

Factors Influencing Women Community Microfinance Members Decision in Consuming Forest Resources: A Case of Nsieni Forest in Hai District, Tanzania.

Mbwile, E.S¹, Rwekaza, G.D², Mvile F.J³

¹Assistant Lecture, Department of Social and Business Studies: Tengeru Institute of Community Development

^{2,3}Assistant Lecture, Department of Community Development: Tengeru Institute of Community Development

P.O Box 1006 Arusha, Tanzania.

ABSTRACT

Women community microfinance groups aimed to reduce extreme poverty among community group members and enable members to generate income which could be alternative sources of income rather than depend on overconsumption of natural resources including forest resources for domestic and economic uses. This study aim at exploring the determinants of forest resource consumption among women community microfinance group's members, the study used cross sectional design and was conducted at Ngira Village adjacent to Nsieni forest in Hai district whereby number of women community microfinance groups selected for the study was done by Probability Proportional to size and from selected groups number of 184 where derived to be involved in this study and data were collected by using questionnaire and the analysis of factors which influencing women community microfinance members decision in consuming forest resources were analyzed by using Binary Logistic model, study revealed that alternative sources of income, National conservation laws, Access to credit and Education level were significantly influencing women community microfinance groups members decision in consumption of forest resources at the coefficient of $P < 0.05$ probability level with the negative $\beta = -2.603$, $\beta = -3.988$, $\beta = -0.040$ and $\beta = -2.020$ respectively. While age, marital status, and gender of respondents were statistically insignificant. This paper recommends that women's community microfinance groups especially in villages adjacent to forest resources should be promoted to empower women's income to afford substitutes of forest products rather than relying too much on forest resource consumption hence forest sustainability.

Keywords: Women Microfinance Groups, Forest Resources and Consumption

1. INTRODUCTION.

Microfinance is the operational tool established in Tanzania in the 1990s with the concept of women's empowerment and poverty alleviation (Nathoo, 2017; Mwita, 2021). Microfinance serves as a tool for improving the livelihood of society and empowers women from economic dependence status to

independent status (NMP, 2017). The operation of microfinance in Tanzania highly increased up to the community level to meet the financial needs of the poor especially women and reduce their dependence on informal sources of finance. This is mainly due to their poor access to collateral and thus rely on moneylenders for financial assistance at exorbitant interest rates (Khandker et al., 2013). Thus, offering women access to microfinance services is one prominent approach to improving their position in society and helping them move out of poverty (Hansen et al., 2021). A study by Zoynul & Fahmida, (2013) has shown that access to loans has improved the lives of poor women and their housing units, as a result, many development partners in Tanzania and elsewhere have been insisting and sensitizing people that microfinance institutions have demonstrated powerful impacts (Bhuiya et al., 2016) in improving the livelihoods, especially of the poor and a crucial role in reducing poverty.

The emphasis of microfinance towards natural resources management is based on the encouragement of the person to engage in different economic activities that are natural resources friendly to reduce over-exploitation of natural resources like water, Land, and forest for poverty alleviation (SEDT, 2008) as well as to build social capital in terms of economy among community members. Pretty and Smith (2004) note that social capital ensures relationships of trust, reciprocity and exchange, common rules, norms and sanctions, and connectedness in groups, which are necessary elements for shaping individual action to achieve positive biodiversity outcomes including forest resources conservation and this rises concern that microfinance operation can provide an alternative source of income generation instead of much utilizing available resources hence resources conservation. The study of microfinance and environmental suitability at selected sites in Tanzania and Kenya (Wild et al., 2008) analyzes the importance of considering microfinance in environmental and natural resources conservation because members of the microfinance programs are involved in sustainable projects that reduce environmental and natural resources degradation.

The study by Ahmad et al., (2020) shows that women are joining in community microfinance groups largely compared to men. Traditionally women have a major role in some post-harvesting activities, especially food processing, and depend much on the forest resources consumption. Women tend to collect edible Forest foods including wild leaves, fruits, roots, tubers, seeds, nuts, mushrooms, saps, gums, and forest animals and their products to supplement the foods produced by agriculture (Shackleton et al., 2011). Also, the fact that women have substantial knowledge regarding the identification and preparation of nutritious forest foods to enhance the nutrition and health of their households increases their dependence on forest resources (FAO, 2012).

For the fact that Tanzania's forest resources are widely spread all over the country and approximately 55% of Tanzania's mainland is covered by forest resources this includes different forest types like miombo woodland across the central and southern parts, acacia woodland in the northern part, and others types are mangroves and coastal forest (MNRT, 2015). Blomley and Idd (2009) report on the increase in human population which leads to overconsumption of forest resources, especially by women, and results in over-exploitation and deforestation of forest resources, this needs integration of solutions including diverse topics such as alternative sources of income among community members especially women to reduce dependence on forest resources (MNRT, 2015). Therefore this paper explores the determinants of forest resource consumption among women community microfinance group members to see whether women community microfinance groups play a vital role in forest resources conservation as an alternative source of income rather than depending much on forest resources consumption.

2. METHODOLOGY

This study employed the cross-sectional research design. This design was chosen due to its usefulness and suitability as it enabled data collection from different groups of people. The design also gave room for making comparisons among different views from different respondents to see how the dependent variable relates to the independent variables. It further ensured a high degree of precision, reliability, and validity on the data collected, and at the same time, it served time and other resources required to accomplish the task.

The study was conducted at Nsieni forest in Ngira Village, Masama East Ward in Hai District, Kilimanjaro Region in Tanzania. Nsieni forest is bordered by River Marire on the eastern side and River Namwi on the western side. The area was chosen because, over the years, this forest has been serving the community members for pastures, firewood, building materials, recreational and medicinal purposes as well as the majority of women in Ngira village near Nsiani forest are joining community microfinance groups. From Ngira village number of women in community microfinance groups selected for the study was done by Probability Proportional to size, which resulted in 340 total population of women in community microfinance groups, and the number of respondents involved in the study was obtained after deriving the following formula which results to 184 respondents, and this formula considered being appropriate due to time and costs (Lushakuzi et al., 2017)

$$n = \frac{\Sigma N}{1 + \Sigma N(e)^2}$$

Where N= (184) Sample size

ΣN = (340) Total population size

e=level of precision which is 0.05 (5%) and this level of precision is considered to be an appropriate one because of its stable level of precision and accuracy in survey study to give appropriate sample size.

Data were collected by using a questionnaire and the analysis of factors that influence women community microfinance members' decisions in consuming forest resources were analyzed by using the Binary Logistic model.

3. RESULTS AND DISCUSSION

3.1 Factors Influencing women community microfinance members' decisions in consuming forest resources

Factors that influence Women community microfinance members' decisions in consuming forest resources were analyzed by using the Binary Logistic model, factors included in this model were alternative sources of income, national conservation laws, access to credit, educational level, cultural beliefs, family size, gender, age, and marital status and were analyzed descriptively in Table 2.

3.1.1 Goodness of fit for the model

Table 1 indicates the Hosmer and Lemeshow test of goodness of fit with the P value of 0.060, this means the model is considered to be desirable because the P- value is greater than 0.05. According to Archer et al. (2006) when the Binary logistic model found that P- value is greater than that of 0.05 at 95% C. I, it indicates that the model has no evidence of lack of fit. Cox & Snell R-Square and Nagelkerke coefficient of determination (R²) of the model indicates the amount of variation in the dependent variables is between 0.632 and 0.810 and this suggests that between 63.2% and 81% of the variability is explained by the set of variables.

Table 1: Hosmer and Lemeshow Test

Chi-square	Df	Sig.
14.966	8	.060

Table 2: Logistic regression results for factors influencing Women community microfinance members' decisions decision in consuming forest resources

Variable	β	S.E.	Wald	df	Sig.	Exp(β)
A.S.INCOME	-2.603	1.162	4.558	1	.025*	.052
National laws	-3.988	1.662	6.014	1	.020*	.020
Access to credit	-.040	1.503	3.99	1	.002*	.827
Educational level	-2.020	1.702	2.342	1	.012*	.623
Cultural believes	-.132	1.817	4.009	1	.042*	.806
Family size	.063	1.520	5.089	1	.022*	10.203
Gender	28.003	1.258	.000	1	.735	2.114
Age(1)	-13.013	8.116	.000	1	.888	.000
Age(2)	-9.091	8.116	.000	1	.888	.000
Age (3)	-10.080	8.116	.000	1	.888	.000
Marital	-0.986	3.802	.109	1	.657	.230
Constant	-32.700	1.924E6	.000	1	.888	.000

A.S INCOME means Alternative sources of income

Key

(a) Model summary

* = Significant at 0.05;

LL = -2 log-likelihood = 118.466;

Cox & Snell R-Square = 0.632; Nagelkerke R- Square = 0.810

Hosmer and Lemeshow test: Chi-square =14. 966, df = 8; p = 0.060

(b) Table features

β = logistic coefficient or unstandardized logic coefficient, S.E = Standard error of the estimate, Wald = Wald statistic is the squared ratio of the regression coefficient (β) of a particular independent variable to its standard error, df = degree of freedom, Exp (β) = odds ratio indicates the effect size of the individual independent variable in the model.

3.2 Interpretation of the model results

Table 2, shows Logistic regression results for factors influencing Women community microfinance members' decisions in consuming forest resources, it shows that factors that significantly influence Women community microfinance members' decisions in consumption of forest resources are alternative sources of income, national conservation laws, access to credit, educational level, cultural believes and family size while other factors such as age, gender, marital status were insignificant.

3.3 Alternative sources of income

Table 2, shows that alternative sources of income obtained by Women's community microfinance members were significantly influencing their decision in consumption of forest resources. The coefficient of alternative sources of income was 0.025 less than 0.05 and this means statistically significant was at $P < 0.05$ probability level with the negative $\beta = -2.603$. This implies that due to the alternative source of income obtained by Women's community microfinance members, they have less

chance of forest resources consumption whereby the odd ratio for forest resources consumption decreases by a factor of 0.052 if Women community microfinance members obtain alternative sources of income. These results resemble the study of Bunnefeld et al. (2011) indicates that the availability of alternative sources of income among community members reduces overconsumption and dependence on natural resources hence natural resources sustainability. The findings of the study mean that the availability of alternative sources of income among Women's community microfinance helps to reduce forest resource consumption such as firewood and wood materials for construction which could result in forest resources conservation.

3.4 National Conservation Laws

National conservation laws influence Women's community microfinance members' decisions in the consumption of forest resources. Table 2, indicates the coefficient of national conservation laws was statistically significant at $P < 0.05$ probability level with the negative $\beta = -3.988$. This implies that the adoption of national conservation laws among Women community microfinance members reduces the chance of depending on forest consumption, odd ratio of consuming forest resources is decreased by a factor of 0.02. These results concur with those of Benjaminsen and Bryceson, (2012) which suggest that the application of laws in conservation could raise awareness among people and reduce much consumption and utilization of natural resources.

3.5 Access to credit

Table 2, shows that access to credit among Women community microfinance members influence significantly in forest resource consumption. The coefficient of access to credit was statistically significance with a P value of 0.002 which is a $P < 0.05$ probability level with a negative Beta ($\beta = -0.040$). This implies that access to credit among VICOBA members makes them have less consumption of forest resources whereas by odd ratio of consuming forest resources decreased by a factor of 0.827 due to access to credit among VICOBA members. These results mean that access to credit could be a source for people to consume substitute products rather than forest products.

3.6 Education level

Results in Table 2, indicate that education statistically significantly influences Women's community microfinance members' decision in consumption of forest resources at $P < 0.05$ probability level. Negative Beta ($\beta = -2.020$) implies that those with high education have a lower chance in much consumption of forest resources, the odd ratio of being educated over forest resources consumption decreases by 0.623, this means members with better education can choose a better way of consuming substitute resources (products) rather than consuming forest resources (products).

3.7 Cultural believes

The results revealed that cultural beliefs were statistically significant at $P < 0.05$ probability level in influencing Women community microfinance members' decision in forest resources as Table 2, shows the negative coefficient ($\beta = -0.132$) implies that those who follow traditional and cultural beliefs have lower chance of getting in forest consumption. Cultural beliefs decrease forest consumption by a factor of 0.806. The results reflect that cultural beliefs emphasize people leave the forest resources as it is because forestry is a gift from GOD and may help in protecting people from natural disasters including earthquakes.

3.8 Family size

Also, results in Table 2, show that family size statistically significantly influences Women community microfinance members' decision in forest resources consumption at $P < 0.05$ probability level with the

positive Beta ($\beta = 0.063$), this implies that the greater number of people in the family could result to overconsumption of forest resources. The odd ratio of consuming forest resources due to family size increased by 10.203. This means the larger the family size the more consumption of forest resources which could result in forest resource depletion.

3.8 Gender of respondents

The influences of gender on the Women's community microfinance groups' members' decision to consume forest resources were found to be insignificant (Table 2). This might be because this study involves only women forming Women's community microfinance groups and this can make them have the same overview of the forest resources consumption with regard to their gender.

3.9 Age of respondents

Results in Table 2, show that age was insignificant in explaining Women community microfinance member's decision to consume forest resources. This might be due to the fact that all members are adults age above 18 years which does not distinguish them from different ages below 18 years.

3.10 Marital status

Results in Table 2 reveal that marital status was insignificant in explaining Women's community microfinance members' decision to consume forest resources. This might be due to the fact that married people have many responsibilities which make them not rely on one resource and unmarried ones are free to consume different natural resources.

4. CONCLUSION AND RECOMMENDATION

4.1 Conclusion

The study establishes that factors revealed to have a negative influence on women community microfinance members' decisions on forest resources consumption were alternative sources of income, national conservation laws, access to credit, educational level, and cultural beliefs. This means that to reduce overconsumption and overdependence on forest resources and allow forest resources regeneration these factors have to be addressed properly while family size among women community microfinance group members was found to have a positive influence on consumption of forest resources (Products), this indicates that large number of people (population increases) in the family could results to over-dependence and overconsumption of forest resources which may bring to forest degeneration and therefore there must be strategic ways of controlling several people in the family.

4.2 Recommendation

Women Community microfinance groups among communities in villages adjacent to forest resources should be encouraged as it could be used as a potential mean of acquiring loans and improving women's economy to engage in alternative income-generating activities and to afford alternative sources of energy like gas for cooking rather than relying on illegal harvesting of forest resources for fuel wood and charcoal consumption.

References:

1. Ahmad, D., Mohanty, I., Irani, L., Mavalankar, D., & Niyonsenga, T. (2020). Participation in microfinance-based self-help groups in India: who becomes a member and for how long? *PloS one*, 15(8), e0237519.

2. Bhuiya, M. M. M., Khanam, R., Rahman, M. M., & Nghiem, H. S. (2016). Impact of microfinance on household income and consumption in Bangladesh: Empirical evidence from a quasi-experimental survey. *The Journal of Developing Areas*, 305-318.
3. Blomley, T. and Idd, S. (2009). *Participatory Forest Management in Tanzania. Lessons Learned and Experiences to Date*. Ministry of Natural Resources and Tourism, Dar es Salaam, Tanzania. 71pp.
4. Hansen, N., Huis, M. A., & Lensink, R. (2021). Microfinance services and women's empowerment. *Handbook on ethics in finance*, 161-182.
5. Khandker, S. R., Samad, H. A., & Ali, R. (2013). Does access to finance matter in microenterprise growth? Evidence from Bangladesh. *Evidence from Bangladesh (January 1, 2013)*. World Bank Policy Research Working Paper, (6333).
6. MNRT (2015). *National Forest Resources Monitoring and Assessment of Tanzania Mainland*. Government Printers, Dar es Salaam, Tanzania. 106pp.
7. NMP (2017). *National Microfinance Policy of Tanzania*. National Microfinance Policy, Dar es Salaam, Tanzania. 51pp.
8. Pretty, J. and Smith, D. (2004). Social capital in biodiversity conservation and management. *Conservation Biology* 18(3): 631 – 638.
9. SEDIT, (2008). A tool for the community from poverty "MKUKUTA". In: *National Policy Dialogue on MKUKUTA, per Annual Consultative Meeting*. 19 – 20 November 2008, Blue Pearl Hotel, Ubungu Plaza, Dar es Salaam, Tanzania. pp. 1 – 11.
10. Shackleton, S., Delang, C. O., & Angelsen, A. (2011). From subsistence to safety nets and cash income: exploring the diverse values of non-timber forest products for livelihoods and poverty alleviation (pp. 55-81). Springer Berlin Heidelberg.
11. Wild, R., Millinga, A. and Robinson, J. (2008). *Microfinance and Environmental Sustainability at Selected Sites in Tanzania and Kenya*. 102pp.
12. Zoynul, A. M., & Fahmida, M. O. U. L. A. (2013). *WOMEN EMPOWERMENT THROUGH MICRO CREDIT: A CASE STUDY OF DINAJPUR, BANGLADESH*. *Studies in Business & Economics*, 8(2).
13. Nathoo, S. (2017). *Development NGOs, Colonialism, Gender and Poverty in Tanzania: A Critical Case Study of Microcredit as a Neoliberal Poverty Alleviation Initiative*.
14. Mwita, D. E. (2021). *Contribution of Microfinance Institutions to Poverty Alleviation in Tanzania: A Case Study of FINCA Micro Finance in Dodoma Municipality (Doctoral dissertation, The Open University of Tanzania)*.