

Figure 2: Membership into the CFA and CBOs around the forest

Men formed largest number (52.52%) in terms of membership as compared to women (47.48%) as in table 2. Most women join the CFAs and CBOs because of the benefits they get like energy saving jikos, provision of poultry to begin poultry farming and payment for some of the labour they provide. Men who had the highest membership felt it wise to join as there are many benefits that CFAs offer to them. Most cited as benefits they obtain when there is a project being conducted around the forest and is fully funded.

Table 2: Membership into CFA and CBO

CFA/CBO	Number	Male	Female
MUSHA	36	21	15
SHAMU	23	16	07
IKUCHI	12	5	07
KAKOFA	16	10	06
BUSH	36	19	17
KEEP	71	39	32
Bunyala CFA	31	17	14
Kibiri CFA	31	23	08
Totals	252	150	102
		52.52%	47.48%

3.3 Membership of the CFAs by age

Majority of men (78%) of membership into the CFAs are within the age bracket of 31-40 while females (54%) who are members are in the age bracket of over 40 years as in figure 3. From the interviews, it was found that most youth below age of 31 years could have left the villages to urban areas to look for other alternatives of livelihoods. Other people within this age bracket are least interested in being involved in forest management activities. Women over 40 years are active in terms of membership into these CFAs and CBOs as they mostly access things from the forest and thought it wise joining because they are likely to benefit while they inside those forest associations.

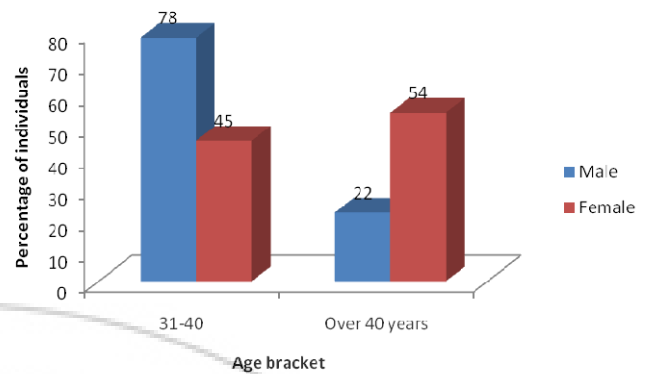


Figure 3: Membership into the CFAs according to age classes.

The relationship between CFA membership and gender had some significance hence gender is an important determinant in household decision to join CFA ($\chi^2=3.71$, $p=0.05$). More so, gender had a significant influence on participation of community members in forest conservation irrespective of CFA membership ($\chi^2=4.173$, $p=0.04$). The reasons behind this varied; some had to spend more time either working some casual jobs or involvement in other activities that would generate income. Many women took care of the homes and food production was solely their responsibility. Most activities performed by CFAs like tree planting cannot be done by women due to the culture of the people living around the forest.

3.4 Education level of the respondents

Members interviewed and who were members of the CFAs and CBOs around the forest had substabtive level of education. 46% had primary level of education while 35% had atleast reached secondary level of education as in figure 4. Some members of the CFA still were uneducated in the region.

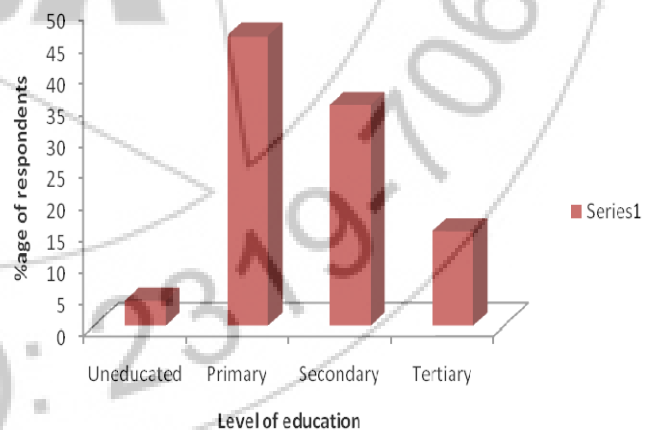


Figure 4: Level of education of the CFA members

3.5 Reason for joining CFAs/CBOs

Reasons as to why local communities joined the CFAs and CBOs gratly varied as shown in table 3. Most women (77%) believed joining CFAs and CBOs they will be able to access most of the forest products. None of the women suggested reasons for joining the forest is to rehabilitate degraded forest areas since they are not allowed to plant trees in their

culture. Men (19%) joined in order to be included in benefits resulting from PFM like energy saving jikos. Men are mostly involved in the rehabilitation and especially of the degraded areas of the forest and are willing to do so sustainably so that the future generations will enjoy the benefits of conserving the forest.

Table 3: Reasons for joining the Community Forest Associations (CFAs)

Reasons for joining associations	Men	% of men	women	% of women
To access forest products	34	26	50	77
To be included in the benefits resulting from PFM	27	19		
To gain more knowledge/skills	20	12	20	9
Pressure from friends and family	14	9		
To be included in the management of the forest	11		13	6
To rehabilitate degraded forest areas	32	2.9	18	8
To protect the forest for future generations	20	7.1		
Others	7	4		
TOTAL	152	100	68	100

3.6 Productivity of the CFAs and CBOs

The productivity and effectiveness of these CFAs and CBOs towards effective management of forests depends on a number of salient issues. Among the people interviewed, it was evident that 56% attends meetings called by the CFA and CBO officials as in table 4. Only 63% admitted that they hold elections as per the constitutions governing the CFAs and CBOs. Among the leaders elected to hold various positions in the associations, 78% of the leaders are male while only 22% are female.

Table 4: Productivity of the CFAs and CBOs

Issue	%age	
Attendance of meetings	56	
Holding of elections	63	
Leadership roles by gender	Males	Females
	78	22

3.7 Perceptions of CFAs by the Forest Adjacent communities

Perceptions of the FACs about CFAs. Majority (upto 77%) of those interviewed were in agreement that the level of participation by local communities was adequate and this was corroborated by 89% who either agreed or strongly agreed that the CFAs were representative of the FACs, Table 5. Subsequently at least 56% agreed or strongly agreed that the CFAs will lead to improved socio-economic status of the FACs. However upto 22%, 11% and 11% were either undecided, disagreed or strongly disagreed respectively with the statement. Similarly 44% and 33% respectively agreed or strongly agreed that there has been reduced poaching due to the CFAs. On the contrary 23% disagreed with the statement. The 5 km distance from the forest boundary as the limit to FACs had 56% of the respondents disagreeing that it was adequate. The results show that there is some relative awareness about the presence of CFAs as well as their roles.

3.8 Challenges facing CFAs and CBOs

During the focussed group discussions and interviews with the officials of these CFAs, It was evident that they face a lot of challenges among them include: Lack of adequate capacity by the Community Forest Associations in controlling the illegal activities in Kakamega Forest. Moreover the Community Scouts require incentives e.g. allowances, insurance cover, Identification Documents and Uniform, Inadequate funds, transport facilities and equipment.

Table 5: Perceptions of CFAs by Forest Adjacent Communities (FACs)

	The level of participation in management by local communities is adequate	The CFAs are representative of all forest adjacent communities (FACs)	The CFAs will lead to improved socio-economic status of FACs	There have been reduced forest poaching due to the CFAs	The 5Km distance from the forest boundary is adequate to be referred to as FACs	Average
Strongly Disagree (%) -SD	12	0	11	0	0	4
Disagree (%) -D						22
Undecided (%) -UD	0	0		0		7
Agree (%) -A	33	67	44	44	22	42
Strongly Agree (%) -SA	44	22	12	33	11	24
Total	100	100	100	100	100	100

Ban on tree harvesting has greatly reduced revenue collection, Inadequate staffing especially of Rangers, subsistence allowance and tools of trade, inadequate offices, residential houses (and their maintenance) including equipping the offices with ICT facilities, furniture, Electric power and water connectivity, casuals' budget, which is the main source of labour, is low considering that forestry is labour intensive, Low staff morale as the reforms are not moving on fast enough.

3.9 Perceptions on Management and Laws of KWS and KFS as regards natural tropical forests

The interviews also sort to establish the perceptions of the people on the management and laws of KWS and KFS (table 6). 33% disagreed that the Management objectives of KWS and KFS were adequate, with another 11% strongly disagreeing as regards KFS. 34% and 22% however agreed that the management objectives of KWS and KFS were adequate with another 12% strongly agreeing about KFS. 78% and 22% of the respondents either were undecided or

disagreed that many people were aware about the new Forest regulations and laws. 0% either agreed/strongly agreed about the same. 56% and 44% disagreed that there was adequate enforcement of Forest Act and KWS Act while 63% of the respondents disagreed that the compliance with the laws was adequate. The results indicate a lack of awareness of the relevant acts that govern the management of the forest hence

low compliance. There needs to be a campaign around the FACs to create awareness of the relevant regulatory frameworks entailing the role of the government vis-a-vis the communities. This is even more important as the governance systems are aligned to county government to avoid NRM conflicts.

Table 6: Perceptions on Management and Laws of KWS and KFS as regards natural tropical forests

	Management objectives are adequate from KWS	Management objectives are adequate from KFS	Many people are aware of the new Forest regulations/ laws	Enforcement of the Forest Act is Adequate	Enforcement of the KWS Act is Adequate	The compliance with the laws is adequate	Average
Strongly Disagree (%) -SD	0	11	0	0	12	0	4
Disagree (%) -D	33	33	22	56	44	63	41
Undecided (%) - (UD)	33	22	78	22	33	25	36
Agree (%) - A	34	22	0	22	11	12	17
Strongly Agree (%) - SA	0	12	0	0	0	0	2
Total	100	100	100	100	100	100	100

4. Discussion

It was evident that adherence to the regulations governing Forest Act, 2005 are being followed with the CFAs formed around the Kakamega Forest ecosystem (GOK, 2005). The CFA have a management plan with KFS which gives them a stake in the way the forest is managed and can share in the revenue resulting from the management of the forest. Membership into the CFAs based on gender appears to be skewed most towards men. Most men have joined the associations due to the massive benefits they are likely to benefit from the forest and related projects. Coulibaly-Lingani et al., (2011) asserts that household chores and other engagements could be a contributing factor that prevents women from joining these associations. However, the few women that join the associations still play a crucial role in the way forest resources are managed. Kabutha and Humbly, (1996) argue that they play a crucial role as they hold the power to sustainable production of the country's land resources. Forest Associations are one way of decentralising the management of forest resources and according to Ongugo et al., (2007), this is likely to contribute to sustainable utilisation of forests in Kenya and the rest of the world as forest adjacent communities (FAC) will benefit from the products forests provide. Their involvement in management objectives affecting the forest is likely to improve the forest cover which according to (Fashing et al., 2004) has been rapidly shrinking due to the human disturbance.

The education level of the members indicates that they have basic education which if utilised will help members greatly in the conservation of the forest. Some of the members have heard of the laws governing forest resources but the rest are not aware of the same. The information they have on laws governing natural resources was given to officials by the Centre for Kakamega Tropical Forest Studies during training on advocacy and capacity building. The most active CBO is KEEP which has well structured office and activities around the forest. The CBO has plans which revolve around education empowerment and environmental awareness to schools around the forest. However this need to further be enhanced which will see membership into the CFAs improve

and the youth are incorporated in the decisions affecting forest resources.

Capacity building of the CFA officials and members has been done only to a smaller extent. This has majorly been a major hindrance to the CFAs in their effective management of forest resources. The major challenge has been financing aspect since the CFAs lack the capacity to run without getting funding from the government or other stakeholders responsible for the proper management of the forest. Most members agreed that 5km set aside for the forest adjacent communities was inadequate. This point to an indication of the significance these CFAs are likely to play in the proper management of the forest resources. However, there are indications that there are varied expectations of the communities as regards CFAs.

5. Conclusions

Effective management of forest resources and increased forest cover in Kakamega Forest in Kenya and other forests in the rest of the world solely depends on the proper planning and involvement of all stakeholders in the management. Forest adjacent communities will greatly play an important role as they are the ones who are to have a direct impact of the benefits that will result from the forest resources. Capacity building and funding from the government as well as support from other stakeholders like KWS and KFS will result to earlier awareness among the youth who will later be incorporated in the CFAs that will ensure continuity and sustainability.

6. Recommendations

KEEP should scale up education awareness in primary and secondary schools around the forest. There should be more seminars, workshops and trainings on the laws that govern forest resources so that people will be able to know the importance of forest resources. There should also be a collaboration between the CFAs and CBOs and institutions like KARI and MMUST that will enhance their power and zeal in managing forest resources.

References

- [1] Agrawal, A.A., Chhatre, A. and Hardin, R. (2008). Changing governance in the worlds' forests. *Science* 320: 1460-1462.
- [2] Coulibaly-Lingani, P. P. Savadogo, M. Tigabu, and P. C. Oden (2011). "Factors influencing people's participation in the forest management program in Burkina Faso, West Africa," *Forest Policy and Economics*, vol. 13, no. 4, pp. 292–302.
- [3] DRSRS and KFWG, (2006). *Changes in Forest cover in Kenya's five water towers, 2003-2005*. Department of Resource surveys and Remote sensing and Kenya Forest working group.
- [4] Fashing, PJ, Forrester, A, Scully C and M. Cords (2004). Long-term tree population dynamics and their implications for the conservation of the Kakamega Forest, Kenya. *Biodiversity and Conservation*, **13**: 753–771, 2004.
- [6] Government of Kenya (GOK), (2007). *Sessional Paper No. 1 of 2007 on Forest Policy*. Government of Kenya Printers, Nairobi, Kenya.
- [7] Government of Kenya (GOK), (2005). *Kenya Gazette Supplement Acts: The Forest Act, 2005*. Government of Kenya printers, Nairobi, Kenya.
- [8] Guthiga, P. and Mburu, J., 2006. Local communities' incentives for forest Conservation: case of Kakamega Forest in Kenya. Paper presented at 11th Biannual Conference of International Association for the Study of Common Property (IASCP), Indonesia.
- [9] IUCN (1992). *Regional Reviews* Fifth World Congress on National Parks and Protected Areas, Caracas, Venezuela, 10–21 February 1992
- [10] Kabutha, C. & Humbly, H. (1996). Gender concerns in agroforestry. In *People and Institutional Participation in Agroforestry and Sustainable Development*. First Kenya Agroforestry Conference, 25–29 March 1996. Nairobi, Kenya, Kenya Forestry Research Institute.
- [11] KNBS (2009). Economic Survey 2009. KNBS, Nairobi.
- [12] KIFCON (1994). *Kakamega forest. The Official Guide*. Kenya Indigenous Forest Conservation programme, Nairobi, Kenya.
- [14] Koech, C.K., Ongugo, P.O., Mbuvi, M.T.E. and Maua, J.O. (2009). *Community Forest Associations in Kenya: Challenges and Communities*. Kenya Forestry Research Institute (KEFRI).
- [15] Larson, A.M. 2005. Democratic decentralization in the forestry Sector: Lessons learned from Africa, Asia and Latin America. In: *The politics of decentralization: Forests, power and people* (eds. Colfer, C.J.P. and D. Capistrano). Pp. 32–62. London: Earthscan.
- [17] Ludeki, J.V., G. M. Wamukoya, and D. Walubengo, (2006). *Environmental Management in Kenya: A Framework for Sustainable Forest Management in Kenya, Understanding the Draft Forest Policy and Forests Act 2005*.
- [18] Mogoi, J, Obonyo, E, Ongugo, P, Oeba, V and Mwangi E. (2012). Communities, property rights and forest decentralization in Kenya: Early lessons from participatory forestry management. *Conservation and Society*, Vol. 10(2):182-194
- [20] Mbuvi, M.T.E., Maua, J.O., Ongugo, P.O., Koech, C.K. Othim, R.A. and Musyoki, J.K. (2009). *Status of the Participatory Forest Management impacts on Poverty for Buyangu non-PFM area adjacent community: Kakamega Forest; Kakamega District*. Kenya Forestry Research Institute (KEFRI).
- [21] Musyoki, J.K., Mugwe, J. Matundu, K. and Muchiri, M. (2013). Determinants of household decisions to join community Forest Association. A case study of Kenya. *Forestry*. 2013. <http://dx.doi.org/10.1155/2013/902323>.
- [22] Nelson, N. and S. Wright (Eds), 1995. *Power and Participatory Development: Theory and Practice*. Intermediate Technology
- [23] Ngece, N., Kakuru, W. and Kimani, K. (2007). Conflict management and community development projects as incentives for partners to participate in participatory Forest Management (PFM). The case of Leita and Lembus communities in Kenya. In: *Participatory Forest Management (PFM), Biodiversity and livelihoods in Africa. Proceedings of an international Conference. 19-21 March, 2007. Addis Ababa, Ethiopia*. Pg. 171- 189.
- [24] Ongugo, P.O., Mbuvi, M.T.E., Maua, J.O., Koech, C.K. and Othim, R.A. (2007). *Emerging Community Institutions for PFM Process Implementation in Kenya*. A paper presented to the 3rd International PFM Conference. Addis Ababa. Ethiopia.
- [25] Ongugo, P.O., Obonyo, E., Mogoi, J.N. and Oeba, V.O. (2008). *The effect of internal Human conflicts on Forest Conservation and sustainable development in Kenya*. Paper presented in the IASC Conference, England.
- [26] Thenya, T. B. Wandago, and E. T. Nahama, (2007). "Participatory forest management experience in Kenya (1996–2006)," in *Proceedings of the 1st National Participatory Forest Management Conference*, KEFRI Headquarters, Nairobi, Kenya.
- [27] Thurow, T.L. (1995). Influence of Range Conditions on Patterns of Social Change in Transmara District, Kenya. *Proceedings of the International Rangelands Conference*. Salt Lake City, USA.
- [28] Tsingalia H.M. and Kassilly FN (2009). The Origins of Kakamega Forest Grasslands:
- [29] A Critical Review. *Journal of Human Ecology*, Vol. 27(2):129-135.
- [30] Wily, L.A. and Mbaya, S. (2001). Land People and Forests in Eastern and Southern Africa at the Beginning of the 21st Century: The Impact of Land Relations on the Role of Communities in Forest Future. IUCN-EARO, Nairobi, Kenya
- [32] WRI (1996). *World Resources Report 1996-1997*. New York. Oxford University Press.