



SOCIO-ECONOMIC DETERMINANTS FOR REHABILITATION OF DEGRADED LANDS IN ETHIOPIA

Omer Hinde* : naaftoli@hotmail.com, Azmera Belachew, Beliyu Limenih

Ethiopian Environment and Forest Research Institute

Abstract

Several socio-economic factors hinder decisions to invest and sustain appropriate practices for overcoming environmental and land degradation. A better understanding and considering socio-economic aspects in line with expectations and demands of the main stakeholders helps to maintain restoration efforts of degraded lands. To this end, we reviewed and compiled a number of published and unpublished documents in order to draw socio economic determinants on rehabilitations of degraded lands. Our results indicated that socio-economic aspects have paramount importance in the rehabilitation program of degraded lands. The key determinants identified were active participation of local community, integrating local indigenous practices, market and finance access, priority for demand driven livelihood programs, improving extension capacity, capacity building, and improving community land tenure right. The exchange of information and experience sharing could also build confidence and reassure stakeholders that the land rehabilitation program is relevant to community needs. Therefore, it is imperative to inform stakeholders at all levels to address socio-economic aspects that could ensure sustainability of land rehabilitation interventions.

Keywords: *Degraded lands, Land rehabilitation, Social, Economic, Determinant, Ethiopia*

Introduction

Ethiopia has given much attention to rehabilitation of forest and land degradation in recent years as part of supporting key development goals. Ethiopia made new pledge to restore 22 million hectares of degraded lands and hence signed the New York Declaration in September 2014 (Brasser & Ferwerda, 2015). The Environmental Policy of Ethiopia has overall policy goal to arrest environmental degradation and combat desertification (Adugna, A., n.d.). One of its pillars to build Climate Resilient Green Economy (CRGE) is protecting and re-establishing forests as carbon stocks (FDRE, 2011). Hence, the government has put a number of initiatives in place to restore degraded ecosystems. However, the biggest challenge is to ensure that such interventions are sustainable (Bori, 2016).

Many socio-economic constraints hinder decisions to invest and sustain appropriate practices for overcoming environmental degradation. Among the most important appear to be poverty, land tenure, local market development, local institutional and organizational development, and farmers' perceptions and attitudes (Lakew, Menale, Benin, & Pender, 2000). According to Birhanu (2014), poverty is one of the fundamental problems affecting environmental resources management, which causes enormous environmental damage as the poor forced to mine the rapidly deteriorating natural resources in their surroundings. The main consequences of land degradation negatively affect human livelihoods and environment, which reduces land productivity and affects food security (Blay *et al.*, 2004). Land degradation process also increases competition for scarce resources with possible conflicts between users (Appanah, Shono, & Durst, 2015).

A better understanding of the socioeconomic aspects helps to establish whether the purposes of the restoration projects are in line with the motivations, expectations, pressures and needs of the concerned stakeholders. Issues associated with policies, institutions, and social are often more important than technical issues (Birhanu, 2014). Chirwa (2014), pointed out rehabilitating of specific degraded areas depends first on the priorities and management objectives of stakeholders followed by the costs and benefits as well as the economic, social, and environmental values of the land resources in their current and desired future states. However, mostly attention of the Development Agents and other stakeholders has been focused on biophysical impacts of rehabilitation of degraded lands, while economic and social well-being of the households have often been neglected (Lemenih, Negash, & Teketay, 2007). Research into entitlements, environmental justice and vulnerability suggests that tackling desertification is not just about adopting physical remedies. Social remedies such as economic and social impacts are need to be tackled collectively in an integrated manner, rather than separately (Low, P.S. (ed), 2013). It is suggested that Policy makers and practitioners need to move from a purely environmental orientation towards also ensuring socio-economic benefits for sustaining intervention (Lemenih & Kassa, 2014). Ac-

According to Lemenih et al., (2007), understanding the social and economic system of the local people is the starting point for successful rehabilitation.

As part of national effort, Ethiopian Environment and Forest Research Institute has taken initiative to implement project on rehabilitations of degraded lands on various sites. Hence, considering socio economic aspects along with biophysical techniques has found important for intervention effort. Therefore, this study aimed to identify socio economic determinants to draw lessons, which enables or hinders in similar previous project activities by different development actors. From the review, number of socio-economic determinants have been drawn that provide the basis for recommendations to guide the way forward in land rehabilitation effort in future.

Literature Finding

Projects on rehabilitation of degraded lands considered successful if it addresses community participation; creating sense of ownership; capacity building; land tenure right; market and finance; indigenous knowledge; extension and communications; and institutional aspects.

Community Participation

Community participation is the process of encouraging the local people to apply their initiative and energy in sustainable integrated watershed management (AMAREW, 2007). The involvement and empowerment of local communities at all level of the decision making process in natural resource management has been found to be more sustainable and beneficial (UNDP, 2014; Birhanu, 2014; Berry, n.d.). Blay et al., (2004) states the need for stakeholder consultation and involvement about causes and consequences of land degradation, and benefit sharing of land rehabilitation. Chirwa (2014) reveals that natural regeneration through active involvement of local communities promoted under PFM is the most successful and promising option for restoration of degraded lands. According to Gashaw (2015), participatory natural resources management accompanied with sustainable livelihood would greatly contribute for rehabilitation of degraded environment. Strong community participation and a demand-driven approach are among the driving forces of successful watershed management (Giordano & Langan, n.d.; Bishaw, 2001). According to Deichert *et al.*, (2014), participatory approach promotes collective action and ownership of the people involved and can address obstacles in a targeted way. On the other hand, poor participation of especially local communities in the establishment and management of natural resources might compromise results and sustainability (Birhane et al., 2017). Little emphasis to community participation in management and decision-making can contribute to the community's sense of alienation and indifference and ultimately to the failure of rehabilitation endeavors (Lemenih et al., 2007). In case studies in Amhara high land, lack of active participation of the communities in general and women in particular in all processes of watershed

development lowered its sustainability. For instance, the role of communities was predominantly limited to the construction of soil and water conservation measures (Woldeamlak,2001; Tatek *et al.*, 2015) .

Demand driven program

Literature indicates that project needs to have a clear potential to deliver tangible and short-term benefits to community. According to Appanah *et al.*, (2015), natural resources can be better managed when viewed from a broader perspective, considering and involving the perceptions, needs and interests of all stakeholders, including local communities and individual land users. Balancing public goods and services provision with private benefits is key to ensuring the long- term sustainability of the restored landscapes. Birhanu (2014) maintains long-term sustainability is more likely achieved if development is driven from the bottom-up and if it addresses farmers' and communities' immediate needs and constraints. According to Blay *et al.*, (2004) and Tatek *et al.*, (2015) case studies in Amhara and Tigray regions show that rehabilitation projects which use high-value trees or which improve livestock management practices is likely to be more successful than projects which restrict their objectives to the repair of biophysical degradation. Rinaudo (2010) noted that Tigray region community increased their conservation efforts when economic benefits became apparent. Deichert *et al.*, (2014) recommended sustainable use of wood and non-timber forest products (NTFPs) as an integral part of the approach to productive landscapes. Lemenih & Kassa(2014) put forward that ensuring re-greening practices generate sufficient economic incentives for a community is a key for sustainability. They emphasized when individuals are likely to generate direct and tangible benefits, they will be motivated to participate in re-greening initiatives, be it individually or collectively.

Creating Awareness and Sense of ownership

Studies show that throughout project design and implementation there is need for community awareness raising. Blay *et al* (2004), pointed out rehabilitation activities should be preceded by creation or raising the awareness of the stakeholders. By using various approaches, it is essential that the causes and consequences of land degradation, feasible rehabilitation techniques and benefits of rehabilitation need to be covered. According to Birhanu (2014), lack of environmental awareness concerning the linkage between environment and development is one challenges of Ethiopia face now days. Community should pay for environmental services, which would feel owning and sustaining assets. When people make real contributions of their own resource, they would insure the implementation of the planned activities(AMAREW, 2007). Blay *et al.*, (2004) state equitable sharing of costs and benefits within communities and government give communities a sense of ownership. Similarly, Birhane*et al.*, (2017), noted that equitable sharing helps create a sense of ownership and smooth implementation of management plans by community members. They explained unfair and less transparent benefit-sharing mechanisms

degrade the sense of ownership among community members and encourage community members to engage in illegal activities.

Land and Forest tenure

Over long periods of time, farmers have not been granted land security which prevent them in investing for long term productivity (Ludi 2002; Amare Bantider 2007). Clear definition of land and forest tenure, and rights of access to forest and wood land resources for restoration of degraded forest and tree resources as well as wood-land areas contribute to both peoples' livelihoods and environmental quality (Chirwa, 2014). The existence of a favorable political and policy environment that provides a clear legal framework for ownership and/or usufruct rights of local communities over their natural resources encourage restoration (Blay et al., 2004). According to Appanah *et al.*, (2015), secure land tenure is particularly important for achieving sustainable land management and boosting livelihoods. A policy research focusing on the link between rural poverty, food insecurity and environmental degradation in Ethiopia found that a crucial possible link between all three was land ownership. One of the best ways to provide farmers the incentives to increase productivity and to protect natural resources is, to give them security of land through ownership (Adugna, A. (n.d.). Well-defined and secure tenure is critical for the sustainable management of natural resources(Birhane *et al.*, 2017). Better tenure security, clear user rights, and devolution of responsibilities to lower levels of organization (individual household or smaller community) help facilitate collective action for better re-greening initiatives in communal systems (Lemenih & Kassa, 2014). For instance, it argued that the best tenure for enclosure is for it to be communal and suggested community-based management as the best management strategy. Farmers in this group feared that individuals might change the land use system. Both formal and informal rules and regulations are very important for the sustainable management of enclosures. Therefore, community-based comprehensive rules and regulations that are binding are required (Birhane *et al.*, 2017). The most important enabling conditions for smallholder production are favorable policies across different aspects of management and marketing; and clear and secure land tenure and rights including the right to manage, harvest, transport and market produced wood (Nawir *et al.*, 2007).

Creating economic incentive and Subsidy

Review literature show that the need to create incentive and subsidize people for benefit loss from land under rehabilitation effort. Inadequate attention paid by government toward securing alternate means of livelihood to ease pressure on land, the need to obtain short term benefits rather than long-term from land are the very important ones in the study area (Mesfin, 2010). Chirwa (2014) pointed out the need to associate the forest and land restoration/rehabilitation implementation with forest enterprise development (e.g. Farm Forestry/Out-growers)

and payment of environmental services. Lemenih *et al.*, (2007) suggest the dependency of local people for grazing and fuel wood can be reduced through introduction of agro forestry practices, energy-efficient stoves, and woodlots at the farm level. The limitations on alternative energy source and construction materials force the communities in the landscape to largely rely on surrounding forests both for energy and construction (Duguma *et al.*, 2019). Adugna, A. (n.d.) recommended that incentives and regulatory policies to compensate for externalities that may adversely affect natural resources: for instance, the use of price-based incentives such as subsidies, taxes, and other incentives are preferable to direct regulation. According to Lemenih&Kassa (2014), poor households can hardly afford to lose short-term economic gains for long-term environmental benefits unless they are properly compensated for that loss. Similarly, research evidence for effective enclosure in Halla district of Tigray region shows that people should aware of its benefits for their cattle and fuel wood. Otherwise, encroachment for forage grass, fuel wood and pole is common (Asres, n.d.). Giving emphasis to land management practices which was economically viable (Tadele, 2016) and collaborative plantation management by guaranteeing them a share in the profits from the timber, can help strengthen the communities' commitment to sustainable forest management (Nawir *et al.*, 2007).

Market and Finance

Poor marketing and financial arrangements can prevent large-scale investment in trees and land restoration whereas innovative financial tools that provide early rewards can be drivers of investment in forest and land rehabilitation (Appanah *et al.*, 2015). According to Berry (n.d), better market access and credit services can have positive impacts on land improvements and resource and welfare conditions, indicating that 'win-win' development strategies can reduce land degradation and poverty. Markets have been the major driving force behind the expansion of small-scale plantations across the highlands of Ethiopia. High return on investment in plantations is driving the conversions of even farm and grazing lands to woodlots in some areas in the central and western highlands. In some cases, however, markets especially the labor market may negatively influence plantations by increasing the opportunity cost of labor (Lemenih & Kassa, 2014). The need for diversification of income generating activities and adding value through developing markets and marketing has advantage (Blay et al, 2004). Access to credit and financing schemes can be vital help for rural people to start new SLM initiatives. Thus, well- functioning financial services and mechanisms (such as micro-credit) need to be established, enabling land users to take the initiative for self-financing SLM interventions. Financial support needs to be maintained or even enhanced for institutions providing advice, plans and decision support at all levels, to ensure sufficient and effective support to land users (Liniger *et al.*, 2011).

Extension and communication

According to Birhanu (2014), poor coordination among research, extension and education has affected formal technology development and the transfer of technologies from researchers to local experts and local communities, particularly the farmers. He noted though the decentralization of the administration system down to woreda level, no clear and strong linkages for information exchange and sharing. Appropriate information on the resource base, the extent of environmental degradation, the costs and benefits of applying sustainable environmental management as well as information on the nature of the different practices available is required to make decisions at different levels. In addition to lack of proper information and poor communication, the absence of clear up-scaling mechanisms hinders up-scaling of successful sustainable land management practices in the country (Zelege *et al.*, 2006). They noted in their study lack of an appropriate forum to share information and access to modern information communication systems. Birhane *et al.*, (2017) found that the local administrators and experts have played significant roles in disseminating information on the practices and roles of exclosures. Blay *et al.*, (2004) put forward dissemination of technologies in close partnership with existing governmental and non-governmental agricultural extension services of improved technologies are needed for rehabilitation of degraded lands. The researchers propose sharing information and experiences has value in rehabilitation effort. Inter and intra project sites along with visits to share experiences among community members, have taught the community new ways of doing things (UNDP, 2014).

Institutional stability

The structuring of institutions dealing with natural resources management undermines a sense of ownership by program staff, results in high staff turnover, wastes institutional capacity, and causes discontinuity of activities and initiatives and loss of institutional memory (Birhanu, 2014). According to Zelege *et al.*, (2006), the cost of institutional instability in the country is immeasurable. They notified Ethiopian policy makers have been busy revising institutional set-ups for nearly three decades and appear not to consider the damage this inflicts on the country's economic development. More over Low, P.S. (ed), (2013) put forward the need to understand the institutional settings in which land users make decisions that may lead to or avoid desertification. He noted that the rate of desertification could be reduced if societal institutions were audited to check for constraints that lead to poor people degrading land instead of managing it sustainably. Appanah *et al.*, (2015) indicated stability of local and national-level institutions could support local processes by providing adequate governance structures, encourage equitable participation of stakeholders, and ensure necessary technical and financial support.

Indigenous Knowledge and Practices

Review literature show that indigenous knowledge and practices would support natural resource management. Local communities are rich in indigenous knowledge and practices that can further enhance better chance of

success for sustainable land resource management (Woldeamlak, 2001; Birhanu, 2014). The indigenous local knowledge held by local farmers of trees in farmed landscapes is important alongside modern science to manage, develop, conserve, and use on-farm trees (Mohammed & Asfaw, 2015). Blay *et al.*, (2004) emphasized that rehabilitation methods are simple and inexpensive if it related as much as possible to local knowledge and practice. According to Zeleke *et al.*, (2006) and Gadisa (2016), lack of proper integration of introduced practices with indigenous knowledge of the different communities during introduction of technologies are some of the other factors reported by stakeholders as negatively affecting the success and improvements to land resource management. Giordano & Langan(n.d.) noted that farmers have enormous indigenous knowledge and creativity, which many externally driven developments programs often fail to consider. For instance, Adugna (n.d) found that an ecological study compared the land degradation assessment techniques used by indigenous ecological knowledge (IEK) of the Borana pastoralists to the techniques used by trained ecologists concluded that IEK was effective to determine landscape suitability and potential grazing capacity of individual landscapes and regional levels.

Capacity building

Capacity building interventions are necessary for community level initiatives. The aim of building the capacity of the community is to manage their resources and to guarantee sustainability of interventions of land rehabilitation program. The role of government and donors should focus on creating an enabling environment and then communities have high interest in rehabilitating natural resources (AMAREW, 2007). Blay *et al.*, (2004), emphasize Local communities should empowered through functional institutional frameworks at village level to oversee planning, implementation and monitoring; Capacity building to enable communities to implement the projects; and equitable sharing of both costs and benefits within the communities and between them and the government. Deichert *et al.*, (2014), found positive results in a multi-level approach through the provision of capital investment, technical assistance and capacity building for smallholder farmers in the watersheds management. According to Blay *et al.*, (2004) capacity building needs to take account of the holistic approaches, experience sharing, skill development and planning for sustainability. He noted the importance of developing the skills of individuals and communities in planning, organization, management and accounting through training has paramount importance. Liniger *et al.*, (2011) recommended land user capacity building and empowerment through people-centered learning, and training-the-trainers initiatives using local promoters and innovators from farmer-to-farmer.

Conclusions and Recommendations

Study indicated that addressing socio-economic factors as physical techniques are equally important to mitigate land degradation. To arrest land degradation, issues like Indigenous knowledge and practices; improving mar-

keting and finance access; give high priority to need based and livelihood programs; improve extension capacity; and develop land tenure right should keep into consideration.

Greater participation of local community in the identification of local land degradation issues and their remediation has to be addressed. The exchange of information and partnership will help build confidence and to reassure all that the programs are relevant to their needs and ensures they have a sense of responsibility towards the project. The provision of economic incentives is important for local people for their involvement and management practices as well as for any loss of environmental services from the land under intervention.

The government should introduce land and tree tenure policy to promote land rehabilitation programs. Landowners and farmers should have the guarantee to plant and own the forests. Local people awareness on ecological and socio-economic importance of rehabilitated sites is needed, which in turn ensure the long-term desired management, conservation and sustainable utilization of benefits of the land. Moreover, improved technologies for rehabilitation of degraded lands should be implemented in close partnership with existing governmental and non-governmental extension services.

The need for institutional stability and its capacity to disseminate appropriate knowledge regarding natural resource management and rehabilitation effort is important. Therefore, it is imperative to inform stakeholders at all levels regarding socio economic aspects, which could ensure sustainability of land rehabilitation interventions.

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