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Socio-Economic Challenges of Area Exclosure Practices: A Case of Gonder Zuria Woreda, Amhara Region, Ethiopia

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ABSTRACT
Land degradation is one of the major critical challenges facing human beings in agricultural production and sustainable development in many parts of Ethiopia. Strategies for the rehabilitation of those degraded areas are urgently needed before conditions become irreversible. Area exclosures has been the commonly practiced strategy for the rehabilitation and restoration of degraded lands and other environmental problems. The objectives of this study was to investigate socio-economic challenges of area exclosure intervention in one of the highly degraded area North Gondar, Gondar Zuria District, Das-dinzaz kebele. The main purpose of the study was to analyze socio-economic challenges, attitudes of the community and some of the benefits to local community as a result of area exclosure. Socio-economic data collection, formal (questionnaire) survey was administered on 37 respondents. The respondents were selected from three peasant associations namely Fana, Belewseged and Wonbergie (PAs) each of them was adjacent to the exclosure practices. Moreover, focus group discussion and key informants interview were carried out. Majority of the local people also expressed positive attitude towards the rehabilitation activities through exclosure. They witnessed also the changes in regeneration of woody species, grasses and reduction of erosion threat after the practice of the exclosure. The result of the study suggests that area exclosure practices can rehabilitate and restore woody species of degraded lands if adequately protected from interferences. However, animal grazing, thieves, shortage of grazing land and conflicts b/n adjacent peasant associations are challenging exclosure practice. These constraints primarily call for the need to have a practical and interactive farmers' participation. Hence, for area exclosure to be more effective, mainly the active involvement of the local communities and strengthen their subsequent management system is indispensable.
Keywords: exclosure practices, socio-economic challenges, attitude, benefit, community, Ethiopia.

INTRODUCTION

The major critical challenges facing human beings in agricultural production and sustainable development in many parts of the Ethiopia is depletion of natural resources. Population growth and its demands are increasingly threatening the sustainable management and use of natural resources in the tropics. Ethiopia relies on its diverse biological resources mainly on forests for its socioeconomic development. However, these resources are now under severe pressure. Its forest has shrunk from covering 65% of the country and 90% of the highlands to 2.2% and 5.6%, respectively (Berry, 2003; *EEPFE, 2005).* As a result, land degradation in the form of soil erosion and loss of soil fertility is a typical phenomenon in many areas of Ethiopia (EARO 2000; Demel Teketay 2001; Asefa *et al.,* 2003). Available data indicate that out of the 60 million ha of agriculturally productive land, about 27 million ha are significantly eroded, 14 million ha are seriously eroded, and over 2 million ha beyond reclamation (FAO 1999). Like other parts of Ethiopia, forest degradation problems are most severe and a high percentage of the land has already been severely degraded and become out of production in many parts of the Amhara region (USAID, 2000) including the present study area. Sustainable and renewed resource management practices need to address the widespread land degradation, declining soil fertility, unreliable rainfall, and even desertification, in a context of global climate change (FAO & World Bank, 2001). Therefore, rehabilitation of those degraded areas needs urgent attention before conditions become irreversible.

In response to the problem of land degradation and other environmental problems, different natural resource conservation and rehabilitation interventions have been carried out in Ethiopia. Among the various rehabilitation techniques used, the predominant is probably area exclosure (Mulugeta Lemenih, 2004) and establishment of fast growing plantations of exotic species & physical conservation measures such as terracing. The idea of area exclosure involves a protection system, exclusion of the degrading agent, to allow the lands to restore itself through natural succession process. Thus, area exclosures can be defined as degraded lands that have been excluded from human and livestock interference for rehabilitation (Betru Nedessa *et al*., 2005; Mekuria *et al*., 2007, Tesfaye Mebratu, 2002). Degraded lands that almost lost their production potentials are set aside for nature based rehabilitation. In general, despite the emerging, promising socio-economic intervention and ecological importance of exclosure practices in Ethiopia, very little or virtually no systematic and scientific studies have been made about exclosures (Tefera Mengistu, *et al.,* 2005b). As a result, documented information on exclosures is scanty or completely lacking. Besides, sustainable natural resource management practices and active involvement of farmers across the country have remained below expectations (Gebremedhin and Swinton

2003, Bekele and Drake 2003, Croppenstedt *et al.,* 2003). Moreover, the rate and extent of vegetation dynamics on exclosures are influenced by several biophysical conditions such as pre-exclosure site history, vegetation status in the vicinity of exclosures, management of the exclosures, climatic, edaphic as well as the socio-economic conditions prevailing around the sites.

These attributes will have influential roles in farmers' decisions and their active participation about the rehabilitation measures undertaken in different areas of Ethiopia. These conditions have not yet been studied in Amhara region, Gondar zuria district of Ethiopia where exclosure measures have been taking in place.

Appropriate understanding of these conditions will assist in the formulation and implementation of the policy interventions designed to induce voluntary and continued use of area exclosure measures to combat and rehabilitate land degradation and other environmental problems on sustainable land resource management basis. Hence, further studies on socio-economic challenges in areas subject to area-exclosures under diverse agro-ecological and socio-economic setting are very important.

Therefore, this study generally intends to evaluate area exclosure intervention on degraded areas and its socio-economic challenges by the surrounding communities in Gondar zuria district, North Gondar, Ethiopia with the main aim of answering the following three research questions: (1) What are the challenges of the surrounding communities towards area exclosure practices? (2) What are the major socio-economic issues and attitudes of the communities in the study area on the rehabilitation efforts of degraded areas by means of exclosure?

The specific objectives were: -

- To identify the socio-economic challenges and attitudes of the community
- To evaluate the socio-economic benefits of area exclosure practices

MATERIALS AND METHODS

Description of the study area

Location

This study was carried out in Gondar zuria district, Das Dinzaz kebele in three PAs namely Fana, Belewseged and Wonbergie, Amhara Region of Ethiopia during 2010/2011. The district is located at 37°24'24"E-37°45'43"E and 12o7'23"N-12°39'24"N and its total area is 1286.76 km2. Being part of the Semien Gondar Zone, Gondar Zuria district is bordered on the south by the Debub Gondar Zone, on the southwest by Lake Tana, to the west by Dembiya, to the north by Lay Armachiho, to the northeast by Wegera, and to the southeast by Belessa. Towns and cities in Gondar zuria woreda include Degoma, Emfraz, Maksegnit and Teda. The city and district of Gondar surround this district in the northern part (CSA, 2005).

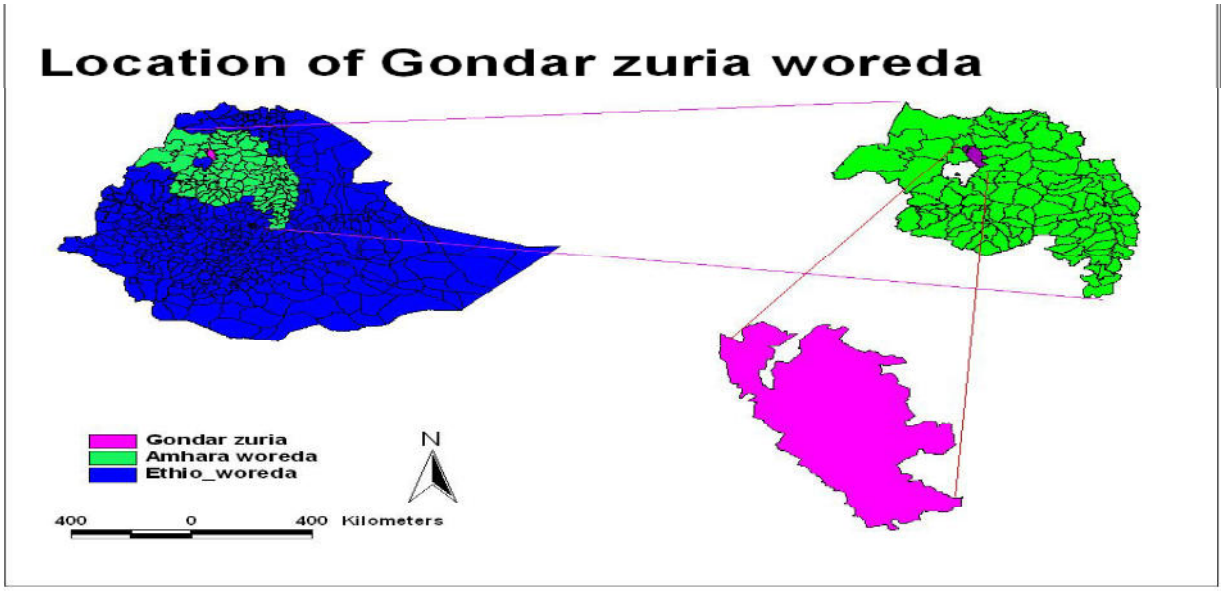

Figure 1. Location of the study area

Population

The district has an estimated total population of 264,920 (of whom 130,796 were males and 134,124 were females). About 10.24% of its population is urban dweller, which is less than the zone average of 14.1%. The rural area constitutes 40,551 households. With an estimated area of 1,286.76 square kilometers, Gondar zuria has an estimated population density of 205.9 people per square kilometer as compared to the zone average of 60.23

(CSA, 2005).

Agro ecology

Gondar Zuria District is located at 1107-3022 m a.s.l, and falls in to three agroecological zones. The two agroecology zones, Weynadega (1500-2300 m a.s.l) and Dega (2300-3200 m a.s.l.) constitute the largest area coverage as compared to the Kolla that falls in the range of 500-1500 ma.s.l. In the district, temperature ranges between 14-20°C with the mean annual temperature of 17.9°C. Rainfall ranges between 1030-1223 mm with the mean annual rainfall of 1100 mm.

Land use

Crops cover 56.5% the area, pasture 14.7%, forests and shrubs 10%, settlements 5.3% and the rest 13.5% is a miscellaneous land (GZOARD, 2007 cited in Endege Dress, 2008).

Livestock

Livestock production is important in the farming system of the woreda. The need for draught power, source of food and income has made the mixed farming of animals with other agricultural activities inevitable. However, animal husbandry is largely constrained by feed quality and availability due to an imbalance between animal population and pasture size and productivity (Endege Dress, 2008). The availability of browse to animals, especially in the dry seasons is essential when grass and herbaceous legume forages are scarce.

Method of data collection

Socio-economic survey

Socio-economic survey was employed in order to explore the attitude of the local community towards the experience of management and utilization as well as challenges of exclosure practices. Semi-structured questionnaires were developed to conduct the household survey. It was pre-tested with some randomly selected households before using it on a wider scale, and some improvement was made to the questionnaire accordingly. The questionnaire was translated in to Amharic, the local language with which the interview was conducted for ease communication with respondents.

From the selected PAs in each exclosure (primary sampling unit) 10% of the household were randomly chosen and interviewed. Totally 37 household heads were interviewed. Both male and female-headed households were included in the interview. Socioeconomic data was collected with the assistance of government development agents (DAs).

Moreover, key informant interviews and focus group discussions were employed for each selected PAs. The underlying premise of using focus group discussion was to stimulate free discussion that generates fresh ideas and insights. In selection and invitation of the members of the focus group discussants consultation was made with the local DA's. For the purpose of this study, different focus group discussions were undertaken that include traditional leaders, women, and youth.

Socio-economic data analysis

The actual and potential socio-economic benefits and challenges of area exclosure practices and the role of the community in the sustainability of the existing protected area were assessed from the results of questionnaires. The results of the questionnaire survey were checked, corrected, coded and analyzed with the help of the recent Statistical Package for Social Studies (SPSS-16.0) statistical software. The result was then presented using tables and charts.

RESULTS

Socio-economic setting

The male and female households accounted are 91.9 and 8.1%, respectively. The family size of the households in the study area ranges between 3-12 people. There is a high level of illiteracy (48.6%). About 40.5% of the respondents are grade less than 4 and 5.4% are grade 4-8. The rest (5.4%) attended basic education. About 40.5% and 27% respondent's household had land less than 0.5 ha and 0.5-1 ha, respectively. About 27% had land greater than 1 ha and the remaining (5.4%) are landless people. Most of the households are married (89.2%) and others are windowed (10.8%).

Attitude of the local people towards exclosure practices

More than 91 % of the interviewed farmers expressed a positive attitude towards the exclosure practices in the study area. While very few respondents had a negative attitude. All of the total respondent farmers (100%) knew the presence of area exclosure practices in their locality through formal training (29.7%), extension education (54.1%) and by their own experiences (5.4%). This is so most likely due to the fact that the majority of the

community members (75.7%) participated in the effort to establish the exclosed areas as well as in the decision-making process for site selection (94.6%).

Of the total respondents 62.2% stated that the major criteria for site selection was the site that more degraded first selected to be exclosed followed by more accessible and important sites (18.9%). Others (16.2%) respondents explained that sites which were more accessible & degraded first selected. The remaining (2.7%) explained the more land cover first selected.

According to most of the respondents verification, the areas where now under exclosure were once covered with a patch of different types of indigenous forest/plant species. However, the vegetation covers were disappeared by different human activities and this caused severe land degradation problem in the area.

As interviewed farmers explained, the major causes for the disappearances of indigenous forests in the study area were charcoal production and fuel wood collection (73%), population pressure (16.2%) and agricultural expansion (10.8%). A large proportion of the respondent farmers (59.5%) and 24.5% were agreed and strongly agreed to establish exclosures in their locality respectively. Whereas the rest 13.5% and 2.7% respondents were disagree and strongly disagree respectively.

Almost all respondent farmers (97.3%) know the presence of local bylaws and regulation. However, most of them indicated the poor implementation of the local bylaws. As 75.7% of the respondent responded that the exclosed area are managed properly. According to the respondent farmers, (8.1%) the government, (70.3%) the community and (21.6%) the government, community and NGO's together are responsible bodies for the current management of exclosures practices. From this it possible to understood that some of the respondents of the community members were not clear and know about the current responsible body for managing exclosures.

According to 62.2% and 59.5% of the respondents there was a shortage of fuelwood and grazing land after exclosures were established in the study area respectively. A majority of the respondents used different types of means so as to cope up with the shortage of grazing land. Majority of the respondents 51.4% and 21.6% focused on other feed sources and rotational grazing respectively. Others (13.5 %) used cut-and-carry system for grass in their locality and 10.8% travel further distances for grazing. The rest (2.7%) were reducing their livestock numbers.

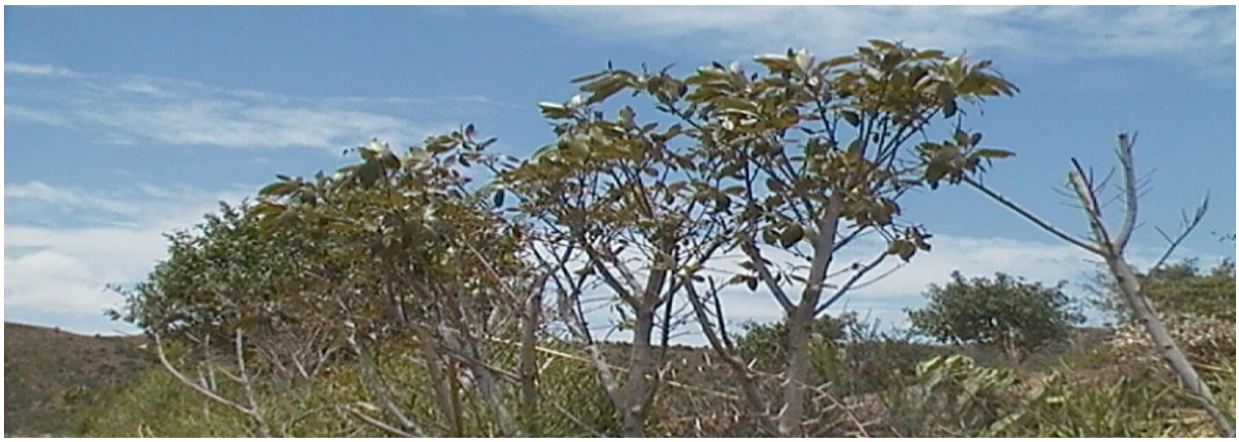

Figure 2. Fodder trees as a means to cope up with shortage of grazing land

Farmers also used an alternative energy sources to overcome the shortage of fuel wood. About 40.5% of the respondents used woodlots, 27% cow dung and 10.8% collection from natural forest by moving further distances. The rest (21.7%) used crop residues as a means of energy sources.

Figure 3. Woodlots as means to cope up with the shortage of fuelwood

More than half of the respondents (67.6%) had willingness concerning the protection of further exclosure practices in the future. The rest 32.4% did not show willingness due to apprehension for shortage of grazing lands for their animals.

Challenges of exclosures practices

When the respondent farmers were asked about the presence of challenges of exclosure practices, 45.9 % of the respondents indicated the existence of challenges in the area. Grazing animals (47%), thief (23.5%), shortage of grazing land (17.7%) and conflicts among peasant associations for land (11.8) are found to be the major challenges facing exclosure practices difficult in the study area. The most challenging aspect of exclosure practices in the study area was found to be grazing of cattle, sheep and goats. This problem would be severe in the absence of exclosure guard/keeper, the use of adjacent open areas for grazing and weak local by laws.

Table 2. The presence of guards, challenges, and the use of adjacent open sites

Questions	Yes	percent	No	Percent
Is there challenges of exclosure practices	17	45.9	20	54.1
Do you look livestock in the exclosure	19	51.4	18	48.6
Does the exclosure has guard	34	91.9	3	8.1
For what purpose the adjacent non-closed areas used				
✓ Grazing	17	45.9		
✓ Fuel wood and grazing	20	54.1		

Above 51.4% of the interviewed respondents looked livestock in the exclosure. Respondents (91.9%) also explained that exclosures did not have guards. As 45.9% and 54.1% of the farmers indicated the adjacent open areas are used for grazing of animals and fuel wood collection & grazing, respectively.

It was, therefore, seen as essential that animal grazing has to be controlled if the attempt made in exclosure practices are to be more effective enough. In fact, in Fana and Belewseged exclosures, animal as well as people interferences are low and the native woody species regenerated in better condition as compared to Wonbergie exclosure where there is high degree of interferences as it was understood from group discussion and vegetation survey.

As all the respondents agreed, traditionally the local communities have some form of local bylaw for protecting the exclosure from interferences. However, this local bylaw has been difficult to be implemented and practiced by the local people due to poor follow up of the watershed committee.

Socio-economic benefits of exclosures

The majority of the respondent farmers (94.6 %) agreed that there is a change in the vegetation coverage of exclosure. Many of them (43.3%) explained that after exclosure the vegetation coverage of woody plants mainly (shrubs and trees) has increased and these are dominant vegetation in the exclosures. Respondents (16.2%) observed also a good regeneration of grasses in the exclosure area.

Others exhibit as erosion reduced (13.5%), species diversified (8.1%), planted species established (5.4%), and no change (5.4%). The rest (8.1%) responded as wildlife observed. As some respondents stated due to the change in vegetation cover, wildlife such as Dikula, Jigera, are observed in the exclosures which were disappeared in the area mainly due to deforestation activities.

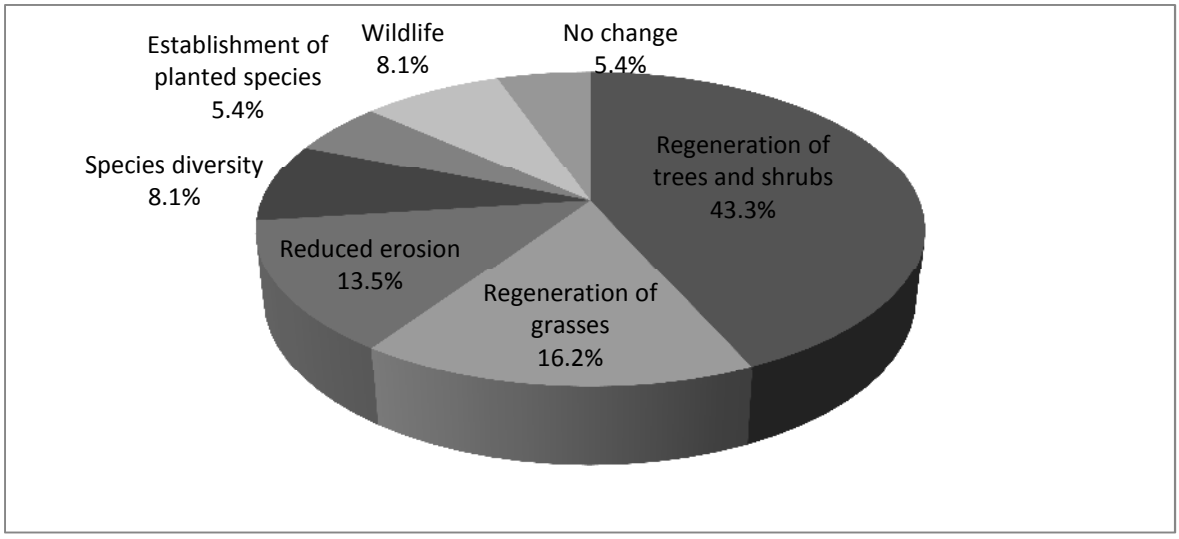

Figure 4. The major changes after exclosures

As 62.2% of the respondent confirmed that they had benefited from the exclosures. Some plant species in the exclosures are used as sources of traditional medicine for both human and animal treatment. Exclosures are also used as a source of forage for bees in the area. Besides, it gave higher aesthetic value to the environment. Above all, since all exclosures are established on the top of hills, they protect the down areas i.e. settlement and crop land from severe erosion and sediment accumulation. A majority of respondents explained the benefits of exclosures in terms of decreasing land degradation.

DISCUSSION

Socio-economic settings

Attitude of the local communities towards exclosure practices

All of the respondent farmers knew the presence of area exclosure practices in their locality through formal training, extension education and by their own experience. Farmers' pointed out the governments' extension education as the most important one. Most of them had positive attitudes towards exclosure practices in the study area. This is so, most likely due to the fact that the large proportion of the community members were participated in the effort made to establish the exclosed areas as well as in the decision-making process for site selection. In the contrary few respondents have negative attitudes for exclosure practices. The major reason given was the exclosure practices reduced grazing land for their animals.

As most of the elders and other respondents who know the area so far verified, the present study area were once covered with dense indigenous forests. However, farmers cleared those forests for different purposes. Many of them confirmed that the current severe land degradation problem in the area is the result of the total clearance of vegetation. According to the majority of the respondents view, the causes for the disappearances of indigenous forests in the study area were charcoal production and fuel wood collection, agricultural expansion and the increase in population size. Among these, charcoal production and fuel wood collection was the major once. Some time ago, the present study area were took the major share in satisfying the fuelwood demands of Gondar zuria district in general and Gondar town in Particular. Unlike today, that time even there was preference of species to be used for charcoal production as many respondent explained.

So as to over tackle land degradation problem in the area; NGOs in collaboration with agricultural office of the district have established exclosures by involving the local communities. The main aim of establishing exclosures in an area was to prevent further degradation and promote their re-vegetation (Forester, 2000). The socio-economic results from the present study evidently confirmed the importance of exclosure practices in the restoration of degraded lands thought the primary vegetation status of the study sites during the time of establishment of exclosures was not well documented. As majority of the respondent farmers indicated the coverage of vegetation mainly woody species increased after exclosure practice and the level of degradation decreased.

Majority of the community members participated on site selection efforts for exclosures and most of them agreed on the selection criteria. According to many respondents, the most important criterion for site selection was the level of land degradation. This indicated that the more an area is degraded, the more possibly it was to be exclosed for regeneration. During demarcation of a selected site the local community, the local administration, and the office of agriculture were involved as many explained.

A large proportion of the respondents were agreed and strongly agreed to establish exclosures in their

locality. But, there were also some individuals who disagreed to establish exclosure. In fact now they have changed their attitude after observing the change that brought due to exclosure practices. As almost all of the respondent farmers observed the status of vegetation is changed (increased) after exclosure. However, this study pointed out for addressing the degradation problem successfully by establishing exclosures cooperation among concerned bodies mainly extension workers, administrative bodies as well as active involvement of the local people, etc., was quite indispensable. Community understanding and acceptance of the need to keep off the exclosure area until after full regeneration is an important pre-requisite for long-term success (Jama and Zeila, 2005).

When the local respondent farmers were asked about the current responsible body for managing exclosures, majority of them responded that the community was responsible for the management of exclosures. While the remaining some replied that the government, community and NGO's together were responsible. This indicated that some of the community members were not very much clear about the current responsible body for managing exclosures. Besides, it was a good indicator of the low involvement of farmers in the management efforts and other activities of exclosure practices.

As some of the respondents perceived there was a shortage of grazing land and fuelwood after exclosures were established in the study area. This could be due to the fact that the area where now exclosed were not used for animal grazing and fuelwood collection. Most of the respondents used different types of means/approach to cope up with the shortage of fuelwood and grazing land. To cope up with shortage of grazing land, most farmers are using the already grown and established new fodder tree around their home compound as a source of feed for their livestock. In this aspect the species *Ficus thonningii* has found to provide farmers with a wide range of use in the area (Figure 2). Almost all farmers have this species in their farmyard. Though, feeding intensity varies depending up on the availability of the resource and the type of animals they own, majority farmers uses *Ficus thonningii* for animal fodder (Endege Diress, 2008).

The existence of fuel shortage due to exclosure was also reported by some respondent farmers. Like that of the means used for coping up shortage of grazing land, *Ficus thonningii* is also used as a source of fuel for their household energy consumption. Besides, most farmers in the study area had and have established woodlots whereby people extract fuelwood from it when they faced critical shortage (Figure 3). Moreover, the local people collect cow dung, crop residues and sometimes moved further distances to natural forests so as to solve their shortage of fuel wood.

Farmers were also asked whether they are willing to protect further area exclosure in the future. Majority of the respondents supported further expansion of exclosure practices in their locality while few of them preferred not to expand exclosure. The major reasons given for the low need of expanding exclosure were due to the apprehension of shortage of grazing land since most of the respondents owned livestock for farming, draught, dung, milk and social security.

Challenges of exclosure practices

Some of the respondent farmers (45.9) confirmed the presence of some challenges of exclosure practices in the present study area (Table 1). The most challenging aspect of exclosure practices in the study area was found to be grazing of animals mainly cattle, sheep and goats. In the study area, the main sources of feed for the livestock were free grazing on communal pasture, crop residues and browse from trees and shrubs (Endeg Diress, 2008).

Exclusion of livestock from the exclosures is important to regenerate degraded areas and to replace free grazing by cut and carry system. People, however, are not used a cut and carry system because of the free grazing tradition (Betru *et al.,* 2005). The result of this study revealed that domestic animals were free to find feed for themselves except turned out in the morning, directed and guarded by children during the day.

Traditionally, after crops were harvested, animals range freely over fields and patches of natural vegetation, while harvested crop residues were kept on tops of small trees or in specially fenced parts of the home compounds for feeding special animals. Sometimes the harvested crop residues were also kept to be used where there was scarcity of animal feed. This system of free range grazing in the area causes the entrance of animals in to the exclosures. This in turn result in the deterioration of the exclosures as the animals trample more than they eat, destroys seedlings of both naturally regenerated and artificially planted woody plants. The challenge of grazing animals on the exclosure practices are not only the damage caused on the artificially planted and naturally regenerated woody species but also they break down physical structures constructed for soil and water conservation.

All respondents agreed on the need for the guarding to protect the exclosures successfully from damage mainly by domestic animals. However, majority of them expressed their strong desire, the expense/payment of the guard to be covered by the government. This indicated that communities expected support from the government for the exclosures to be well protected. Their willingness to pay for guard was low.

Though protection was comparatively good where the government pays the guards, it was not sustainable because the government could not continue it in the long run since the government mainly depends

on donors for payments, mainly through the food for work program, and there was uncertainty about how long the donors will continue their support (Betru *et al.,* 2005). Therefore, the sustainability of the area exclosures can only be guaranteed if the community has taken a full responsibility for protection. Our own experience from other parts of the world has also shown that in areas with poor economies and free grazing traditions, communal arrangements were more sustainable than protection through hired guards (Betru *et al*., 2005).

It is vital to develop community management systems to manage and use exclosure areas. Exclosures can be viable systems if they have clearly defined users and realistic rules established locally. Indeed, laws and legislation should support community management systems to avoid the "tragedy of the commons." Exclosures with locality-specific (Maikhuri and Rao 2002) and community-based co-management systems are crucial and can be regarded as alternative approaches for managing degraded lands. Many of the community member agreed that the local community bylaw should be strictly implemented.

Some study indicated that the shortage of livestock fodder could make the protection and management of the emerging grasses in the area exclosures more challenging (Betru Nedessa *et al.*, 2005). In the present study, the incidence of theft was very high. This could be due to exclosures have not regular guard or low community based management system. During the vegetation survey cut branches were observed in Wonbergie exclosure which shows human disturbances of exclosure practices in the area.

Exclosure decreased land degradation and an increase in income from forest products. However, grazing areas for animals and wood for household fuel have decreased appreciably; these are the costs of the practice (Tefera Mengistu *et al.*, 2005a). In the present study some of the interviewed farmers and key informants expressed as shortage of grazing land becomes a constraint for exclosure practices in the study area. Thought the local community used different types of means to cope up the shortage of grazing land due to exclosures, this in particular would be the major challenge for further extension of exclosure practices in the area. As many mentioned there was nothing to be grazed in most of the grazing lands except some shrubs. However, farmers need the land to stay their animals particularly in the morning for some time until they are taken further distances for grazing or to keep them in short distances. This study revealed that the shortage of grazing land discourages the local farmers' interest/willingness specifically in the further extension and management of exclosure practices in the study area.

The other challenge of exclosure practices in the study area was conflicts between adjacent peasant associations for land due to lack of clear ownership i.e to which PAs the land belongs to. Resolving land and tree tenure/ownership issues reduces conflict and provides greater incentive to farmers or a certain community.

Without clear land ownership and legal backing/support at district and national levels, community based and individual tree planting initiatives will not be sustainable (FAO, 2003). In the present study, communities were facing with different problems with regard to land ownership which in turn affects exclosure practices. For instance, there still exist conflicts between two PAs such as Wonbergie and Dinzaz for land due to the absence of clear ownership. When communities do not have guaranteed ownership, they would not take responsibilities to undertake different types of rehabilitation interventions.

Socio-economic benefits of exclosure practices

The guiding principle for exclosures is that farmers should obtain direct benefits (Maikhuri *et al.,* 1997) and participate in decision-making, design, management, and evaluation (Maikhuri and Rao 2002), in order to avoid traditional consideration of forests and trees as less valuable, usually government resources.

More than half of the interviewed farmers perceived that they were benefited from the exclosure. The extraction of traditional medicine that can be used to treat human and animal health and source of bee forage were some of the actual benefits obtained from exclosures. Thought, the direct benefits are not significant in the study area, the improvement of aesthetic value as well as reducing land degradation problems were explained by many of the respondents. Key informants explained the potential of exclosure in providing the community forages for their animals for the future. This assumption was due to the better regeneration of grasses in the exclosures. In general, many of the respondents of the local community do not seem to be well clear about the direct benefits of exclosure practices in line with a study made by Betru Nedessa *et al*., (2005). This could be due to poor management plan of exclosure practices in the area.

CONCLUSION

The effort was made to assess the challenges associated with exclosure practices. Though the promising ecological and potential socio-economic benefit of exclosure was clearly demonstrated in this study, the findings of the socio-economic analysis indicated the existence of challenges in the undertakings of exclosure activities. It was identified that animal grazing becomes the most challenging issues in the study area. More over thief, shortage of grazing land and conflicts among PAs were other challenges. These problems primarily call for the need to have a practical and interactive farmers' participation to strengthen their management system.

By and large, the present study generated practical evidence, which demonstrated the actual and

potential role of exclosures in enhancing the recovery of woody vegetation on degraded lands, provided that they are properly protected and sustainably managed. To achieve this full participation of the communities at large from the very beginning of site selection to its establishment and proper management were indispensible. In other words, if the aim was to overcome the problem of land degradation via exclosure practices, the planning and implementation process of exclosure activities should ensure farmers' participation and make use of the existing local knowledge. This was because of the fact that most farmers know very well about the changes in their environmental conditions, challenges and opportunities for improvement.

RECOMMENDATIONS

Based on the present study findings, the following important points are recommended for successful area exclosure practices:

(a) Exclosure practice has a potential role in improving the recovery of woody vegetation on degraded lands. Moreover, it can also offer the local community different types of benefits and services. These can be achieved by proper protection and management. Thus, for addressing the ecological problems as well as socio-economic benefits by establishing exclosures, collaboration among concerned bodies, mainly office of agriculture, local extension workers, administrative bodies and active participation of the local people, etc., is quite indispensable.

(b) Attempts should be made by the surrounding community, government and other concerned bodies in order to address the various challenges of exclosure practices and to be able to step on further development activities. Local by-laws should be implemented and exercised after awareness created to the local communities.

(c) Efforts should be made by GO and NGOs in changing the perceptions, attitudes and behavior of local people towards their environments, livelihood diversification of households and in actual rehabilitation of degraded areas.

(d) Special attention should be given to solve shortage of grazing land due to exclosure so as to encourage community's interest in expanding and managing exclosure practices in their locality.

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