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Evaluation of women's participation and empowerment in community land rehabilitation programs: Lesson drawn from Wera District, Southern Ethiopia

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Abstract: Local people's socio-economic and natural resources, especially forest resources, have been affected by land degradation in Ethiopia in the past years. To combat this problem, rehabilitation of community-based degraded land has been performed since 1979. Rehabilitation of degraded land (RDL) is important for forest management strategy regarding the regeneration of degraded forests and related resources through women's empowerment. Because empowered women are key users and managers of resources from rehabilitated land such as forest resources, which leads to sustainable utilization of forest products. The aim of the study was to evaluate women's participation and empowerment in decision-making regarding the rehabilitation intervention. A total of 120 women households (60 user and 60 non-user women) were selected using a stratified random sampling method. Data were collected using a household survey, focus group discussion and key informant interviews. The results revealed that there is a significant difference between user and non-user women in fetching water and fuelwood collection time. Furthermore, RDL contributes to improving user women's economic status and social relationships such as livelihood opportunity, social network, build-up of trust and changes in social assets. The result also indicated that women able to participate in forest-related meetings, land use management, use and control of assets, decision-making, and in soil and water conservation measures. Further, user women had greater awareness compared to non-users due to participation in different meetings and other decision-making activities. The findings suggest that consideration of women's participation in decision-making regarding the community land rehabilitation program is important to empower women equally with men.

Keywords: decision-making; impact; natural resource governance; land degradation; resource access

Land degradation refers to any reduction or loss in the biological or physical productive capacity of the land due to human or natural actions (Samandari 2017). Currently, the link between gender equality, women's empowerment, and sustainable land management (SLM) is long recognized and it has attracted growing academic and policy interest (Kondylis et al. 2016; Doss et al. 2018). Action to preserve "life on land" requires tackling land degradation since approximately 12 million ha of land are degraded annually that affect the well-being of 3.2 billion people in more than 169 countries worldwide (Stringer et al. 2017; UNCCD 2017). Land degradation has a strong gender component,

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yet statistics mask the gendered nature of degradation, in particular, different roles of women and men (FAO 2018).

Women's empowerment is one important element of the development agenda such as sustainable land and forest management (Kinati et al. 2022). The existing literature has been focussed on identifying factors accompanying the empowerment, ignoring the importance of understanding the kind of empowerment resources (Jones et al. 2019; Okpara et al. 2019). Women have diverse indigenous knowledge and positive attitudes toward ecological environment, and they have a great role for conservation measures (Kaeser et al. 2018; Abate 2020). However, there was a limited engagement of women in policy formulation and decision-making on a regional and national level regarding natural resource and environmental management (UN 2015b). In Africa, women were challenged with an unfavourable land tenure system of natural resources collection and decision-making (UN 2015a).

In Ethiopia, the population's social, economic, and political life has become seriously affected by land degradation due to their big dependence on agriculture and overuse of natural resources (Tsegaye, Bekele 2010; Bojago 2021; Shitu 2022). For instance, the development of the agricultural sector partly depends on land productivity. However, this resource is seriously threatened by land degradation and aggravates the food insecurity problems in the country through its adverse impact on crop yield that affects women and girls due to a lack of education, weak legal protections and social status (Catacutan, Villamor 2016).

To solve the problem of land degradation, a lot of efforts such as soil and water conservation activities were implemented in different parts of the country in the 1970s and 1980s with community mobilization including the study area (Shitu 2022). Rehabilitation of degraded land (RDL) initiatives could simultaneously tackle poverty and gender equality by compensating women farmers' unpaid subsistence farming work and improve their marginalized social positioning (Samandari 2017).

Attention should be given to gender disaggregation that helps policymakers understand the vulnerability of rural households and their capacity to respond (Nhem, Lee 2019). Empowering of women's participation regarding the benefit sharing and decision-making enables better natural resource governance (Leisher et al. 2016) because women are important resource users and managers through their participation in community-based natural resource management activities (Khumalo, Freimund 2014). Currently, there is a growing emphasis on community-based approaches to natural resource management with women's participation and empowerment in communal decision-making and related issues (Kahsay et al. 2021). This is due to that empowerment as an outcome of participation (Ihalainen et al. 2021). However, many of the past studies focused on non-gendered disaggregated impacts of RDL and on the biophysical attributes such as soil quality improvement, water, vegetation cover, and species diversity (Ombega et al. 2017; Singh et al. 2018; Atsbha et al. 2019; Manaye et al. 2019).

Therefore, an assessment of how the established community-based rehabilitated lands affect the economic benefit gained by women via the reduction of burdens and women's empowerment in decision-making, resource ownership, and participation will have important policy implications. However, there is scant literature and research information available to influence the policy. Hence this study was intended to answer the following three key research questions: (*i*) what is the contribution of RDL to women regarding economic and social dimensions? (*ii*) what is the level of women's empowerment related to participation in resource access and decision-making process due to RDL?; and (*iii*) what is the status of women's empowerment related to natural resource governance due to RDL?

Conceptual framework. The conceptual framework used for measuring women's empowerment and participation is presented in Figure 1. Women's empowerment is predicted regarding demographic, socioeconomic, community conditions and traditional norms. As a result, the analysis of women's empowerment and participation will control the effects of the setting and resource conditions of women. Women's empowerment is an outcome of participation (Ihalainen et al. 2021). According to Kabeer (1999) framework, empowerment is a dynamic process when women acquire resources that enable them to develop voice and agency capacity to make decisions regarding resources.

Worldwide, women's empowerment is an important means in achieving sustainable development through income generating activities and enhances economic development of their families, society and country too (Huis et al. 2017). Participation of women

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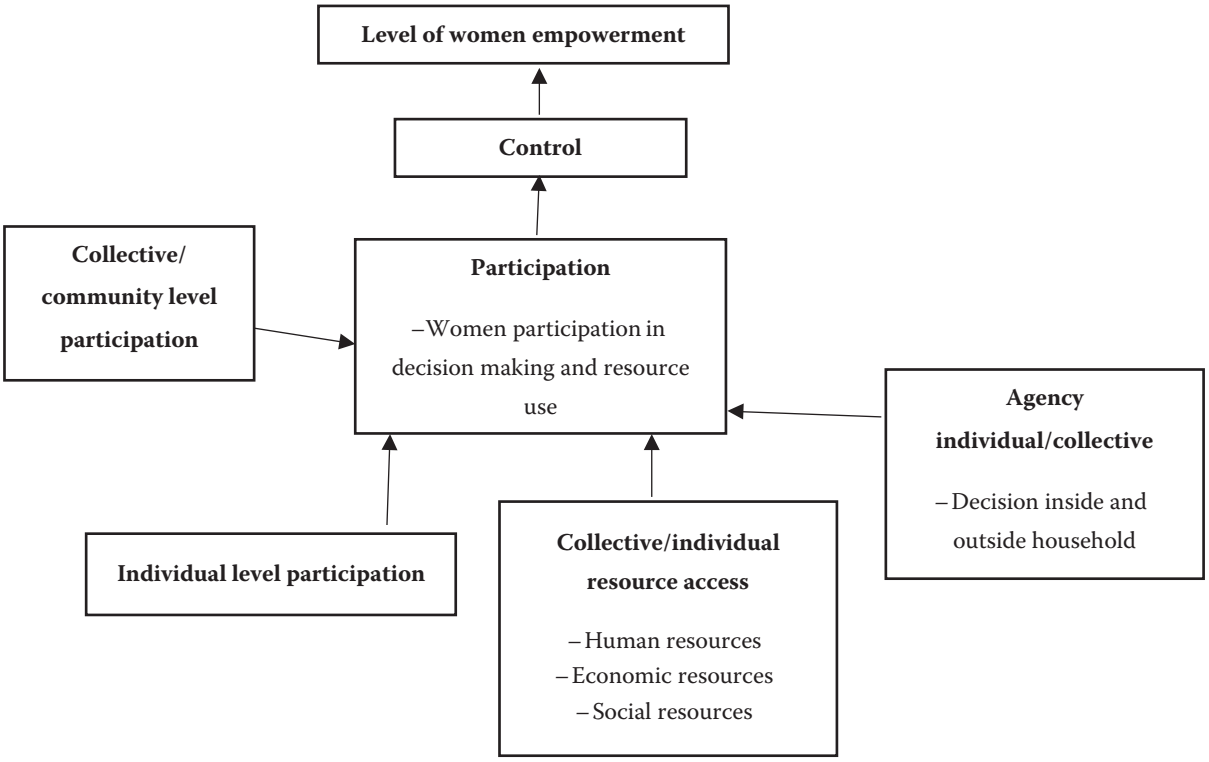

Figure 1. Conceptual framework for women's empowerment and participation

Source: Adopted from Longwe (1995) and Kabeer (1999)

in income generating activity is a key route to bring women's empowerment and the most important factor that contributes to equality between women and men (Akram et al. 2015; Huluka 2022). Further, women's participation is important to uplift them through economic decision-making, increase their access to resources and control (Alemu et al. 2022).

There exist many conceptualizations regarding women's empowerment but here the concept of women's empowerment focused on participation, control and awareness was adopted from Longwe (1995). The framework suggests that empowerment follows the interaction between empowerment and empowerment resources, agency, achievements, welfare, resource access and control within the family and community (Figure 1). The resources dimension encompasses human (training/schooling), economic (income, savings, etc.), social aspects (networks of access and support), and the like (Pettit 2012; Yount et al. 2016). Thus, the findings of this research are articulated based on the level of women's empowerment regarding participation in decision-making and resource access using gender disaggregated data.

MATERIAL AND METHODS

Study area. The study was conducted in Shekate and Shafi rehabilitation sites which are found in the Wera District, Halaba Zone, Southern Nations, Nationalities and Regional States, Ethiopia (Figure 2). The rehabilitation intervention program was initiated by the Family Health International (FHI) project in 1979. Shekate and Shafi rehabilitated sites cover about 180 ha and 140 ha, respectively. Shekate and Shafi rehabilitated lands are found in the Shekate and Wanja kebele (the smallest administration unit in Ethiopia), respectively. They are located between 7°17'N latitude and 38°06'E longitude. The mean annual temperature is about 17.6–22.5 °C and the mean annual rainfall falls between 601 mm and 1 200 mm. The average elevation ranges from 1 700 m a.s.l. to 2 200 m a.s.l. (Tsegaye, Bekele 2010). The soils of the study area are classified under mollic and osol ones which are hydrologic soil types (Fritzsche et al. 2007). People in the Shekate and Shafi rehabilitation sites make their livelihood mainly from subsistent mixed farming (crops and livestock). The dominant culti-

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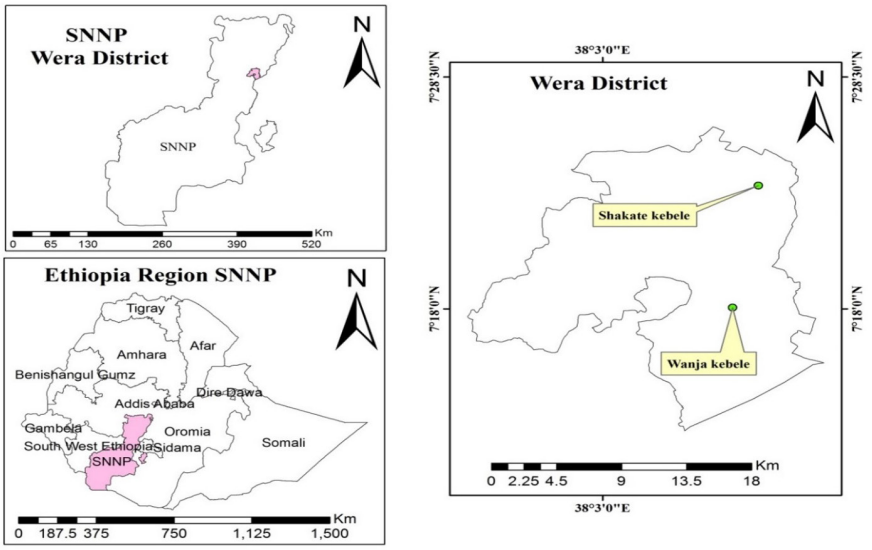

Figure 2. Map of the study area

SNNP – South Nation Nationalities and People

vated crops are maize, teff, wheat, pepper, haricot beans, sorghum, and millet.

Sampling and data collection methods. A multi-stage sampling technique was conducted to select sample rehabilitation sites and sample respondents. In the first stage, a potential rehabilitated community based on degraded land was selected. In the second stage, two rehabilitated sites (Shekate and Shafi) were selected among potential sites using a simple random sampling method. In the third stage, user and non-user women were classified using a stratified random sampling technique by taking their list from the kebele administration office. Those user and non-user households were divided and documented separately during the intervention launched. Finally, the sample sizes of households were determined from the total households representing a proportional sampling technique determined by Mume (2014), who demonstrated that an equal sampling method is common for evaluating the impact of interventions. Accordingly, a total of 120 women (60 women from user and 60 women from non-user households) were selected proportionally. The user group is those who have the right to use products derived from the rehabilitated land such as grass, construction materials and honey. On the other hand, the non-user groups are those who have no right to obtain benefits from the rehabilitated land.

Data were collected using a mixed (both quantitative and qualitative) method. The quantitative data were collected using a household survey that focused on the socioeconomic characteristics, activities regarding the rehabilitation of degraded land, resource access and control and governance of rehabilitation of degraded land. Qualitative data were collected using key informant interviews (KIIs) and focus group discussions (FGD) using checklists related to major empowerment resources in order to support household survey data (Doss et al. 2020). A total of 4 FGD and 12 KIIs were conducted as well as each FGD group had 8 participants. The discussants were selected based on different age category, well-known villagers and active participant women from both user and non-user groups.

Data analysis. Before the final data analysis, data cleaning and management were conducted. The collected data were analysed using descriptive statistics such as mean, percentage, frequency, and standard deviation with the help of Statistical Package for Social Sciences (SPSS) Version 20 and Excel Version 2016. Independent sample *T*-test and chi-square test were used to test the variation between users and non-users of rehabilitation intervention in its socioeconomic impact on women's empowerment. The qualitative data analysis was processed through topic coding and building categories, themes, and patterns of relationships through text summary.

RESULTS

Demographic and land use characteristics of households. The result shows that the age ranges of the respondents in the study area indicated that the majority (69.2%) of them were 25–44 years

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old and a few (3.3%) were less than 25 years old (Table 1). The majority (70%) of respondents had 1–5 family members. The education status showed that the vast majority (88.3%) of respondents were illiterate, while only 11.7% of them were educated. About 89.2% of respondents were married and 78.4% of them stayed in the area for 26–30 years.

Table 2 summarizes results of different land use types in the study area such as agricultural land, homestead, woodlots, and pasture land or grassland. Out of the total land use type proportion the majority (64.6%) of user respondents had agricultural land followed by woodlot and pasture land (60.3%) for each and homestead (41.4%). On the other hand, non-user households had a high proportion (75.4) % of pasture land followed by woodlot (52.6%), agricultural land (51.6%), and homestead (47.4%).

Economic and social impact of community-based rehabilitated degraded lands on women's empowerment. The household survey and FGD results revealed that women participated in different economic activities which empowered them in terms of the economic potential (Table 3). As the respondents indicated that user households' income generated from fuel wood was improving statistically significantly compared to non-user households at a 10% level of significance. The number of livestock (donkeys and goats) shows significant variation in their livelihoods at a 10% and 5% significance level, respectively. User households have more donkeys and they generate more income than non-users (Table 3). Further, there is a significant ($P < 0.05$) change of the distance in kilometres from their residence for collecting fuelwood and fetching water between users and non-user women (Table 3).

The household survey results showed that women's households participated more in collecting fuelwood, fetching water, and domestic work, while men's households participated less in those activities compared to women's households (Figure 3). The FGD and KII result also stated that women were mainly involved in domestic work and fetching water compared to other household members.

Table 1. Demographic and socio-economic characteristics of respondents

Variables	Category	Frequency	%
Age of respondent	< 25	4	3.3
	25–34	36	30.0
	35–44	47	39.2
	45–54	21	17.5
	≥ 55	12	10.0
Family size	1–5	84	70
	> 5	36	30
Marital status	married	107	89.2
	divorced	7	5.8
	widowed	6	5
Number of years stayed in the village	< 5	2	1.70
	5–15	3	2.50
	16–20	2	1.70
	21–25	8	6.70
	26–30	96	78.40
	> 30	9	9.80
Level of education	illiterate	106	88.30
	literate	14	11.70

Table 2. Characteristics of land use types

Land use type	User group (N = 60)		Non-user group (N = 60)	
	N	proportion (%)	N	proportion (%)
Agricultural land	27	64.6	32	51.6
Homestead	24	41.4	27	47.4
Woodlot	35	60.3	30	52.6
Pasture land	35	60.3	43	75.4

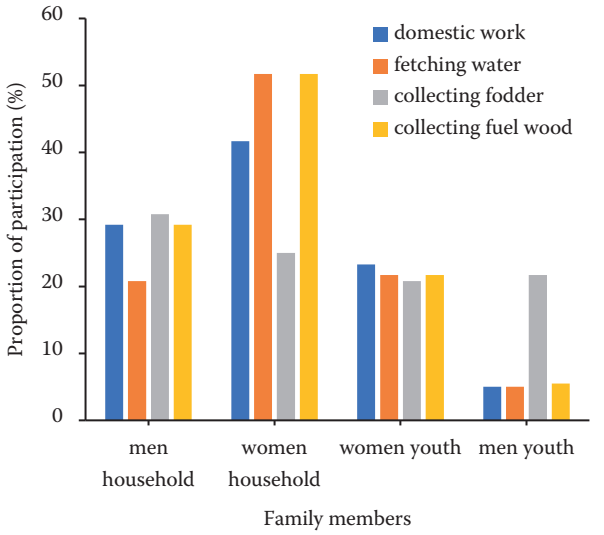

Figure 3. Proportion of family members involvement in different livelihood activities

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Table 3. Impact of rehabilitated degraded land on women's economy and reducing their burden

Variable	Parameters	User		Non- user		*t*-value
		mean	SE	mean	SE	
Income derived from	grass	1 200	140	1 758.5	1 208.14	0.59
	fuelwood	1 250	250	960.5	471.3	–0.26*
	vegetable	4 883.3	1 618.7	0	0	–0.91
Number of livestock holding	cattle	2.65	0.29	2.92	0.39	0.55
	donkey	0.50	0.08	0.80	0.13	1.99*
	sheep	0.92	0.24	0.92	0.22	0.05
	goat	0.95	0.55	1.17	0.26	2.69**
	mule	0.80	0.25	0.20	0.15	1.30
	horse	0.07	0.14	0.15	0.16	1.00
Time saved	distance in min	0.5	0.05	0.80	0.13	1.99*
	distance in km	10.5	6.74	15.5	11.33	1.55**

*, **significant at 10% and 5% respectively

The household survey results showed that the majority (56.7%) of respondents agreed that the social network establishment of user respondents was improved compared to non-user households due to rehabilitated land (Table 4). The results also showed that about 36.7% and 26.7% of user respondents moderately and highly agreed, respectively, that trust was built between actors following RDL. About 58.3% of users revealed that there was an enhancement of livelihood opportunity and change in social assets, which was significant at a 1% significance level.

The impact of rehabilitated degraded land on women's resource ownership and decision-making. The household survey and KII result revealed that the level of women's participation in owning and control of different resources changed due to the intervention of RDL program. The result of the household survey depicted that

Table 4. Social impacts of rehabilitated degraded land for empowering of women

Social impact indicators	Parameters	User		Non-user		χ^2-value
		frequency	%	frequency	%	
Better social network establishment	strongly agree	16	26.7	2	3.4	23.950***
	agree	34	56.7	33	55.9	
	neutral	9	15.0	10	16.9	
	strongly disagree	1	1.7	13	22.0	
	disagree	0	0.0	1	1.7	
The build-up of trust between actors	strongly agree	16	26.7	4	7.0	22.509***
	agree	22	36.7	14	24.6	
	neutral	20	33.3	21	36.8	
	strongly disagree	1	1.7	2	3.5	
	disagree	1	1.7	16	28.1	
Enhanced livelihoods opportunity changes in social assets	strongly agree	14	23.3	3	5.0	17.728***
	agree	35	58.3	29	48.3	
	neutral	6	10.0	8	13.3	
	strongly disagree	0	0.0	4	6.7	
	disagree	5	8.3	16	26.7	

***significant at 1%

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about 38.6% and 37.6% of user women of RDL attended forest-related meetings a few times and always, respectively, while about 41.4% of non-users attended them often (Table 5). Regarding the meetings for land use management dispute resolutions, the majority (57.6%) of users attended them a few times compared to non-users. The chi-square test shows a significant difference between user and non-user women in terms of the participation in forest-related and land use management dispute resolution meetings. The result also showed that about 63.2% of users and 57.3% of non-user women participated in the use and control of assets inside the community. The FGD and KII participants also stated that user women were empowered in terms of the ownership status and control of different resources compared to non-user women.

The results of household surveys indicated that 80% of user women participated in decision-making on community-based rehabilitation programs for degraded lands, while only 53.1% of non-users participated, which shows a statistically significant difference (Table 6). In the planning and problem identification stage, about 56.2% of user women participated, while 43.8% of them did not participate. On the contrary, the vast majority (83.3%)

Table 5. Women's participation in resource ownership and control

Types of participation	Indicators	User		Non-user		Total		χ^2-value
		frequency	%	frequency	%	frequency	%	
Women attending forest-related meetings	always	21	37.6	12	19	33	28.7	14.3***
	often	7	12.3	24	41.4	31	27	
	few times	22	38.6	11	19	33	28.7	
	once or twice	6	10.5	5	8.6	11	9.6	
Attend the meeting of land use management disputes resolution	always	2	3.4	5	8.8	7	6	15***
	often	11	18.6	21	36.8	32	27.6	
	few times	34	57.6	13	22.8	47	40.5	
	once or twice	2	3.4	3	5.3	5	4.3	
	never	10	16.9	15	26.3	25	21.6	
Women's participation in the use and control of assets inside the community	yes	36	63.2	31	51.7	67	57.3	1.63
	no	20	35.1	28	46.7	48	41	

***significant at 1%

Table 6. Women's participation in decision making

Indicator variables	Response	User		Non-user		Total		χ^2-value
		frequency	%	frequency	%	frequency	%	
Community-based rehabilitation programs for degraded lands	yes	32	80	17	53.1	49	68.1	5.906**
	no	15	20	8	46.9	23	31.9	
Planning and problem identification	yes	9	56.2	4	16.7	13	32.5	6.857***
	no	7	43.8	20	83.3	27	67.5	
Soil and water conservation measures	yes	21	87.5	2	12.5	23	57.5	22.09***
	no	3	12.5	14	87.5	17	42.5	
Monitoring and evaluation	yes	2	8.3	13	81.2	15	37.5	21.778***
	no	22	91.7	3	18.8	25	62.5	
Leadership	yes	3	12.5	14	87.5	17	42.5	22.907***
	no	21	87.5	2	12.5	23	57.5	

, * significant at 5% and 1%, respectively

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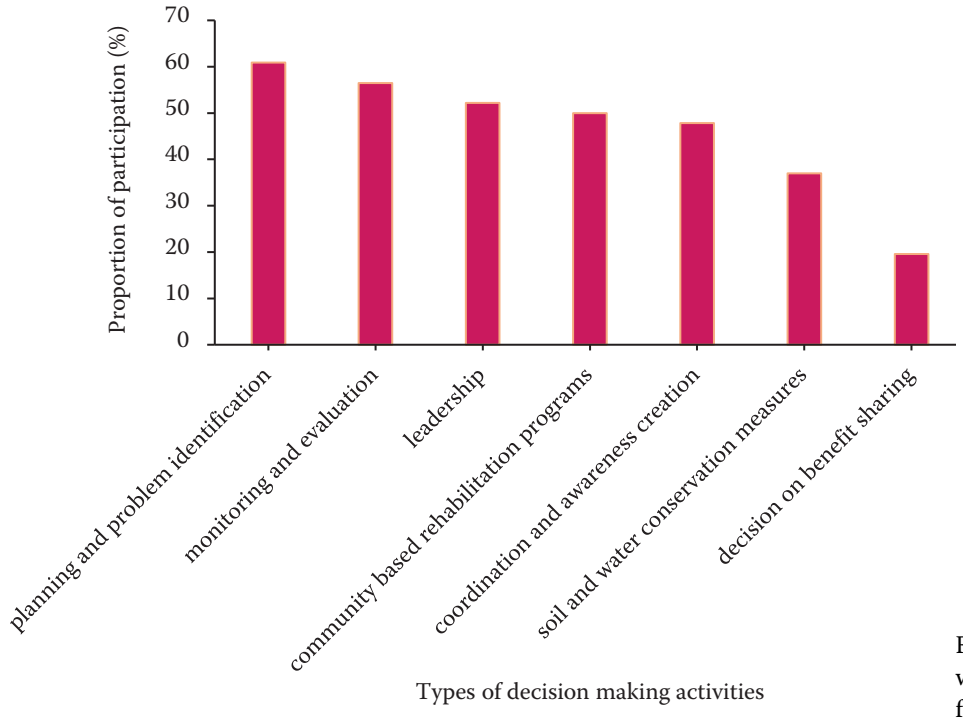

Figure 4. Participation of user women in decision making for rehabilitated land

of non-user women did not participate in the planning and problem identification stage. The result further showed that 87.5% of user women participated in soil and water conservation activities, while 87.5% of non-user women did not participate. Regarding the monitoring and evaluation activities, about 91.7% of user women did not participate while 87.5% of women did not participate in a leadership role. On the other hand, 81.3% and 87.5% of non-user women participated in monitoring and evaluation activities and leadership roles, respectively. The chi-square result showed that there is a difference between user and non-user women regarding decision-making.

The result revealed that the majority (60.9%) of user women respondents participated in planning and problem identification followed by monitoring and evaluation (56.5%), leadership role (52.2%), community-based rehabilitation programs (50%), and coordination and awareness creation (47.8%) (Figure 4). The FGD and KII participants stated that women were empowered on a level of decision-making process compared to the state before intervention. Further, participants stated that before intervention of RDL the women were mainly engaged in decision-making on domestic works rather than on works outside the house.

The result showed that half (50%) of the women respondents perceived that they had a very good participation level and the remaining 30%, 17% and 3% of respondents perceived that there was a good, average and very poor participation level, respectively (Figure 5).

Rehabilitated degraded land governance and its impact on women's empowerment. The result revealed that 51.7% of user respondents agreed that they had awareness of natural resource management (NRM), while 45% of non-user respondents were aware (Table 7). The chi-square value showed that there was a significant difference between user

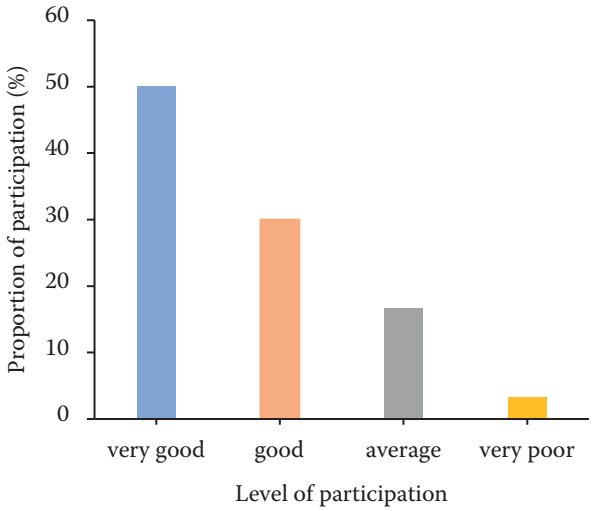

Figure 5. Level of women participation in rehabilitated land management

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Table 7. Degree of women's awareness about natural resource management in the study area

Variables	Response	User		Non-user		Total		χ^2-value
		frequency	%	frequency	%	frequency	%	
Degree of awareness about NRM increased	strongly agree	18	31.0	14	23.3	32	27.1	14.859***
	agree	30	51.7	27	45.0	57	48.3	
	neutral	9	15.5	4	6.7	13	11.0	
	strongly disagree	3	5.0	0	0.0	3	5.0	
	disagree	1	1.7	12	20.0	13	11.0	

***significant at 1%; NRM – Natural Resource Management

and non-user women in terms of the awareness of NRM at a 1% significance level. The FGD participants know that user women had greater awareness compared to non-users because user women have a chance to participate in different meetings and other decision-making activities regarding NRM.

The household survey result indicated that there were different decision-makers regarding the rehabilitated degraded lands. The majority (55%) of the respondents replied that the most important decision-makers were elected chairman followed by elders (20%) (Figure 6). This result is supported by FGD and KII participants who stated that rehabilitated degraded land is governed mainly by an elected chairman as well as sometimes by elders, all villagers together and both elected chairman and all villagers jointly govern RDL. Transparency of the bylaw on RDL measured in terms of bylaw rules for use and access from the intervention is easy to understand, rules are known by most people, and rules of using resources are fair. The KIIs also mentioned that the rules and bylaws are transparent, open, and fair to the local community regarding the management and utilization of RDL.

The household survey results showed that 45% of respondents agreed and 33.3% strongly agreed on the fairness of rules on resource access and use rights of local communities from the rehabilitated degraded lands (Table 8). Similarly, 41.7% of respondents also said that rules of bylaw use and access are easy to understand and 28.3% of them revealed that rules are known by most people. The KIIs also mentioned that the rules and bylaws are transparent, open, and fair to the local community regarding the management and utilization of RDL.

Conflicts occurred due to different resource use and managerial causes in the study area. The survey result indicated that 35% of respondents stated that livestock grazing was one cause of conflicts in rehabilitated degraded lands (Figure 7). Furthermore, 26% and 20% of respondents revealed that illegal tree cutting and prohibiting the use and access to resources were another cause of conflict, respectively. In addition, 19% of respondents men-

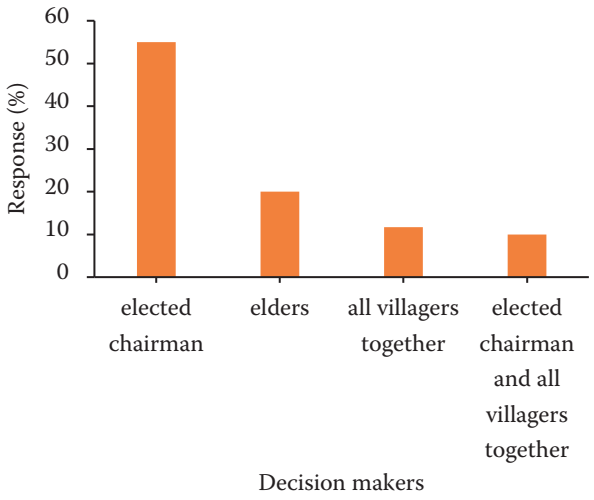

Figure 6. Governance system for managing rehabilitated land

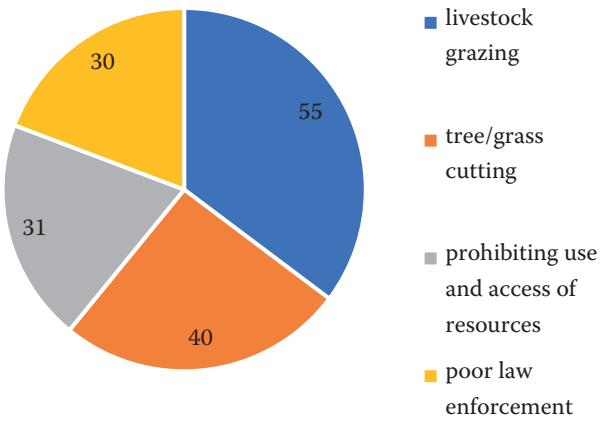

Figure 7. Source of conflict regarding rehabilitated land

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Table 8. Transparency of rules and bylaws practiced on governing community-based rehabilitated land

Variable	Level of agreement (%)				
	strongly agree	agree	neither agree nor disagree	disagree	strongly disagree
Rules of bylaw use and access are easy to understand	35.0	41.7	8.3	13.3	0.0
Rules are known by most people	31.7	28.3	20.0	13.3	6.7
Rules of using resources are fair	33.3	45.0	6.7	13.3	1.7

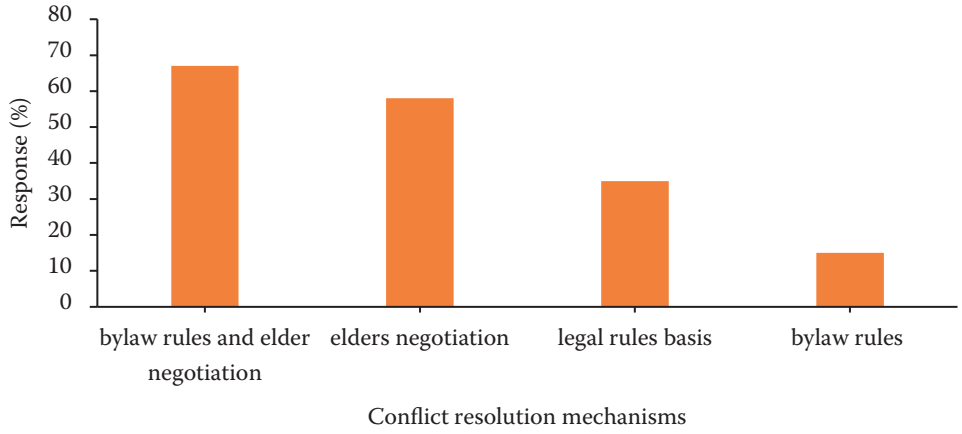

Figure 8. Mechanisms of conflict resolution regarding rehabilitated land

tioned that poor law enforcement was the cause of conflict. The FGD participants stated that resource-related conflicts were common especially for livestock grazing.

To solve and overcome conflicts, the local communities have their conflict resolution mechanism on the rehabilitated degraded land (Figure 8). The result showed that 38% of respondents stated that a conflict was resolved using bylaw rules and 33% of them indicated elder negotiation. The remaining 20% and 9% of them mentioned that the legal rule basis and bylaw rules were other mechanisms to solve the conflict, respectively.

DISCUSSION

Economic and social impacts of community-based rehabilitated degraded lands regarding women's empowerment. The quantitative and qualitative findings revealed that women have got advantages from the RDL intervention programs regarding economic and social dimensions. For example, the rehabilitated degraded land generates income to local women through vegetable production and fuelwood collection. The result shows a significant change of income derived from fuelwood between user and non-user women respondents. The probable reason behind this is the user women have fuelwood access as they can collect fuelwood easily from rehabilitated land near their home for the purpose of consumption and cash income. The findings of this study suggest that the RDL program enhances women's empowerment through their participation in terms of economic and social dimensions. User respondents have more donkeys and goats, which shows a significant difference because user respondents can access grass and other fodder for their livestock feed from the rehabilitated land. The result is in line with literature which indicated that understanding women's empowerment regarding the economic and social dimensions could be the key to scaling up community-based natural resource management programs in low- and middle-income countries like Ethiopia (Namubiru-Mwaura 2021; Shin et al. 2022).

The FGD and KII participants stated that men were more engaged in collecting fodder relative to other activities while women were engaged more in domestic work. The result also indicated that both young men and women were engaged less in RDL income-generating activities. This result is consistent with related studies which found that women spend more hours per day compared to men (Belay, Oljira 2016; Kinati, Mulema 2016).

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Another finding also showed that domestic responsibilities, unpaid care work, and all homestead cultivation activities (such as fetching water, collecting firewood, food preparation, etc.) are done by women but less valued by society (Okpara et al. 2019; Kinati et al. 2022).

The finding from KII also revealed that domestic workload consumes productive time and diminishes their sense of self-acceptance in more valued activities of non-user women compared to users. This is supported by related studies which indicated that domestic work burden takes up much of women's productive time (Kinati, Mulema 2016). Balancing of workloads between men and women enables the women to realize their full potential, using and managing lands sustainably (Samandari 2017; Huluka et al. 2022). Further findings demonstrated that environmental depletion and resource degradation magnify women's workload and drudgery through walking long distances to collect firewood and fetch water (Abate 2020). This suggests that the incorporation of women into plans and policies regarding the environmental management is crucial to improve their empowerment (Juma et al. 2020; Kinati et al. 2022). Results from FGD revealed that women are natural environmental conservationists as well as they are engaged in proper management and utilization of land and related resources. The finding further revealed that the rehabilitation intervention makes user women be able to engage in finding alternative income sources and reduce their burdens in domestic work compared to non-user women.

Regarding the social benefit, household survey, FGD and KII participants mentioned that RDL contributes to improving women's social relationships with society such as social network establishment, build-up of trust between actors, and livelihood opportunity and a change in social assets was improved a lot within user groups compared with non-user groups. The FGD participants also stated that RDL creates an opportunity for women to be able to meet, communicate and strengthen their relationships in the community. The finding is consistent with other studies which stated that women's participation in social events, training, and community associations is vital to empower them and to change negative social norms (Kinati et al. 2022).

Women's empowerment in decision-making and resource ownership from rehabilitated land. The result revealed that the participation of women increased in decision-making on different land and other resource management activities after intervention of RDL. On the contrary, non-user women participated less in land-related issues compared to user women. Previous findings demonstrated that women's empowerment regarding the decision-making is important for enabling them to move freely in public spaces and voice for equitable roles and rights (Yount et al. 2016; Kinati et al. 2022) and is highly related to one's motivation for action. Currently, there is a growing emphasis on community-based approaches to natural resource management on the one hand, and women's participation and empowerment in communal decision-making and related issues due to that men and women have different roles and responsibilities at community and household levels for access and control of natural resources (Malasha 2020; Kahsay et al. 2021).

The finding suggests that women play an important role in the conservation of degraded land rehabilitation. The qualitative findings from FGD and KII participants suggest that the level of women's participation in RDL was positive and they actively participated in resource use activity derived from rehabilitated degraded land. The different conditions that male and female members experienced are likely to influence the extent of their involvement in conservation and decision-making activities. Findings showed that women with adequate academic credentials, financial resources, leadership competencies, and exposure had a higher tendency to attend meetings, speak out during the meetings, take up leadership positions and participate in decision-making (Juma et al. 2020). The finding is also supported by Abate (2020), who found that women have a positive role in conserving land and other natural resources. Ethiopia mapped out its lands and initiated a certification programme through joint and individual land ownership rights to women and men that improved women's participation and decision-making on land-related issues both within and outside the household (Melesse et al. 2018).

Rehabilitated degraded land governance and its role on women's empowerment. The findings from household survey, FGD and KII results indicated that the involvement of women in the management of natural resources under rehabilitated land has a positive contribution to governing the sustainability of different natural resources. User women had greater awareness of NRM compared to non-users because the user women have a chance to participate in different meetings and

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other decision-making activities. The finding further suggests that the improvement of women's empowerment is essential to solve and overcome conflicts over natural resources from rehabilitated degraded land. The finding is consistent with findings of Walle and Nayak (2022), who investigated that women who were members of forest and other NRM programs have greater awareness than non-members. In addition, the inclusion of women in natural resource governance has significant positive effects on conservation and development efforts such as forest in Africa including Ethiopia and Latin America (Mwangi 2017). Increased participation in natural resource governance can be a pathway for wider empowerment of women in the household and in the public sphere as well as for solving conflicts over natural resources (Beaujon Marin, Kuriakose 2017). Furthermore, related studies demonstrated that women are important resource users and managers and their participation in community-based natural resource governance without conflict occurrence (Khumalo, Freimund 2014; Malasha 2020). The results of our study also show that local communities have their conflict resolution mechanism on the RDL mainly through by-law rules and elder negotiation. This kind of conflict resolution mechanism is related to land, forest and other related conflicts in different parts of Ethiopia in particular and in Sub-Saharan Africa in general (Ghebretekle 2017).

CONCLUSION

Recently, the decentralization of natural resources management to local communities has been emphasized as a solution to remedy unsustainable utilization. At the same time, concerns are growing regarding women's empowerment. Based on the findings of the study, rehabilitation of community-based degraded land plays a key role through empowering women regarding their participation in different economic and social dimensions. User women have benefited from the improved environment like increased vegetation cover, water supply, and reduced soil erosion. The rehabilitation intervention made a significant difference in women's economy in terms of generating alternative income sources. Participation of women in the RDL program can enhance their awareness, decision-making power and their social interaction. For instance, there was a significant difference in income derived from fuelwood collection between user and non-user groups. The finding further suggests that the participation of women in different decision-making activities can improve their empowerment. Our findings suggest that policies to increase the number of women in leadership positions can contribute to sustainability and a more equitable distribution of gains from RDL to improve women's empowerment. Depending on the result we recommend that creating awareness should be needed for women's households to maximize their income derived from rehabilitated degraded land. Even if there were a significant change in some income source activities among user and non-user respondents, they also should actively participate in finding alternative income sources.

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