stratification system in a community (Olawoye, 1996). Each community is separated into social strata based on indicators such as occupation, education, age, wealth, authority or influence, gender, ethnic origins, religion, and so on (Olawoye, 1996). The traditional council in the Équateur Province of the DRC for example made decisions about village land allocations and enforces property rights over the village forests (Samdong and Kjosavik, 2017). Olawoye (1996) particularly notes that gender is a significant determinant of the rights and conditions regarding the planting of trees and the use

of land on the African continent. Further, where women have been advantaged to be allocated land, it is in unproductive areas with minimal returns. For example, the plots given to women in Burkina Faso for their cultivation tend to be situated on less fertile ground and women have difficulties getting inputs such as fertilizers to improve the soils (Coulibaly, 1994). If the women own land, they tend to be smaller acreage than men, thus limiting the use of modern equipment and their access to credit (Boafo, 2000). However, it has been argued that opportunities given to rural women to have access to land in most forest villages have promoted tree retention and cultivation in the rural farming systems (Ajake and Abua, 2015).

Illiteracy has also hindered women toward participation in decision-making. Charrouf and Guillaume (2009) noted that women are illiterate and constitute the weakest and most vulnerable segments of society, thus affecting decision-making. The educational level of women was found to be lower than that of men as revealed by several authors (Awono et al., 2010; Saguye, 2011; Ngono and Munongo, 2014). The ability to write and read was found to be an essential requirement for membership in some committees. In DRC, a woman is allowed to take part in forestry committees if she can read, write, and express herself well in public meetings (Stiem and Krause, 2016). The level of women's education and socio-cultural norms, among other factors, hindered their participation in forest user councils in Kenya (Mogoi et al., 2012) and the preparation of agreements. Mogoi et al. (2012) argue that leadership requires a high level of literacy, thus excluding women. For example, in Tanzania, the preparation of agreements involved people of secondary education and above (Mukama et al., 2012).

Educated members are perceived to be more capable of influencing the process and negotiating in decision-making, thus holding key positions in forest user groups, which increases their chance of being involved in decision-making forums (Koech et al., 2009; Adams et al., 2017). A substantive level of education was a requirement for membership in Kakamega Forest in Kenya (Agevi et al., 2014; Andole et al., 2020). Mostly, women in Africa also lag behind in acquiring skills in modern technologies, and especially rural women receive little or no financial support from their husbands (Boafo, 2000). Security is also a concern for more vulnerable women if they travel long distances or travel by themselves (Himberg et al., 2009; Shackleton et al., 2011). Logistical barriers such as fear of wild animals (Mogotsi et al., 2016) and sexual harassment from male colleagues in the forest (Mogotsi et al., 2016) further hinder women from participating in forest management activities. Studies by Satyanarayana et al. (2012) and Duguma et al. (2020) established that inadequate transport facilities in rural areas limit women from attending regular meetings and participate in activities and key decisions making related to community forests management.

Perceptions toward echoing women's forests in SFM

Increasing women's participation in forest decision-making forums improves forest sustainability and could give women more opportunities to raise their voices, present their concerns, point out their views and needs, and participate in the policy-making processes (Marin and Kuriakose, 2017). However, the exploitation of forestry resources has been considered an exclusive domain of men where resources and production are controlled exclusively by men (Coulibaly, 1994). This has contributed to women depending on men to exploit forestry resources and the subsequent forest management decisions. Generally, women participate in projects but, in most cases, they only execute what has been decided; all the background work is monopolized by men (Coulibaly, 1994). Since forestry activities are activities dominated by men USAID (United States Agency for International Development) (USAID, 2006) advises for an in-depth gender training for all actors, going beyond just having a gender balanced team. USAID (2006) and Timko et al. (2010) agree that if the local staff does not receive gender training, they will usually follow the socio-cultural norms and will not promote women's participation.

Equal gender representation in SFM structures is vital for women's inclusion and participation. However, the representation of women in CFs committees is low (Mogotsi et al., 2016). Women are not involved in decision-making on forest issues and have lesser roles in decision-making (Ifegbesan et al., 2016). Agarwal (2009) reported a positive relationship between number of women in executive positions in community forestry and the degree of forest conservation. Similarly, in villages with higher women's participation in the executive committees (EC), women tend to participate in patrolling and were more likely to observe the rules when they were part of the committees. To enhance the benefits that women derive from REDD+ and related programs, USAID (2011) indicates that projects need to support women's participation in leadership forums, training, economic development opportunities, and resource rights access for instance access to forest resources which women depend on for their livelihoods.

Women's bargaining power for equal inclusion in decision-making processes and for sharing benefits are constrained by existing social norms regarding local access to land and material resources, existing gender division of labor, local perceptions regarding women's roles and contributions/responsibilities, as well as men's dominant position in rural settings (Samndong and Kjosavik, 2017). However, Stiem and Krause (2016) argue that a woman's higher level of education can weaken gender-regressive social norms and perceptions, such as norms regarding women's participation in the public sphere or perceptions of their ability to contribute effectively to SFM. Educated women feel more comfortable participating in public forums when better

educated, as evidenced by the strong link between school education and the level of self-confidence and French-language skills (Stiem and Krause, 2016) in the DRC. However, the main risks these groups could face are elites appropriating land rights and restricting access to forest livelihoods lacking compensation (Larson et al., 2016).

The women folk remain essential in land utilization. Land tenure ownership and active participation play important roles in women's activities and decisions over their access and use of forest resources (Chiwona-Karlun et al., 2017). Kaganga and Ndumbaro (2017) in their study in Tanzania, Njombe District noted that married women were more informed on the wood resources than married men but lacked participation in decision making; they could not, for example, respond to some questions on land ownership. It has been argued by Ajake and Abua (2015) that although women have limitations due to their disadvantaged position in land and tree tenure, among other things, they have the potential and opportunities to ensure sustainable use and management of forest resources when their rights to land ownership are assured. Ajake and Abua (2015) recommended that tenure practices such as land tenure, forest tenure, and common property resource ownership should be regulated and encouraged for their effective influence on forest utilization and management. However, resolving the issue of socially imposed land and tree tenure restrictions for rural women will not occur through legislation or confrontation (Dykstra et al., 1996). Dykstra et al. (1996) emphasize that sustainable development strategies must work within the framework, not destroy the cultural identity.

Gender and age differentiation in decision making

Gender roles are mediated by several factors including age and social status of the individual. In the SFM narrative, age plays a key role in Africa in the decision-making process, institutional structure arrangements, and influencing forest resource use, access and management (Samndong and Kjosavik, 2017). To illustrate, older adults are associated with leadership and decision-making positions (Njera et al., 2017). Women are consulted if only they are elderly or have specific knowledge on specific issues. Therefore, women do not talk or argue in public, especially before older men (Khatun et al., 2015). Older women are respected and, in some cases, are invited to some village traditional council meetings. In the Usambara Mountains of Tanzania, the representation of women's interests is frequently in the hands of a few active individuals, many of them elderly widows who have fewer domestic chores and no husband to contest spending time outside the home (Rantala et al., 2012). Using REDD+ pilot project in DRC as a case study, Samndong and Kjosavik (2017) points out how age and wealth of knowledge accumulated by women are power and action resources that can influence their ability to have more control on

SFM decision making process. The study suggests that including elder women in the decision-making process could be a game changer in enhancing women involvement in SFM decision making process.

The importance of age dimension is also emphasized by Mhache (2018), noting that whereas forests management is largely perceived as a male role, gender age is crucial in determining the levels of understanding of forests management and conservation in Tanzania. As such, women can explore age as an entry point to enhance their active participation in SFM within their localities. This can be complemented through deliberate capacity building activities to women through among others training and research of different aspects of SFM. As established earlier, increased knowledge is essential for giving women voices and involving them in decision making process.

Conclusion

Women bring distinctive interests and values to forest management. However, there is no clear understanding of how women are engaged in forest management practices in Africa. This study sought to examine different engagement models describing women's engagement in forest management, their effectiveness toward enhancing women's contributions, and how they can be enhanced or advanced to integrate women's valuable knowledge and decisions toward SFM inclusively across Africa. It discussed various bottlenecks hindering women from effective sustainable engagement, including division of labor, gender inequality in forestlands ownership, social norms and values related to power access, rules of entry and practice, inequality in decision making, as well gendered perception on forestry management and benefits sharing. Different pathways are suggested to promote women engagement in sustainable forestry management. Such pathways include women empowerment and capacity building to boost their confidence in forestry decision making processes, deliberate inclusion of women in forest management committees that are involved in decision making process from design to implementation, giving women direct access, ownership and control of forestlands, and enhanced democracy in social institutions and groups to allow more effective women involvement in the management process. Improving the communication and information structures in different engagement models was also considered an effective way to allow women participation in decision making process. It is, however, noted that these pathways need to be contextualized to match the community context due to social and institutional diversity across Africa. A one-fits-all approach can yield varying levels of successes and failures in different ecological and sociocultural contexts. This review suggested more context-specific studies and reports to establish the dynamics of women engagement in different areas. It also noted that the study was limited to the published documents, some of which were dropped due to subscription to access the full

documents, which might have affected their randomization. It is essential to go beyond the published articles to also interrogate specific community forests reports and management plans to understand their dynamics in women engagement. The study is an important starting point in such engagement and provides general pathways that can be tweaked to enhance women participation in sustainable forest management.

The current study relied on a review of existing published materials and it would be necessary to further explore the gradual changes in women's active engagement in forest management using field-level case studies in the near future.

Data availability statement

The original contributions presented in the study are included in the article/[Supplementary material](#), further inquiries can be directed to the corresponding author/s.

Author contributions

LD and JN conceived the study, methodology, and formal analysis. EO and KM supported in writing the manuscript and data file management. PW, PM, and KM reviewed the initial draft and made inputs to the manuscript. All authors contributed to the review, editing, and approval of the submitted draft.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/ffgc.2022.948618/full#supplementary-material>

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