

Assessment of the Level of Stakeholder Involvement in Kakamega Tropical Rainforest Conservation and Management on Household Livelihoods in Western Kenya

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ABSTRACT

This study assessed the level of stakeholders' involvement in Kakamega Tropical Rainforest conservation in promoting sustainable household livelihoods. The study applied the theories of Firey's (1960) Man, Mind and Land: A Theory of Resource Use and Sustainable Livelihoods Approach. The study was conducted in Shinyalu, Hamisi and Malava Sub-counties in Vihiga and Kakamega Counties. The study was descriptive and explanatory in design and relied on a mixed methods methodology. The target population was households in the selected communities neighbouring Kakamega tropical rainforest in western Kenya. Methods of data collection included: Questionnaire, Key Informant Interviews, Focus Group Discussions and Direct Observation. The questionnaire provided quantitative data, which were fed in SPSS version 23.0. Qualitative data obtained from the key informants' interviews and the focus group discussions was fed in NVivo 11. A rising from the research findings, it can be concluded that the level of stakeholder involvement in Kakamega tropical rainforest conservation and management on household livelihoods in Western Kenya includes; local communities are involved in the process of forest resource management, local communities are involved in rehabilitation of degraded areas, and local communities are involved in the conservation activities. The study recommends that training should be offered to stakeholders so that they can be fully involved in management, rehabilitation and conservation of Kakamega tropical rainforest.

Keywords: Stakeholders, conservation, sustainable livelihoods.

INTRODUCTION

Stakeholder involvement has become a central principle of sustainable forest management because it recognizes that conservation outcomes are more effective when local communities, government agencies, civil society organizations, research institutions, and the private sector participate in planning, implementation, monitoring, and benefit-sharing. The shift from centralized forest governance toward participatory approaches has been driven by evidence showing that exclusion of local communities often results in resource conflicts, illegal extraction of forest products, and weak conservation outcomes. International frameworks such as the Convention on Biological Diversity (CBD), the Sustainable Development Goals (SDGs), and the United Nations Decade on Ecosystem Restoration emphasize inclusive governance as a prerequisite for biodiversity conservation and sustainable livelihoods. Participatory Forest Management (PFM) has become the dominant governance approach in many developing countries because it promotes shared responsibilities between governments and forest-adjacent communities. Under PFM, local people participate through Community Forest Associations (CFAs), joint planning committees, conservation groups, and collaborative resource management arrangements. Studies indicate that active stakeholder participation increases compliance with conservation regulations, enhances transparency, improves conflict resolution mechanisms, and strengthens local ownership of conservation initiatives (Mbeche et al., 2021).

Arnstein's Ladder of Citizen Participation remains useful in evaluating stakeholder involvement because it distinguishes between passive consultation and genuine citizen power. Higher levels of participation—including partnership, delegated authority, and citizen control—are associated with stronger conservation outcomes than

lower levels such as information sharing or consultation only. Recent studies similarly argue that meaningful participation requires stakeholders to influence decision-making rather than merely attend meetings (Osewe et al., 2025).

The Kakamega Tropical Rainforest represents Kenya's only remaining tropical rainforest and is recognized internationally for its exceptional biodiversity. The forest supports numerous endemic plant and animal species while providing critical ecosystem services including carbon sequestration, climate regulation, water catchment protection, pollination, medicinal plants, and non-timber forest products. However, increasing population pressure, agricultural expansion, illegal logging, charcoal production, fuelwood harvesting, and infrastructure development continue to threaten the forest ecosystem (Osewe et al., 2025).

Conservation and management of Kakamega Forest involve multiple stakeholders including: Kenya Forest Service (KFS), Kenya Wildlife Service (KWS), Kenya Forestry Research Institute (KEFRI), Community Forest Associations (CFAs), County Government of Kakamega, Non-governmental organizations, Community-based organizations, Local households, international conservation partners, Academic and research institutions. The Forest Conservation and Management Act (2016) institutionalized participatory forest management in Kenya by recognizing Community Forest Associations as legitimate partners in forest governance. Through Participatory Forest Management Plans (PFMPs), communities are expected to participate in forest protection, restoration, ecotourism development, environmental education, and sustainable utilization of forest resources.

Despite these policy provisions, empirical evidence suggests that stakeholder participation within Kakamega Forest remains uneven. Oumaa and Stadel (2021) observed that many conservation initiatives continue to impose resource-use restrictions without sufficiently integrating livelihood improvement strategies, thereby weakening community motivation for conservation.

Similarly, Osewe et al. (2025) found that although local communities recognize numerous ecosystem services provided by the forest, participation in conservation activities varies considerably according to age, gender, education, income levels, and dependence on forest resources. Their mixed-method study identified twenty ecosystem services valued by local residents but concluded that stronger community engagement is still needed to improve sustainable management.

Research from Kenya indicates that participation is generally higher during implementation activities such as tree planting and forest patrols than during strategic decision-making processes. Mbeche et al. (2021), studying Participatory Forest Management in the Mt. Elgon ecosystem, reported moderate participation levels across planning (41%), implementation (49%), and monitoring and evaluation (42%), suggesting that communities remain underrepresented in critical governance processes. Factors such as expected forest benefits, collective action, access to extension services, and gender significantly influenced participation.

Comparable observations have been made in Kakamega Forest where Community Forest Associations frequently participate in conservation implementation but possess limited influence over policy decisions, financial management, and allocation of conservation benefits (Laura et al., 2020). Meaningful stakeholder engagement also requires continuous communication, transparency, accountability, and equitable representation of women, youth, indigenous communities, and marginalized groups. Recent literature emphasizes that participation should move beyond consultation toward collaborative governance where stakeholders jointly determine conservation priorities (Osewe et al., 2025).

Forest-adjacent households depend heavily on Kakamega Forest for timber, fuelwood, medicinal plants, fodder, wild fruits, honey, mushrooms, water resources, and ecotourism opportunities. Consequently, conservation strategies directly influence household livelihoods. Numerous studies demonstrate that stakeholder involvement enhances livelihoods through: Improved access to forest resources, Income diversification, Employment opportunities, Ecotourism development, Agroforestry promotion, Capacity building and Environmental education. Participatory conservation increases local ownership while reducing illegal forest exploitation because communities perceive tangible benefits from sustainable resource management. Conversely, exclusion from conservation decisions often leads to resistance, illegal harvesting, and conflicts with forest authorities. Oumaa and Stadel (2021) found that livelihoods around Kakamega Forest remain weakly connected to

conservation initiatives. Unlike successful international models where conservation generates substantial local income, most households surrounding Kakamega continue relying on small-scale agriculture and subsistence forest extraction. The study recommends stronger integration of conservation with livelihood development through ecotourism, sustainable enterprises, and community partnerships.

Community participation is increasingly recognized as an important component of successful forest rehabilitation and restoration. Contemporary restoration approaches emphasize that local communities should not be treated merely as beneficiaries of conservation programmes but as active participants in planning, implementation, monitoring, and maintenance of restored forest areas. A recent systematic review found that effective forest rehabilitation requires meaningful community involvement alongside transparent governance and government support. The review further noted that community participation is particularly important in tropical forests, where local people often have extensive knowledge of forest resources and depend directly on ecosystem services for their livelihoods (Kumar et al., 2025).

Evidence from the Kakamega Forest landscape provides particularly strong support for the finding. Gitonga and Likhoto (2025) argue that community forest associations (CFAs) provide important pathways for forest landscape restoration in the Kakamega Forest landscape. CFAs facilitate collective participation by local people in forest management and restoration activities and can strengthen the adoption of forest landscape restoration practices. Their study emphasizes that the involvement of local people and other stakeholders is necessary for successful restoration and that community-based institutions can enhance local participation in restoration initiatives.

Recent studies similarly reveal that socioeconomic inequalities influence access to ecosystem services and conservation benefits. Households with greater access to information, education, organizational membership, and conservation programs tend to benefit more than marginalized households. This highlights the need for equitable benefit-sharing mechanisms within participatory forest management systems (Osewe et al., 2025).

Despite policy support for participatory forest management, several challenges continue limiting effective stakeholder engagement in Kakamega Forest. Major constraints identified in recent studies include: Limited financial resources, Inadequate benefit sharing, Weak institutional coordination, Conflicts over resource access, Low community awareness, Gender inequalities, Elite capture within Community Forest Associations, Human-wildlife conflicts, Population pressure, Poverty and dependence on forest products. These challenges reduce incentives for conservation and weaken community trust in forest governance institutions. Osewe et al. (2025) further report that balancing biodiversity conservation with socioeconomic needs remains one of the greatest management challenges facing Kakamega Forest. They recommend strengthening participatory governance, improving conservation financing, expanding livelihood diversification programs, and enhancing collaboration among government agencies, researchers, and local communities.

Although numerous studies have examined biodiversity conservation, ecosystem services, participatory forest management, and community livelihoods in Kakamega Forest, several research gaps remain. Most existing studies have focused on ecosystem service utilization, forest cover change, biodiversity conservation, or general community participation rather than comprehensively assessing the level of stakeholder involvement across multiple stakeholder categories and its influence on household livelihoods. Furthermore, limited empirical evidence evaluates stakeholder participation across the entire conservation cycle including planning, decision making, implementation, monitoring, evaluation, and benefit-sharing and quantitatively links these participation levels with livelihood outcomes. This study therefore sort to bridge this gap by assessing the level of stakeholder involvement in Kakamega Tropical Rainforest conservation and management and examining how varying levels of participation influence household livelihoods in Western Kenya.

RESEARCH METHODOLOGY

Research Design

The research described here was descriptive and cross-sectional in design and it relied on a mixed methods methodology. The researcher surveyed the general population over their opinions and views about stakeholders'

involvement in forest conservation and sustainability of household livelihood. The researcher also deeply interrogated key informants and explored focus group discussions with experts on the matter of stakeholders' involvement in forest conservation and report their narratives.

Study Approach

The approach adopted for this study was essentially bottom-up in the sense that it takes into account the knowledge based practices and perceptions of the target beneficiaries by gender and status. This approach helped in generating data on experiences and understanding of the stakeholders involvement in forest conservation on the sustainability of household livelihoods. By targeting the different stakeholders, it elicited the role of charismatic leaders, group dynamics and cultural influence in these processes (Vertigans, 2008). The study was a multi-stakeholder survey taking into consideration a myriad of factors including patriarchy, gender roles, age factors, lifestyle factors, technological factors, location specific factors and social status in understanding and addressing forest conservation.

Sampling

Using the Morgan & Krejcie (1970), formula for sample estimation, the researcher selected 384 cases using stratified simple random sampling for questionnaire administration to the general population. Sixteen focus group discussions were planned and held in communities, 8 in each of the 2 ethnic groups. Participants in each FGD were recruited purposively using convenience sampling. In addition, 12 direct and structured observations were made, 6 in each ethnic set up. Finally, 10 purposively enlisted key informants were interviewed in each set up to offer a total of 20 key informants. Key informants were be enlisted using purposive sampling, based on objectives of the interviews.

Data Presentation and Interpretation of Findings

Demographic and Socio-Economic Characteristics of Heads of Households

Table 1: Demographic and Socio-Economic Characteristics of Heads of Households

Characteristic		Number	Percentage
Gender	Male	288	75
	Female	96	25
	Total	384	100
Age	20-30 years	50	13
	31-40 years	73	19
	41-50 years	221	57.6
	51 years and above	40	10.4
	Total	384	100
Education	Primary	50	13
	Secondary	80	20.8
	Tertiary	254	66.2
	Total	384	100
Work	Peasant	200	52.1
	Civil Servant	24	6.3
	Business person	60	15.6
	Large scale farmer	100	26
	Total	384	100
Income	Less than 10,000	100	26
	11,000-20,000	195	50.8%
	21,000-30,000	55	14.3
	31,000-40,000	20	5.2

	Above 40,000	14	3.7
	Total	384	100
Stay	Less than 1 year	5	1.3
	1-5 years	25	6.5
	6-10 years	70	18.2
	Over 10 years	284	74
	Total	384	100

Source: Research findings (2026)

The study sought to find out the gender of the heads of households, majority 288(75%) of the respondents indicated they were male while 96(25%) of them were female. This implies that most of the heads of households were male.

The heads of households were asked about their age, majority 221(57.6%) of the heads of households indicated they were 41-50 years, 73(19%) were 31-40 years, 50(13%) were 20-30 years, while 40(10.4%) of them were 51 years and above. This shows that most of the heads of households were aged 41-50 years.

The heads of households were also asked to indicate their level of education, majority 254(66.2%) of the indicated they had tertiary education, 80(20.8%) indicated they had secondary education while 50(13%) of them indicated they had primary education. The means that, most of the heads of households had tertiary education as their highest level of education.

The study further sought to uncover from the heads of households, their nature of work they do, majority 200(52.1%) of the heads of households indicated they work as peasants, 100(26%) work as large scale farmers, 60(15.6%) work as business person, while 24(6.3%) work as civil servants. This shows that most of the heads of households work as peasants.

The study also sought to reveal the heads of households' income per month, majority 195(50.8%) of the heads of households indicated they earn 11,000-20,000, 100(26%) earn Less than 10,000, 55(14.3%) earn 21,000-30,000, 20(5.2%) earn 31,000-40,000, while 14(3.7%) of them earn Above 40,000. This shows that most of the heads of households earn 11,000-20,000 as monthly income.

Finally, the study sought to reveal the heads of households' duration of stay at their area, majority 284(74%) of the heads of households indicated they have lived in their area for over 10 years, 70(18.2%) for 6-10 years, 25(6.5%) for 1-5 years, while 5(1.3%) of them for less than 1 year. This implies that most of the heads of households have lived in their area for over 10 years.

Demographic and Socio-Economic Characteristics of Government Officials

Table 2: Demographic and Socio-Economic Characteristics of Government Officials

Characteristic		Number	Percentage
Gender	Male	5	25
	Female	15	75
	Total	20	100
Age	20-30 years	1	5
	31-40 years	4	20
	41-50 years	11	55
	51 years and above	4	20
	Total	20	100
Education	Primary	0	0
	Secondary	0	0

	Tertiary	20	100
	Total	20	100
Nature of Work	Peasant	0	0
	Civil Servant	20	100
	Business person	0	0
	Large scale farmer	0	0
	Total	0	100
Income per month	Less than 10,000	0	0
	11,000-20,000	2	10
	21,000-30,000	4	20
	31,000-40,000	6	30
	Above 40,000	8	40
	Total	20	100
Duration of Stay	Less than 1 year	0	0
	1-5 years	2	10
	6-10 years	10	50
	Over 10 years	8	40
	Total	20	100

Source: Research findings (2026)

The study sought to reveal the gender of government officials, majority (15(75%)) of the government officials indicated they were female while 5(25%) of them indicated male. This shows that most of the government officials were female.

The study revealed that most 11(55%) of the government officials indicated that they were aged 41-50 years, 4(20%) were 31-40 years, 4(20%) were 51 years and above, while 1(5%) were aged 20-30 years. This means that most of the government officials were aged from 41-50 years.

The study also revealed that all 20(100%) of the government officials had tertiary education as their level of education. This shows that all of the government officials have tertiary education as their highest education.

The study established that all 20(100%) of the government officials indicated civil servants as their nature of work. This implies that all government officials are civil servants.

The study also established that most 10(50%) of the government officials their income per month is 31,000-50,000, 8(40%) earn above 50,000, while 2(10%) of them earn 10,000-30,000. This shows that most of the government officials earn 31,000-50,000 as their income per month.

The study further revealed that most 10(50%) of the government officials indicated that they have worked for 6-10 years in their area, 8(40%) have worked for over 10 years, while 2(10%) of them have worked for 1-5 years. This shows that most of the government officials have worked for 6-10 years in their area.

Level of Stakeholder Involvement in Kakamega Tropical Rainforest Conservation and Management on Household Livelihoods

The objective of the study was to assess the level of stakeholder involvement in Kakamega tropical rainforest conservation and management on household livelihoods in Western Kenya. To achieve this, both the heads of households and government officials respondents were asked to indicate their level of agreement/disagreement on the statements in table 3 and table 4 and the findings were as follows;

Table 3: Level of Stakeholder Involvement in Kakamega Tropical Rainforest Conservation and Management on Household Livelihoods (Heads of Households)

Responses	Strongly Agree	Agree	Disagree	Strongly Disagree
Local communities are involved in the process of forest resource management	200(52.1%)	150(39.1%)	34(8.9%)	
Local communities are involved Rehabilitation of degraded areas	194(50.5%)	100(26%)	60(15.6%)	30(7.9%)
Local communities are involved in the Conservation activities	100(26%)	250(65.1%)	20(5.2%)	14(3.7%)

Source: Research findings (2026)

When the heads of households were asked whether local communities are involved in the process of forest resource management, majority 200(52.1%) of the heads of households strongly agreed, 150(39.1%) agreed, while 34(8.9%) of them disagreed as shown in table 3 above. This shows that most of the heads of households strongly agreed that local communities are involved in the process of forest resource management. This confirms assertions by Mbeche et al., (2021) who indicated that active stakeholder participation increases compliance with conservation regulations, enhances transparency, improves conflict resolution mechanisms, and strengthens local ownership of conservation initiatives.

The study findings established that majority 194(50.5%) of the heads of households strongly agreed that local communities are involved rehabilitation of degraded areas. 100(26%) agreed, 60(15.6%) disagreed, while 30(7.9%) strongly disagreed as shown in table 3 above. This means that most of the heads of households strongly agreed that local communities are involved rehabilitation of degraded areas. This is in support of Kumar et al., (2025) who argued that community participation is increasingly recognized as an important component of successful forest rehabilitation and restoration. Contemporary restoration approaches emphasize that local communities should not be treated merely as beneficiaries of conservation programmes but as active participants in planning, implementation, monitoring, and maintenance of restored forest areas. A recent systematic review found that effective forest rehabilitation requires meaningful community involvement alongside transparent governance and government support.

The study findings also established that majority 250(65.1%) of the heads of households agreed that local communities are involved in the conservation activities. 100(26%) strongly agreed, 20(5.2%) disagreed, while 14(3.7%) of them strongly disagreed as shown in table 3 above. This implies that most of the heads of households agreed that local communities are involved in the conservation activities. This is in line with Laura et al., (2020)'s observation that Community Forest Associations frequently participate in conservation implementation but possess limited influence over policy decisions, financial management, and allocation of conservation benefits.

Table 4: Level of Stakeholder Involvement in Kakamega Tropical Rainforest Conservation and Management on Household Livelihoods (Government Officials)

Responses	Strongly Agree	Agree	Disagree	Strongly Disagree
Local communities are involved in the process of forest resource management	16(80%)		3(15%)	1(5%)
Local communities are involved Rehabilitation of degraded areas	15(75%)		2(10%)	3(15%)
Local communities are involved in the Conservation activities	16(80%)		4(20%)	

Source: Research findings (2026)

The study revealed that majority 16(80%) of the government officials strongly agreed that local communities are involved in the process of forest resource management. 3(15%) disagreed, while 1(5%) of them strongly disagreed as shown in table 4 above. It shows that most of the government officials strongly agreed that local communities are involved in the process of forest resource management. This confirms Gitonga and Likhoto (2025)'s argument that community forest associations (CFAs) provide important pathways for forest landscape restoration in the Kakamega Forest landscape. CFAs facilitate collective participation by local people in forest management and restoration activities and can strengthen the adoption of forest landscape restoration practices.

The study also revealed that majority 15(75%) of the government officials strongly agreed that local communities are involved rehabilitation of degraded areas, 3(15%) strongly disagreed, while 2(10%) of them disagreed as shown in table 4 above. It implies that most of the government officials strongly agreed that local communities are involved rehabilitation of degraded areas. This is in agreement with Kumar et al., (2025) who averred that forest rehabilitation requires meaningful community involvement alongside transparent governance and government support.

The study further revealed that majority 16(80%) of the government officials strongly agreed that local communities are involved in the conservation activities, while 4(20%) of them disagreed as shown in table 4 above. It implies that most of the government officials strongly agreed that local communities are involved in the conservation activities. This supports Osewe et al., (2025) who emphasized that participation should move beyond consultation toward collaborative governance where stakeholders jointly determine conservation priorities.

SUMMARY OF THE FINDINGS

Level of Stakeholder Involvement in Kakamega Tropical Rainforest Conservation and Management on Household Livelihoods

The objective of the study was to assess the level of stakeholder involvement in Kakamega tropical rainforest conservation and management on household livelihoods in Western Kenya. The study revealed that 52.1% of heads of households and 80% of government officials strongly agreed that local communities are involved in the process of forest resource management.

50.5% of heads of households and 75% of government officials strongly agreed that local communities are involved rehabilitation of degraded areas. 65.1% of heads of households and 80% of government officials agreed that local communities are involved in the conservation activities.

CONCLUSION OF THE STUDY

The level of stakeholder involvement in Kakamega tropical rainforest conservation and management on household livelihoods in Western Kenya includes; local communities are involved in the process of forest resource management, local communities are involved rehabilitation of degraded areas, and local communities are involved in the conservation activities.

RECOMMENDATIONS

Training should be offered to stakeholders so that they can be fully be involved in management, rehabilitation and conservation of Kakamega tropical rainforest.

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