

# Shared strengths and limitations of participatory forest management and area enclosure: two major state led landscape rehabilitation mechanisms in Ethiopia

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## SUMMARY

Participatory forest management (PFM) and area enclosure (AE) are two major degraded forests and agricultural landscapes rehabilitation mechanisms in Ethiopia. This study examined shared strengths and limitations of PFM and AE. The major strength of PFM is that the process begins by convincing communities to establish access and management norms in defined areas within natural forests that are traditionally under *de facto* open access regimes. In establishing AE, communities are engaged and encouraged to identify, demarcate and socially fence degraded communal lands to ensure proper conservation in accordance with agreed bylaws. However, both PFM and AE also exhibit some common problems: unclear ownership and use rights, low levels of community participation, poor productivity and weak institutions undermine positive gains and sustainability of the two state-led FLR mechanisms in Ethiopia. This research identified measures that would potentially improve the outcomes of PFM and AE in rehabilitating degraded forests and lands in Ethiopia.

Keywords: communal lands, enclosure, improvement measures, community participation, landscape rehabilitation

## Forces et limitations allant de pair dans la gestion forestière participative et dans l'exclusion de zones: deux mécanismes majeurs de réhabilitation du paysage conduits par l'état en Ethiopie

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La gestion forestière participative (PFM) et l'exclusion de zones (AE) sont deux mécanismes majeurs de réhabilitation du paysage forestier en Ethiopie. Cette étude a examiné le mélange de forces et de limitations de la PFM et de la AE. La force principale de la PFM réside dans le fait que son processus s'amorce par une démarche convainquant la communauté d'établir des normes d'accès et de gestion dans des zones définies au sein des forêts naturelles qui sont traditionnellement témoin de régimes passivement acceptés d'accès ouvert. En établissant la AE, les communautés sont sollicitées et encouragées à identifier, à démarquer et à dresser une clôture sociale autour des terres communes dégradées, afin d'en assurer une conservation correcte, suivant les règlements acceptés. La PFM et la AE font toutefois preuve de problèmes communs: droits d'utilisation et fonciers peu clairs, faible niveau de participation communautaire, et une maigre productivité ainsi que des institutions peu efficaces affaiblissant les gains positifs et la durabilité des deux mécanismes FLR conduits par l'état en Ethiopie. Cette recherche a identifié des mesures qui pourraient potentiellement améliorer les résultats de la PFM et de la AE dans la réhabilitation des terres et des forêts dégradées en Ethiopie.

## Fortalezas y limitaciones compartidas del manejo forestal participativo y la exclusión de áreas: dos mecanismos principales de rehabilitación del paisaje liderados por el estado en Etiopía

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El manejo forestal participativo (MFP) y la exclusión de áreas (EA) son dos de los principales mecanismos de rehabilitación del paisaje forestal en Etiopía. Este estudio examinó las fortalezas y limitaciones que comparten el MFP y la EA. La mayor fortaleza del MFP es que el proceso comienza por convencer a las comunidades de que establezcan normas de acceso y de gestión en áreas definidas dentro de los bosques

naturales que tradicionalmente están, de facto, bajo regímenes de acceso abierto. Al establecer una EA, se involucra a las comunidades a participar y se les anima a identificar, demarcar y delimitar socialmente las tierras comunales degradadas para garantizar una conservación adecuada, de acuerdo con los estatutos acordados. Sin embargo, tanto el MFP como la EA presentan también varios problemas comunes: la poca claridad sobre la propiedad y derechos de uso, los bajos niveles de participación comunitaria, una productividad deficiente y la debilidad de las instituciones socavan los logros positivos y la sostenibilidad de los dos mecanismos de rehabilitación del paisaje forestal promovidos por el estado en Etiopía. Esta investigación identificó medidas que potencialmente podrían mejorar los resultados del MFP y la EA en la rehabilitación de bosques y tierras degradadas en Etiopía.

## INTRODUCTION

Although the need to restore landscapes was emphasized as early as the 1980s, the subject began to receive global attention after the Bonn Challenge was established in 2011 to meet an ambitious target of restoring 150 million ha of degraded lands by 2020 (Pistorius *et al.* 2017). The target was increased to rehabilitate 350 million ha by 2030 following the 2014 UN Climate Summit in New York. Ethiopia made the largest pledge, aiming to restore 22 million ha. Community Forest Management, introduced in Ethiopia as Participatory Forest Management (PFM), has been the most widespread approach to conserving natural forests in developing countries although its impact on improving the livelihoods of communities and human well being in general has been minimal (Rasolofson *et al.* 2017). In Ethiopia, PFM was introduced with the intention of improving community access to and use of natural forests according to management plans that would be negotiated between communities and forest authorities. Although Ethiopia has practiced PFM since the mid-1990s, a number of studies have highlighted the need to address challenges that undermine its sustainability.

On the other hand, Area Enclosure (AE), which means the degraded land is protected from the impact of human and domesticated animal activities, has been a traditional practice for a long time in Ethiopia, particularly in controlling seasonal access to grazing lands. In fact, the practice was officially promoted as a mechanism for the rehabilitation of degraded hillsides in northern Ethiopia before the introduction of PFM. The government of Ethiopia (government) considers PFM and AE as mechanisms for rehabilitating degraded forests and agricultural landscapes, respectively. These two are the major mechanisms that the government is planning to employ in its effort to accomplish its commitment for the Bonn Challenge. Thus, identifying strengths and limitations of these two landscape rehabilitation mechanisms would enable the government to build on the strengths and address limitations as it takes PFM and AE to scale. Forest landscape rehabilitation (FLR) is complex because it must simultaneously follow an anthropocentric approach while restoring ecosystem services (Pistorius *et al.* 2017). As a result, this paper examines how these two major landscape rehabilitation mechanisms are used in Ethiopia, suggesting improvement measures that could enhance the sustainability of FLR initiatives by making them work better for communities.

### National Context

With a population of about 100 million people, Ethiopia is the second most populous nation in Africa. Most people and the

health of the national economy are heavily dependent on agriculture. A rapidly growing rural population combined with more frequent droughts and high poverty levels exacerbate overexploitation of the country's forests and land resources. Most rural households live in the highlands where farm sizes are small (the average being less than 0.5ha/household) (CSA 2017). The drive to increase agricultural production has resulted in a rapid expansion of cultivated areas into forests and marginal lands. As a result, much of the highland areas where the majority of rural people live have been categorized as moderately or severely degraded since the 1980s (FAO 1984). Commonly cited immediate causes are: forest clearing for agricultural use, overgrazing, and overexploitation of existing forests for wood for fuel and for construction (CRGE 2011). Land degradation is more pronounced in central and northern Ethiopia due to centuries of farming and deforestation (Hurni 1988, Nyssen *et al.* 2009) resulting from demand for biomass for fuel, wood for housing and fencing, and fodder for livestock (Tekle 1999). These challenges are further compounded by more frequent and severe droughts resulting from unusually variable weather patterns caused by climate change (CRGE 2011).

Recently the government realized that the business-as-usual path of development would worsen the level of degradation of natural resources. Hence, discouraging extensification of agriculture, protecting and properly managing existing forests and woodlands, and establishing new forests through afforestation and reforestation were identified as priorities of the government in its 2011 Climate Resilient Green Economy (CRGE) Strategy. The strategy was designed to foster economic development and growth, ensure mitigation of greenhouse gases (GHGs) and support adaptation to climate change by limiting emission of GHGs to the 2010 level, estimated at 150 Mt CO<sub>2</sub>e (CRGE 2011). The CRGE strategy aims to make Ethiopia a middle-income country by 2025, and to make economic growth carbon neutral by 2030. The government pledged to rehabilitate 15 million ha of degraded landscapes by 2025 as part of the Bonn Challenge, a pledge that was increased to 22 million at the 2014 UN Climate Summit in New York.

Ethiopia's 2016–2020 five-year development plan, known as the second growth and transformation plan (GTP II) is informed by the CRGE strategy. It aims to put 2 million ha of natural forests under PFM, while identifying and demarcating 4.5 million ha of degraded land for afforestation or reforestation and supporting national tree planting initiatives to increase national forest cover by 4.5%. The most important measures aimed at reducing forest and land degradation

include: assisting natural regeneration in defined areas by excluding human and animal interference through the establishment of exclosures (Birhane 2002, Mengistu 2001 and Seyoum *et al.* 2015); engaging communities in the management of protected forests through PFM (Bekele 2003, Tesfaye 2011, Tesfaye *et al.* 2015) and mobilization of communities in soil and water conservation works and tree planting campaigns (CRGE 2011). Accordingly, millions of rural households are mobilized annually, providing free labor for natural resources management work. Governmental efforts to rehabilitate degraded lands are supported by the Sustainable Land Management Program, a major donor-supported program designed to harmonize agricultural development and natural resource conservation.

### Area Exclosures

The rehabilitation of degraded lands by allowing them to rest by leaving them to lie fallow for periods of time has been practiced in most rural societies around the world. Additionally, rotational grazing and deferred pasturing, which allow vegetation to regenerate during the rainy season, have been practiced for centuries in Tunisia, Algeria, Niger, Ethiopia and Somalia (Birhane 2002). Exclosure allows degraded lands to rest for a number of years to encourage regeneration of natural vegetation (Bendz 1986). The term area enclosure (AE) is defined as “a method for land rehabilitation by protecting an area from interference of animals and human encroachment for a limited period of time depending on site capacity and vegetation re-establishment” (Seyoum *et al.* 2015). It includes rehabilitating degraded lands within a given watershed and scaling it out to neighboring areas (horizontally), and making the necessary institutional arrangements to taking AE at regional and national levels (i.e. vertically) with a view to enhancing ecological and socioeconomic benefits of landscapes (Seyoum *et al.* 2015). As of the 1980s, government agencies in northern Ethiopia began establishing AEs as a means of managing degraded lands and as an integral part of soil and water conservation work to allow degraded crop or grazing lands to rejuvenate, to reduce soil erosion and land degradation, and to increase productivity (Birhane 2002, Mengistu 2001). Since then area enclosure has been widely promoted and reportedly covered large areas in Tigray Region and is being promoted in other parts of the country as an important landscape rehabilitation mechanism through exclusion of human and animal interference, the planting of trees, and assisting natural regeneration to achieve social, environmental and economic benefits (Tekle 2001). In the Tigray Region of northern Ethiopia alone, over 1.2 million ha of land are reportedly put under exclosures (Seyoum *et al.* 2015). The size of an AE varies from few hectares to several hundred hectares. To restore degraded lands, designated and demarcated areas are closed off and, in some cases, soil and water conservation works are carried out. In some areas, the practice has also included tree planting (Pohjonen and Pukkala 1990) and assisting natural regeneration through, e.g., removal of undesired species and clearing around those that are needed. Over the past decade, government institutions

in other parts of the country have also begun promoting exclosures, and AE has become an integral part of soil and water conservation work. AE is one of the main mechanisms Ethiopia is adopting to rehabilitate 15 million ha of degraded lands over the next decade (CRGE 2011). Thus, closer examination of the AE mechanism and identifying its strengths and limitations will certainly help to better inform planners and development practitioners.

### Participatory Forest Management

Participatory forest management (PFM) is an agreed arrangement negotiated by government and local communities implemented through fairly divided management functions, benefits and responsibilities over a particular area of forest land to improve management, ensuring regulated access and use according to a jointly developed forest management plan (Tesfaye *et al.* 2015). PFM is commonly believed to have arisen in response to challenges related to the social characteristics of managing forest resources (i.e. the issues of ‘who manages the forest’ and ‘how’). The purpose of PFM can generally be described as solving problems arising from the conflicting interests and concerns of different social actors within forest resources management, in an effective and equitable way. The literature often applies PFM as an umbrella term to refer to various systems developed in different countries, including community forest management, collaborative forest management, and joint forest management. It encompasses the different forms of arrangement by which government and local communities negotiate and agree to manage and use a particular forest or area of forest, and aims at promoting sustainable management and conservation of forest ecosystems, while improving the livelihoods of people living in, or around, these resources (Tesfaye *et al.* 2015). The introduction of PFM in developing countries was catalyzed by several factors at the international level. The Tropical Forest Action Plan, an outgrowth of the Agenda 21 framework initiated in Rio de Janeiro in 1992, sought to reverse deforestation by involving local stakeholders, especially communities living in and adjacent to forest areas. Attempts to promote effective and meaningful involvement of local communities in managing forests were made in the Asia-Pacific region, e.g. in the devolution of management responsibilities for some forestry activities to local government units and to communities in the Philippines, China, India, Nepal, Laos, Vietnam, and other countries (Paul and Chakrabarti 2011).

In Africa, PFM is still a new concept though its implementation has widespread since the 1990s (Amanor 2004), as part of a movement towards decentralization and devolution of state enterprise management, under structural adjustment programs. Since then PFM, in its different forms, has been practiced in diverse social and biophysical contexts in many African countries, to promote the sustainable management of forests (Wily 2002). The literature asserts that PFM can potentially contribute towards achieving improved forest conditions and enhanced rural livelihoods, as long as local communities are recognized as important stakeholders in forest management and encouraged to participate actively. In

the case of Ethiopia, PFM is considered a response to reducing high rates of deforestation witnessed in state owned natural forests and the challenges related to social dimensions of forest resources management, including considerations regarding who has access to state forests and how forests are managed. The purpose of PFM can generally be described as solving problems arising from conflicting interests and concerns of different actors and their objectives for forest management, in an effective and equitable manner. The literature often applies PFM as an umbrella term to refer to various systems developed in different countries, including community forest management, collaborative forest management, and joint forest management. PFM approaches recognize and manage conflicts between livelihood needs and economic interests of communities, and conservation and protection objectives of the state (Tesfaye *et al.* 2015).

In Ethiopia, except individually owned plantations, all forests are under state ownership since mid-1970s. PFM was introduced in the mid-1990s and since then recognized by the government as a mechanism to reverse deforestation and improve management of state-owned natural forest and woodland resources. It however remains to be an initiative of NGOs and has not thus far been mainstreamed in government forest management structure. The management regime outside PFM is the status quo where the forest is owned and managed by the state while in reality no protection is provided by the government. Thus, areas outside PFM continue to be poorly protected, hence are *de facto* open access though this varies with location or accessibility and the strength of local government structure to protect forests. The country adopted PFM for three fundamental reasons: (i) **Constitutional**: in the constitution, the rights of communities to use natural resources is recognized; (ii) **Practical**: the government does not have the resources needed to protect all state-owned forest resources; and (iii) **Effectiveness**: studies concluded that deforestation and degradation rates are much lower in forests under PFM than in forests outside PFM (Ameha *et al.* 2014, Kassa *et al.* 2009, Lemenih and Kassa 2014). With the implementation of PFM, the open-access regime that previously characterized resource management in the country has been minimized. Where PFM has taken root to a certain extent (e.g. in the Bale Dodola forests located in Oromia region), forest degradation has shown substantial decline and tree regeneration has improved (Ameha *et al.* 2014). Although economic returns have been slow to materialize, PFM members are now able to access forest resources legally (Tesfaye *et al.* 2015). Various studies show that without PFM, rates of deforestation may have been much higher (e.g. Kassa *et al.* 2009). Additionally, local communities have developed a strong sense of ownership, though this has not yet been supported with secure tenure regime, and exhibit a more positive attitude towards conserving forests (Tesfaye *et al.* 2015). An estimated 1.5 million ha of forests have been put under PFM since the mid-1990a when PFM was first introduced to Ethiopia (Lemenih and Kassa 2014). PFM is also a strategy to achieve Ethiopia's commitment to reduce emissions from deforestation and forest degradation. As PFM forms the institutional framework aimed at improving management of 7 million ha

of natural forests and woodlands, further studies on improving its effectiveness and implementation are required.

Economic returns to communities resulting from PFM have remained low because bylaws have led to reduced access by local people who previously had free access to forests. Under PFM, extraction of forest products is largely limited to non-timber forest products; in many cases, timber extraction is prohibited unless the forest has an approved management plan. Women's participation in PFM is still at a rudimentary level. Moreover, when PFM projects that so far have been initiated and supported by NGOs are phased out, operational activities in many PFM areas decline due to lack of readiness by the government to assume responsibilities and provide needed administrative and technical support to groups previously organized under PFM, and to undertake regular monitoring of PFM sites (Tesfaye *et al.* 2015).

## Objectives

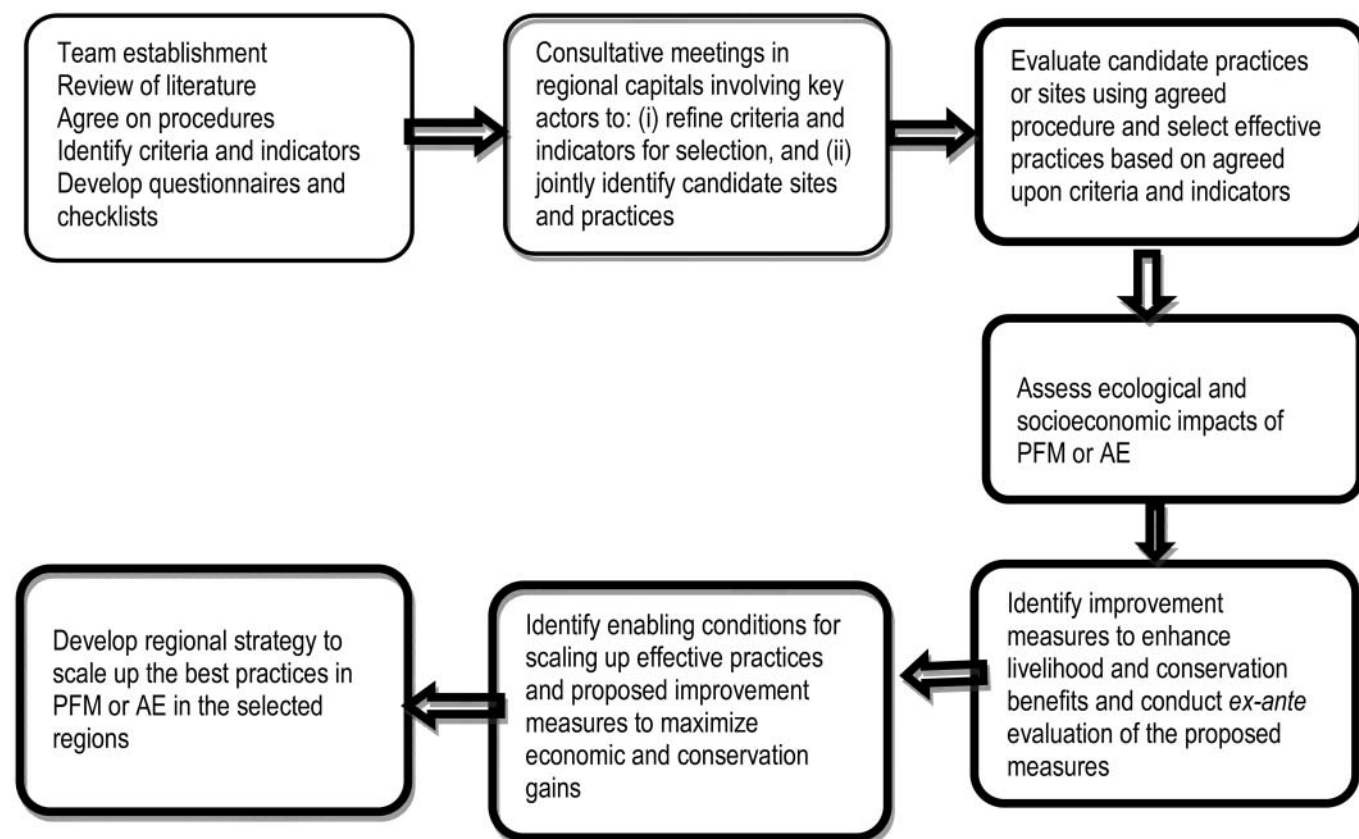
Though the Ethiopian Government has adopted PFM and AE as mechanisms to reduce deforestation rates of natural forests and rehabilitation of degraded landscapes, respectively, our knowledge on how to improve effectiveness of these rehabilitation mechanisms remains limited. Factors affecting the performance and sustainability of these two FLR mechanisms are poorly understood. Successful scaling-up through wider adoption of PFM and AE should be informed by empirical study that critically examines strengths and limitations when the mechanisms are applied to various sites.

However, so far, comprehensive and independent studies that could systematically assess these two major state-led FLR initiatives and identify good practices and improvement measures to enhance conservation, livelihood benefits and sustainability have been lacking. Understanding the shared strengths and limitations of PFM and AE will help policy makers and development practitioners take measures to improve their efficiency and sustainability. A joint project by the Center for International Forestry Research (CIFOR) and Ethiopia's Ministry of Environment, Forest and Climate Change (MEFCC) was undertaken to help fill this gap in knowledge. The two major project objectives were: (i) to review major state-led FLR initiatives in Ethiopia in view of identifying effective practices for scaling up; and (ii) to identify improvement measures that maximize positive impacts of these practices and enabling conditions to sustain them. Based on the findings of the project, this paper highlights results on shared strengths and limitations of these two FLR mechanisms.

## METHODOLOGY

The study was conducted between September 2013 and October 2015 by two teams composed of senior experts from federal and regional institutions of forestry research, extension and universities. The teams worked independently (one assessing AE and another assessing PFM) and jointly developed procedures, identified criteria and indicators to assess the contribution of these state-led FLR mechanisms to

FIGURE 1 Schematic diagram of the processes involved in developing regional strategy documents for scaling up PFM and AE (adapted from Kassa et al. 2015)



livelihoods and conservation and identify factors that affect sustainability. The team that studied practices in AE focused on Tigray National Regional State, and the team that assessed PFM concentrated its study on Oromia National Regional State practices. Tigray Region is in the highly degraded northern part of Ethiopia, which has been affected by frequent droughts. It is also where the rehabilitation of degraded lands using AEs has been practiced for over two decades. Oromia National Regional State is home for much of Ethiopia's natural forests. PFM was first practised in Oromia, and has large tracts of forests under PFM. The two research teams used mainly Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) and undertook meetings with communities and regional experts to gather data and to share and validate findings. The two teams applied these methods in at least three sites per region and consulted at least three elders per site and local experts engaged in the process (see Birhane *et al.*, this issue for details on methods used).

The major criteria used by the PFM team were: degree of participation and level of empowerment of communities; institutional and organizational set up of PFM and its strengths; impacts of PFM on livelihoods (socio-economic gains) and on the forest resource base (conservation and environmental gains); inclusion and protection of interests of disadvantaged groups and women; and the effectiveness of conflict resolution mechanisms. Likewise, the team studying

AE identified relevant criteria and indicators (see Birhane *et al.*, this issue) to evaluate the processes of establishing and managing enclosures. These criteria included participation of communities in key decision-making (e.g. in setting objectives and in the preparation of management plans), the institutional strength of CBOs, and the impacts of AEs on local livelihoods and conservation outcomes.

The criteria and respective indicators developed by each of the teams were enriched by the comments and suggestions of regional experts during consultative meetings in the regional capitals and by key informants at the community level. Findings were then presented and discussed with regional level senior officers and communities in the selected sites to return results and to validate findings. Finally, the processes and outcomes of the selection process were presented at a national workshop. After incorporating comments and suggestions received from different levels, the two teams produced scaling-up strategy documents for AE and PEM in the two regional states which are available at CIFOR's website. Additionally, the documents highlighted the enabling conditions that must be considered as the country attempts to scale up landscape rehabilitation mechanisms. The results below present only the major strengths and limitations of these two FLR mechanisms so that they can be given due attention as the Government of Ethiopia attempts to scale them up. The process followed by the teams is illustrated in Figure 1.

TABLE 1 *Forest and land tenure: major degradation factors; rehabilitation measures and factors affecting success from the early 20<sup>th</sup> Century until the present*

Periods	Land and forest tenure	Degradation factors	Rehabilitation measures	Factors affecting success
<b>Late 19<sup>th</sup> Century</b>	Largely under traditional ownership	Subsistence use	Conservation of forests Introduction of fast growing exotic tree species to meet wood demands	Forests and land were almost under free access governed by traditional laws Community benefits remained low and based on traditional access and use rights
<b>Early 1900 to mid-1975</b>	Largely under imperial government and church ownership	Tax incentives to convert forests to farms to promote commercial farming Commercial logging was introduced	Tax incentives for tree planting by smallholders Most of natural forests came under private ownership	Community benefits remained low as marketing of forest and tree products was under developed
<b>1975 to mid-1990s</b>	State ownership of land and forests	Land redistribution by the state State ownership of forests with no clear institutional set up to protect them resulted in open access Resettlement plans	Government protected forests and encouraged village level community plantations Govt. established forest enterprises, and implemented soil and water conservation measures	Community engagement and benefits remained limited, and forest products were marketed by state agencies
<b>Mid-1990s to mid-2000s</b>	State ownership	Resettlement continued Expansion of small scale agriculture	No specific measures were taken	Community engagement and benefits improved but remain lower than expectations
<b>Since mid-2000s</b>	State ownership	Commercial farm expansion into woodlands mainly Smallholder expansion to marginal lands	Community mobilization for landscape rehabilitation Private woodlots flourished on marginal lands and expanded to fertile ones Land use certificates improved tenure security on farm lands	Most state forests remain <i>de facto</i> open access Better emphasis to the forestry sector, e.g. establishment of a ministry

Source: Compiled from literature review, KIIs, FGDs and based on authors' own experience.

## RESULTS

### Persisting institutional failures

The incentives for communities to actively engage in forest management have been lacking, demonstrated by land tenure insecurity and an extremely low level of economic benefits resulting from the responsible management of forests. This continues to create additional stress on managed landscapes. As a result, high rates of deforestation and forest degradation have negatively affected Ethiopia's forests. Table 1 below presents a brief account of policy failures over time and how these continue to undermine rehabilitation efforts.

Efforts to rehabilitate degraded forests in Ethiopia date back centuries. Monarchs and religious institutions played a role in conserving, protecting and even establishing forests recognizing the impact of agricultural expansion and over exploitation of forests. Large forests were managed by

emperors to serve as hunting grounds for the royal family and as sources of wood for construction and for fuelwood for royal armies and households. It is said that the *Denqoro* forest in Borena district of Amhara Region was established and protected by Emperor *Zera Yacob* in the 15th century (Rahmato 2001). Emperor Menilik (ruler of Ethiopia between 1889 and 1913) reportedly ordered the demarcation and continued protection of Menagesha forest, a natural forest near Addis Ababa, the capital city (Bekele 2003). Menilik also encouraged tree planting by introducing and promoting the use of rapidly growing exotic tree species (mainly Eucalyptus) in the mid-1890s in search of solutions for alleviating a shortage of firewood and wood for construction. During the brief Italian occupation of Ethiopia in the mid-1940s, although the focus shifted to timber extraction, there was also strict implementation of forest laws in which the cutting of such trees like *Podocarpus* and *Juniper* were forbidden without "*express permission*." As highlighted in Table 1, the period between

mid-1940s and mid-1970s is known for policies that encouraged the conversion of natural forests to farmlands by treating forests as wastelands. However, as most natural forests came under private ownership, protection had improved.

A 1975 land proclamation marked a major turning point in Ethiopia's forests and the agricultural landscape as private forests were nationalized and farmlands were distributed to landless tenants. Following the severe drought of the late 1970s, large scale soil and water conservation works were undertaken in most districts with degraded lands in the country by mobilizing communities and using food for work programs, assisted mainly by the World Food Programme. Agrarian policies such as villagization, resettlement and collectivization of agriculture that followed the 1975 land nationalization law brought about tenure insecurity on agricultural lands, and most forests became open access (Admassie 2000, Bekele 2003, Rahmato 2001). Subsequently, the military government began protecting certain priority forest areas. Immediately following the fall of the military government in 1991, an administrative vacuum was created during which time expansive areas of forests were deforested as a reaction to the previous less participatory approach to forestry development (Bekele 2003, Bekele *et al.* 2015). However, in the mid-2000s, annual tree planting campaigns were initiated mobilizing millions of households in the highlands to provide free labor for soil and water conservation works and tree planting. The first National Forest Policy was issued in 2007 and promised a reduction in taxes if farmers planted trees, although no evidence of its application on the ground has been reported. In the same year, a new forest law was enacted. In 2011, Ethiopia opted for a new development path by introducing its Climate Resilient Green Economy Strategy aimed at making Ethiopia carbon neutral by 2030 (CRGE 2011). A new Ministry of Environment and Forests was established in 2013 which was renamed in 2015 as the Ministry of Environment, Forest and climate Change. The ministry considers PFM an approach to improve management of natural forests and woodlands by actively engaging the surrounding communities, whereas putting degraded landscapes and hillsides under exclosures is seen as a major mechanism for rehabilitating these landscapes. As a result, PFM and AE remain the two major state led FLR mechanisms in Ethiopia to achieve the target of rehabilitating 22 million ha by 2030.

### PFM and AE share limitations and strengths

The two teams that studied PFM and AE in Oromia and in Tigray Regional states respectively used mainly KIIs, FGDs and community level discussions by visiting areas where initiatives have been implemented.

#### Shared strengths

The two major landscape rehabilitation mechanisms, PFM and AE, share the following strengths:

- Both experts and communities had positive views on ecological outcomes of PFM and AE. Vegetation cover improved and respondents recognize these as positive

contributions of PFM and AE to biodiversity conservation and landscape rehabilitation. Various studies also showed that PFM and AE allowed regeneration of indigenous flora, reduced deforestation and land degradation in areas where they have been implemented. For example, Mekuria (2013) concluded that AE improved availability of water, animal feed and wood for communities managing the landscapes, and sequestered more carbon – up to 246 tons of carbon/ha over a period of 30 years. Likewise, Bekele *et al.* (2015), Kassa *et al.* (2009) and Lemenih and Kassa (2014) also reported positive gains made by PFM in terms of reducing deforestation and forest degradation.

- Both are based on the understanding that degradation of natural resources (forests, agricultural and grazing lands) threatens local livelihoods and the resilience of socio-ecological systems to climate variability and change.
- Both began by consulting local communities to set aside portion of the natural forest (for PFM) or degraded land (for AE) that was under *de facto* open access. Even those in the community that are not members of PFM or AE groups respected access rights of users. As a result, the social fences (agreed upon boundaries of PFM or AE that communities recognize but have not been physically protected) were largely respected. In some cases, even community members that are not members of community groups assigned to engage in AE contributed to soil and water conservation efforts and tree planting initiatives inside areas under AE through government mobilization efforts.
- The two main actors, the government and communities are committed. National plans and programs indicate government commitment to rehabilitating Ethiopia's degraded forests and farmlands. Additionally, communities continue to provide free labor, in some cases up to 30 days a year, for soil and water conservation works, and for tree planting.
- Growing recognition of the need and potential for increasing productivity and sustainability of areas put under PFM or AE. With a bit of technical intervention, most FLR undertakings have the potential to become more productive sites and hence more rewarding for their custodians.

#### Shared challenges and limitations

The research teams identified the following challenges and limitations of PFM and AE:

- Lack of national land use plan and official definition for forest and forestlands. This continues to be a major challenge as areas that should have forests or need to be defined as forestlands are used for other purposes, mainly farming.
- Poverty and landlessness remain high. Close to 80% of Ethiopians live in rural areas, where poverty and landlessness are significant challenges. These difficulties, coupled with more frequent drought are resulting in the increased dependence of many on over exploitation of communal resources such as forests, and

expansion of farming into marginal and degraded lands. This makes putting forests under PFM even more challenging. The growing demand for farmland also makes getting areas that need to be put under AE increasingly difficult.

- Lack of national strategy and direction to guide rehabilitation efforts. Institutions in charge of PFM and AE lack clear strategy to guide the process of establishing and managing PFM and AE. As a result, the procedures followed in site selection, in objective setting, in engaging communities, and in defining net benefit sharing arrangements, varied across sites. Planning and monitoring skills and tools are also lacking in the strategic approach to setting and negotiating objectives, to jointly develop management plans and to conduct participatory monitoring and evaluation of economic and ecological gains. This is reflected by quasi absence of follow up by concerned government agencies of PFM and AE sites after externally funded projects engaged in PFM or AE are completed.
- Sub-optimal community participation. Except in few sites, sufficient time was not given to convince and meaningfully engage all concerned segments of communities. This could have made the process of selecting participants more transparent and the entire process as inclusive as possible. Although communities were consulted, the process was largely top down. Little has been done to allow for proper consideration of local stakeholders' views and objectives on rehabilitation (PFM or AE) and to encourage participation of some hesitant members of the community and their views in the planning process. Even active participant members of communities in PFM and AE felt that their voices were limited when making key decisions such as objective setting, developing a management plan, and defining net benefit sharing mechanisms. They argue that experts in high government offices make those decisions. Similarly, except in few cases, the engagement of community members who are not directly involved in PFM or AE remain limited. Working mainly with a subset of community members and failure to anticipate and account for implications for other members of the community both in the short and long-term continue to be sources of conflicts and are important aspects that undermine sustainability.
- Tenure insecurity. PFM is implemented in state forests and AE is largely undertaken on communal lands. In both cases, tenure insecurity persists and continues to undermine active and sustained engagement of communities.
- Limited efforts to encourage private and public sector to invest in rehabilitation. Most of the costs associated with PFM and AE are still borne largely by the communities themselves. Few or no incentives are made available to cover opportunity costs of communities and to attract the private sector to invest in landscape rehabilitation. There are cases where large tracts of rehabilitated landscapes and managed by communities

were redistributed to landless youths to be used as farm plots without prior informed consent of communities.

- Little emphasis on increasing productivity of landscapes and income of communities. So far, the emphasis given to increasing productivity of forests under PFM and degraded landscapes under AE in order to increase incomes of participant households remains low. As a result, benefits to communities are reportedly below expectations. Increasing productivity by planting economically important species (trees, shrubs, grasses) and employing soil and water conservation measures to improve survival and growth rates of seedlings are hardly practiced. Since conservation objectives dominate the discourse, there has been little attention to increasing productivity of rehabilitated forests and landscapes. Thus, despite officially reported success stories, communities continue to report that PFM and AE have failed to match their expectations in terms of economic returns. The lack of proper linkages with the private sector is hindering the optimization of revenues generated from carbon or from potentially high value non-timber forest products such as forest coffee. A number of recent studies (e.g. Ameha *et al.* 2014, Bekele *et al.* 2015, Seyoum *et al.* 2015, Tesfaye *et al.* 2015) emphasized the need to make PFM and AE practices as economically attractive as possible. Despite lower economic returns, communities continue to engage in these initiatives, anticipating that in the long run rehabilitated landscapes will be theirs.
- Poorly defined net benefit sharing arrangements. Lack of transparent and negotiated net benefit sharing mechanisms are a source of conflict, potentially leading to elite capture of benefits. Creating an enabling environment to allow for active participation of ordinary members (e.g. democratization of decision making) and transparency in benefit sharing mechanisms are important to discourage elite capture. CBOs and local government structures must work together to address these challenges.
- Inadequate emphasis on diversifying income sources and supporting forest-based livelihoods. PFM and AEs should also include activities that help income diversification (e.g. introduce village-based, small-scale carpentry; honey processing; converting forest by-products into briquettes, trophy hunting, eco-tourism, etc.), value added products, and improved market linkages. At a landscape level, efforts must support the integration and complementarity of forest-based activities with other livelihood activities (e.g. with livestock production, apiculture, climate smart agriculture, etc.). Besides, options to maximize benefits of communities from Payment for Ecological Services should be explored (e.g. from power generating and bottling companies, from drinking water supplying agencies, from tourism and recreational services providers, etc.)



- Limited ownership and follow up by government agencies of rehabilitated landscapes. All key informants and almost all leaders of CBOs in the visited sites believe the support by government agencies to monitor and support CBOs and the management of rehabilitated landscapes is extremely low. As a result, the follow up and post-project monitoring by concerned government agencies remains weak.
- Low level of capacity of communities and their CBOs. Much needs to be done in terms of building the technical, managerial and administrative capacities of communities and their CBOs to better manage forests under PFM and lands under AE. This is essential to also be able to effectively manage conflicts. Thus, the technical, managerial and administrative capacities of communities need to be strengthened.
- Little information on leakage. Despite perceived positive contributions on reducing degradation and vegetation cover on the landscape, little information exists about leakage and its importance on nearby forests that are not under PFM or in areas that are not under AE.
- Low level of technology and information use. Starting from the process of site selection to determining rehabilitation objectives and developing management plans, little evidence on the ground indicates that planned activities by local experts and communities were informed by the available knowledge and experience as well as technologies (e.g. GIS).
- Little attention to knowledge management. The experience gained and the challenges faced are poorly documented. As a result, opportunities to learn from success and failure, build on strengths and address weaknesses have largely been missed. CIFOR and its national partners recently attempted to document good practices in rehabilitation activities and enabling conditions for scaling them up (e.g. Kassa *et al.* 2015). Location and context specific knowledge on options to maximize positive economic and ecological impacts, and to minimize risks and environmental externalities of rehabilitation initiatives at landscape level are also limited. In addition, we have given little emphasis to farmers' own initiatives in FLR, e.g. managing portions of forests, tree planting and woodlot establishment efforts, etc. One could also note that the international experience (e.g. from China on incentives to convert croplands, from Nepal on PFM, from Niger on assisted natural regeneration, etc.) has hardly been used to inform national landscape rehabilitation initiatives in Ethiopia.

## CONCLUSION

The commitment of the government is shown by its plan to rehabilitate millions of hectares of degraded forests and lands, and by its efforts to annually mobilize rural communities. The government, experts and communities seem to agree about the need for rehabilitating degrading forests and

landscapes. Large areas of land are put under PFM and AE. Additionally, each year communities provide free labor for landscape rehabilitation through soil and water conservation work and tree planting. The positive contribution of PFM and AE in reducing degradation and improving landscapes has been well recognized by communities and experts. All these elements are regarded as the strengths of PFM and AE.

However, challenges and limitations also persist. Population pressure, lack of national land use policy and land use plan (to define forests and, forest lands and influence land use changes), lack of clear national strategy to guide the planning and implementation of landscape rehabilitation initiatives, low level of use of existing technology and knowledge in informing the process, sub-optimal community participation, persistent tenure insecurity, lack of well-defined and agreed upon net benefit sharing arrangements, poor productivity of forests under PFM and rehabilitated lands are major challenges. In addition, there is little emphasis on increasing economic returns to communities engaged in PFM and AE, lack of incentives to attract private and public sector investment in forest management and in landscape rehabilitation, low technical and managerial capacity of communities and their CBOs, inadequate follow up and support by government agencies to actors engaged in managing rehabilitated landscapes have been identified as shared challenges and limitations of PFM and AE in Ethiopia.

The following recommendations are intended to build on strengths and address limitations:

- The need for use of existing knowledge and capacity. Existing capacity of geographic information systems (GIS) to identify sites for rehabilitation must be used. Additionally, the costs and benefits of alternative rehabilitation options must be assessed. Informed decision-making is needed for site selection and engaging actors. Once these objectives are achieved, based on location, costs and benefits of alternative rehabilitation options, we can effectively negotiate objectives, responsibilities and benefits with key actors, notably communities.
- Improve community participation in decision-making. Improving participation of farmers through negotiating, competing objectives of PFM and AE (conservation and economic) and developing corresponding management plans to maximize economic and conservation gains helps us ensure sustained involvement of local communities. The objectives of AE or PFM are dependent on the characteristics of the site to be rehabilitated (location, slope, soil depth, level of degradation of the site, etc.) and the needs of the communities for production and protection purposes. The short and long-term objectives of FLR sites should be clearly defined, negotiated and agreed upon and participatory approach should be used to genuinely engage communities in the process.
- Increasing site productivity and economic gains of participants. Productivity of sites under PFM and AE and the resulting economic returns to communities

must be substantially increased. Increasing total productivity of rehabilitated landscapes in order to make these landscapes economically competitive with other land uses is helpful to reduce pressure of rehabilitated landscape conversion back to agricultural or other land uses.

- Building capacity to manage conflicts. Communities engaged in PFM or AE normally have their own bylaws, but little support is provided to produce legally acceptable bylaws and to have them enforced by the judiciary. Concerned authorities must support communities so that bylaws are better aligned with existing laws and can be approved by concerned authorities to facilitate their enforcement. Such bylaws help reduce and better manage conflicts. Also, CBOs engaged in PFM and AE need to be assisted to build their capacity in preventing and managing conflicts locally and quickly.
- Clear and negotiated net benefit-sharing arrangement. Lack of clarity and transparency in benefit- and responsibility-sharing mechanisms creates conflicts. Fair benefit sharing mechanisms, based on contributions, should be designed and agreed. Sharing benefits on an equitable basis, increases participants' sense of ownership, minimizes conflicts and encourages community participation in landscape rehabilitation initiatives.
- Building capacity of relevant government institutions to plan, implement, monitor and evaluate FLR programs. It is necessary to systematically build institutional and human capacity among local authorities to ensure PFM and AE initiatives are planned and implemented in such a way that they are knowledge-based, innovative, inclusive and participatory.
- Improve tenure security. There is a need to clarify use rights/tenure security on rehabilitated lands and forests to ensure continued engagement of communities and local authorities in PFM and AE.

To conclude, population pressure, unclear ownership and use rights, poorly defined net benefit sharing mechanism, low levels of community participation, poor productivity and weak institutions undermine positive gains and sustainability of the two state-led FLR mechanisms in Ethiopia. Addressing these challenges and making the FLR initiative knowledge-based, innovative and locally relevant will enhance the livelihoods and conservation outcomes of FLR strategies and the sustainability of their impacts.

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