

Impacts of the Land Tenure System on Sustainable Land Use in Ethiopia

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1. Introduction

In most developing countries, land is linked with people's culture, identity, and dignity. This claim is often expressed in the folklore of these countries. For example, in Ethiopian national and heroic songs and poems, land is considered as a dignity (i.e., the honor a person gives to himself) that soldiers are fighting for (Bezu and Holden 2014). Despite their cultural importance, such perceptions and beliefs can also lead to border and land conflicts. Land management is a perceptual concept, and in physical terms, land is nothing but an economic tool. This is linked to Sustainable Development Goal 15 (SDG 15), which is aimed at protecting, restoring, and promoting the sustainable use of terrestrial ecosystems (e.g., lands and forests) (United Nations 2015). Land policy in developing countries affects the development of societies in different dimensions and goes beyond economic and cultural perspectives. Since the period of colonial rule, the Ethiopian land policies have had impacts on resource allocation and agricultural development (Götz 2019; FAO 2008).

Ethiopia's landscapes are very diverse and stretch from deserts to volcanoes and highlands. It has an area of 1,104,300 sq. km, which makes it roughly as wide as France and Spain combined. More than 70% of Africa's mountains are found in Ethiopia. Despite these facts and in contrast to the documentation of the countries origins, little is yet recorded about its land tenure system and other key related issues (Lavers 2018). However, Ethiopia's history has witnessed different rulers during different epochs, and this has brought different land management systems. Ethiopia is the second highest populated country in Africa (Ethiopia Population 2020) with a population of approximately 107.53 million (based on an estimation in December 2018), and the annual growth rate is 2.46%. The key source of the country's economy is farming, which accounts for approximately 50% of the GDP, 85% of total import/export revenue, and more than 80% of total employment (Ethiopian Economics Association 2008; Cochrane and Vercillo 2019). Several theories about the factors affecting living and land management in the East African highlands have

been investigated (Fleskens and Stringer 2014). Among the main underlying theories was the prospect of sustainable land use at any given location, which relies on the “development pathways” and can be pursued. In turn, these development pathways rely on factors that determine comparative benefits in various sites, including the biophysical factors affecting agriculture capacity, market and facilities access, and population density (Sreejith et al. 2020).

These factors might affect household choices of livelihoods (e.g., participating in non-farm activities vs. crop production) and land use/management decisions (e.g., cropping patterns, the proportion of on-farm inputs, tree planting, and soil and water conservation measures). All of these decisions and choices will greatly affect the sustainability and productivity, employment, food safety, and welfare of agriculture (Wubneh 2018). In 2015, the United Nations, through the approval of SDGs, adopted an ambitious agenda for simultaneously tackling several major challenges of the 21st century. These goals are focused on eliminating hunger and alleviating poverty while protecting the environment (United Nations 2015). The 17 SDGs and their targets present a new and coherent way of thinking about diverse issues related to development, such as climate change, gender, and hunger. Fu et al. (2019) conceptualized the relationship between three classifications of the SDGs: (a) governance (including effective regulation, equitable rules, and systems, i.e., SDGs 9, 11, 12, 13, and 17) will ensure that (b) essential human survival needs are met (SDGs 2, 6, 7, 14, and 15), while at the same time (c) maximizing expected objectives (SDGs 1, 3, 4, 5, 8, 10, and 16). The current study provides insights into the range of actions regarding the land tenure system linked to SDGs in general and SDG 15 or “Life on Land” in particular at the country level in Ethiopia.

Presently, 40% of the Earth’s land surface is already used for agriculture, and arable land tenure will enhance under protectionist paradigms for food security. Many cultivated areas represent high input and intensified landscapes, in which pesticides, fertilizers, and irrigation are used with a severe environmental and biodiversity impact (Leventon and Laudan 2017). Food sovereignty has become an alternative way to achieve local food security, protect biodiversity and the environment, and provide wider social values through non-industrial agriculture methods. The most general definition of sovereignty, as defined by Beuchelt and Virchow (2012), is the right of people to healthy and sustainable food and the right to develop their own agricultural and food systems (Heckelman and Wittman 2015; Suh 2015). Food sovereignty can be formulated as a form of localism, which restores sovereignty over economics (Hess 2008).

In the last decade, the sovereignty and accessibility of food have changed considerably. In 2010, in Ethiopia, about 2.8 million people needed emergency food aid, but at the same time, they had been selling over 600,000 hectares of their land to transnational enterprises, exporting most of their products (Reuters 2011; Green 2011). Although a paradigm has focused on the financial and sovereign aspect of food provision, Ethiopia still has great food insecurity, which is caused by a lack of access to adequate, safe, and nutritious food (WHO 2017; Ruelle et al. 2019). However, Ethiopia needs to fulfill its food security commitments along with broader values (Leventon and Laudan 2017). For example, the threats posed by the commodification of agriculture and global market competition are a factor that can challenge food and existing systems in Ethiopia.

Commodity agriculture is a major contributor to many countries' economies (FAOSTAT 2017). In many countries (such as Ethiopia), commodity agriculture is simultaneously linked to environmental and social challenges to improve agricultural sustainability (Barona et al. 2010; Bowman et al. 2012). Concerning the effectiveness of the sustainability paradigm in recent decades, civil society and voluntary governance mechanisms have become more important (Pye 2019). Integrated food security data will not measure food sovereignty's importance, and data will not take unfair practices and environmental harm into consideration. A large proportion of Ethiopians are subsistence farmers who neglect human rights and environmental protection, since they are deprived of their land, rights, and livelihoods (Jiren et al. 2020). In order to achieve the goal of national food security and reduce the emergency food aid required, rural farms and food sovereignty must improve their revenue with the objective of securing their lands in Ethiopia. Agricultural commodities can also change land use and land tenure in Ethiopia, as in many developing countries. While the commodification of agriculture can lead to the conversion of large tracts of land, price fluctuations after the introduction of a commodity to the market, due to competition in global markets, will lead to the conversion of subsistence land into commercial agriculture in some regions of Ethiopia. This is a serious threat to the sustainability of agricultural systems, food security, sustainable rural livelihoods, and land use conservation in Ethiopian regions (Jiren et al. 2020).

According to Moreda's (2018) finding, the focus on land tenure security, at least in the fields studied, might be misleading. Some existing concerns were also revealed, appearing to threaten landowners' tenure security (e.g., land rights conditions) that may have led to further investment in land conservation activities. The main problem, however, is latent rights with high levels of insecurity and conflict. There is a significant social malaise, unfortunate agrarian structure, and significant

pressure for land redistribution due to unsolved land tenure concerns, despite rapid economic development (Ege 2017). As Legesse et al. (2018) demonstrated, land is a fundamental asset of social, economic, and political sustainability, providing ecosystem services, sustainability, and accumulating richness for rural communities in developing nations, such as Ethiopia. Degradation of the land is among Ethiopia's biggest environmental problems. Among the key factors affecting the decision of farmers to invest in land management, for example, may be ownership rights to land. The literature recognizes that land rights play a significant role in land management. Melesse and Awel (2020) demonstrated that in many African countries, agricultural land use and tenure systems are characterized by subsistence production and a system of community land tenure. Tenaw et al. (2009) discussed questions relating to land tenure, land rights, agricultural productivity, and climate change impacts on the north-western region of Amhara. Their findings show that land shortages alone do not affect the production of agriculture; they affect the land tenure structure, the lack of proper land ownership, the lack of enhanced agriculture technology, and climate change. In most Sub-Saharan African countries, including Ethiopia, this is the main issue.

In another study by Ege (2017), land tenure insecurity in the post-certification of the Amhara region in Ethiopia was investigated. The results showed that ownership rights are thought to have improved, but the evidence is weak and contradictory. Land rentals are growing, and farmer insecurity is high. Legesse et al. (2018) looked at the determinants of the decisions of farmers investing in reforestation actions by concentrating on land tenure and property in northwestern Ethiopia. As they showed, land provides ecosystem services, generates livelihoods, and accumulates wealth in developing countries, such as ethics, and is a major factor in social, political, and economic sustainability. Their study found that land safety is among the key factors affecting the decision of farmers to intervene in reforestation. In Ethiopia and Tanzania, Melesse and Awel (2020) examined the tenure of land, gender, and productivity. They were found to be characterized by subsistence production and a communal system of land tenure in many African countries. They also showed that in general, tenure security affects the productivity of households positively and considerably and is marginally significant, especially for female heads of households.

Ethiopia experienced a strong political debate on the relevant land tenure policy based on Chala's (2016) study. Imperial rule fostered an extreme state intervention in complex tenure systems. However, the previous feudal system was actually abolished by Derg, and so, access to land was distributed by peasant associations. By declaring state ownership of land in the Federal Constitution, the incumbent

administration changed certain policies of the former regime. The principal source of controversy is the use of land as the instrument for sustainable development by the Ethiopian regimes. Getahun (2019) argued that, in the Derg regime, although it changed the land tenure from heterogeneous to a uniform land tenure system in the whole country, there was unfairness in allocating fertile land to peasants. However, some plots of fertile land were given to some peasants favored by the local state agents, such as by members of land allotting committees. As a result, the Derg regime's land reform failed to maintain tenure security in southern provinces and elsewhere in Ethiopia. Broadly speaking, while the 1995 constitution largely confirms state land ownership as a continuation of Derg policies, some specifications are also provided that seek to take into account the need for rural land and labor markets to rise (World Bank 2013; Wubneh 2018; Tura 2018).

Focusing on one of the main targets of SDG 15, i.e., "promoting the implementation of sustainable management of all types of landscapes", this study aims at discussing the underlying causes of socio-economic and policy-related factors affecting the sustainability of land tenure systems in Ethiopia because the effects of land tenure and land use policies on sustainability and productivity of agriculture, income, food security, and welfare are generally not well understood yet. The aim of this study is also to review and evaluate the performance of land tenure systems in Ethiopia. This study conducted a systematic review to explore theoretical considerations and overviews on current estimates related to land tenure security. The study used major databases (1990 and 2020), including Google Scholar, the Web of Science, and Science Direct. In addition, a comprehensive search was performed to download relevant papers, articles, and FAO and World Bank reports on land tenure system and land degradation in Ethiopia using the following keywords: 1) land tenure insecurity, 2) land use policy, 3) natural resources degradation, 4) land governance, 5) farmers' livelihood, and 6) land use decision making. Moreover, to support the main findings of the current study mainly discussed in the discussion section, other relevant papers were downloaded and reviewed. The systematic review was limited to journal-articles published in peer-reviewed international journals and reports written in English. The collected articles and reports address relevant issues linked to the six keywords and help provide the coherent reviewing role of land tenure institutions and strategies of farmers to secure land use rights. As shown in Figure 1, the data collection process was conducted in three steps. The first step was dealing with the collection of databases. In the second step, the (about 200) relevant articles/reports were downloaded based on the six keywords, as discussed above. In

the third step, the most relevant articles/reports (about 100) to the land tenure system and land degradation in Ethiopia were chosen.

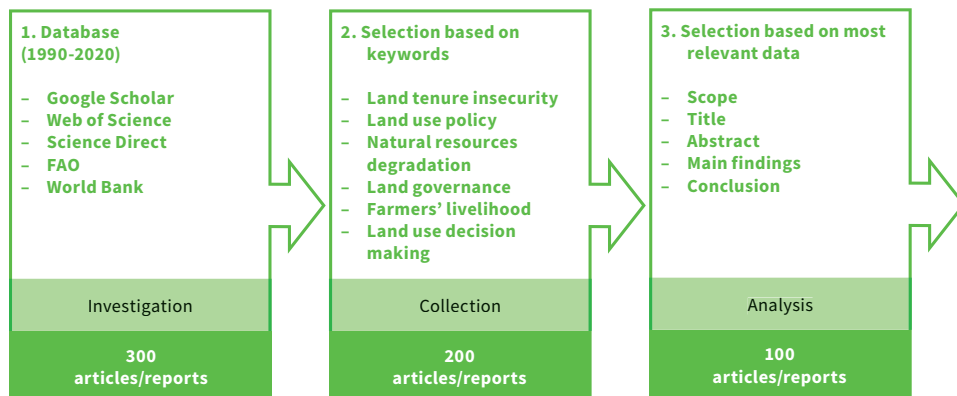


Figure 1. Steps of performing a systematic review and data collection.

2. Ethiopian Experiences in Land Tenure and Land Use Policy Issues

2.1. Land Tenure System in Ethiopia: A Historical Review

It is believed that Ethiopia was founded in 980 BC (Tareke et al. 2002). However, due to the limited availability of information, the history of land tenure and land use policy can be classified into three periods only: the pre-1975, the Derg (1975–1991), and the modern (1991–present) land tenure and land use policies.

The system of land tenure in Ethiopia belonging to pre-1975 was among the most complex tenure systems in the world and has not been studied in detail (Hawando 1997; Fitsum et al. 1999). Among the aspects that created a wide range of land use and ownership are the geographical and cultural diversity and its history (IFPRI 2005). The system's dynamic nature played a critical part in hindering any significant steps towards a substantive reform. Such problems may also have contributed to a number of classifications and methods used to characterize this past system of land tenure. However, the most widely known types of tenure are *rist*/kinship, family, church, and state-owned structures (Melaku 2013). The *rist*/constitution tenure scheme was most common in the northern part of the country, while in most of the country, private tenure was prevalent.

The *rist* scheme was distinguished by the concept of accepting access to land (using and transferring rights without displacement) for all descendants of citizens with a shared ancestor and in an ambilineal manner (the right to inherit land from

father and mother). *Gult* is considered as a tenure system, which is often easy to confuse with *rist* as a variant or *rist-gult*. *Gult* is not the right to farm, but the right to tax the profits of property is the main distinction. Less landlessness and tenancy were among the positive qualities for private tenancy in this scheme, while land decline, division of land, and constant land access litigation were among its major problems in the literature (e.g., Chekol 2017; Binayaw 2015). The *rist* structure also became a significant factor mediating the power of peasantry through the government through the elites retaining these rights with its *gult* rights over landholders (Yigremew 2002). In the final days of the Imperial Empire, private tenancy was known as the most dominant system, affecting about 60% of the peasants and 65% of the country's population, and land was sold and exchanged under this scheme. Considerable land concentration, exploitation, and insecurity have categorized the private tenure system, which has led to student movements against the kingship of Derg (Fitsum et al. 1999).

The Derg land reform of 1975 is considered as a revolutionary move that abolished tenant-landlord relations in Ethiopia, mainly recognized by its slogan "*meret le'arashu!*" ("a land must be given to its farmer!"). The reform was intended to fundamentally alter past agricultural relations and land owners, promote agricultural productivity, create jobs, distribute soil, and increase rural incomes (Belay et al. 2014). The right to own land has been vested on the state since the agricultural reform in 1975. Farmers may access land through state-controlled farmers' associations. In peasant associations in which they live, farmers have the open-ended right to use land (the right to use the property of others), but it is subjected to the evidence that they have a permanent natural residence and a capacity for continuous agriculture and fulfilling administrative duties. In 1975, the "Public Property of Rural Land Proclamation" nationalized all rural property and set out to redeploy it to its farmers and organize farmers into cooperatives, thus removing exploitative landlord-owner ties with the imperial regime (Dejene and Teferi 1994; Binayaw 2015; Cochrane and Vercillo 2019).

The collectivization program was intensified by the Derg towards the end of the 1970s with the promotion of state-cooperatives and the establishment of large-scale state farms. State-cooperatives were to be formed through the merging of their land, draught animals, and agricultural machinery by members of a peasant association. Automatically, the head of the cooperative became the head of the peasant organization and was thus able to exert significant political power and control over all members of the association (Kebede 2002). Peasants should formally, at their free will, join state-cooperatives (Dessalegn 2004), but some studies report more vigorous organization implementation (Azeze 2002; Crewett and Korf 2008).

It is not always true that land tenure security can increase productivity in agriculture. A number of studies of African countries in the 1990s officially tested the nature and strength of the relationship between tenure security and farm performance (e.g., Kunz et al. (2016) in Gambia; Higgins et al. (2018) in Ghana, Kenya, and Rwanda; and Delville (2010) in Kenya). Putting a few exceptions aside, land rights have not been identified as a significant factor in determining whether or not farmers make investments that improve land, use inputs that increase yields, obtain credit, or improve land productivity (Lawin and Tamini 2017). Lawin and Tamini (2017) claim that the most pronounced relationships were found in Rwanda, where the right to bequeath was the main factor of some types of land improvement. Rwandan parcels that could not be bequeathed were, under short-term arrangements, mostly rented or borrowed. The research concluded that yields were not affected in any significant way by the presence of land titles. These findings are contrary to the common notion that tenure and titling safety lead to higher yields. All in all, agricultural productivity is affected by many factors that could be beyond the security of land tenure. For Northeastern Ghana, Murtazashvili and Murtazashvili (2016) argue that the focus of politics alone on increasing property security does not lead to increased agricultural production. However, other factors such as a lack of budget, poor soil fertility, insufficient rainfall, outbreaks of pests and diseases, insufficient agricultural land, burning of shrubs, and excessive felling of trees are the most important factors in reducing productivity in agriculture.

In 1991, with the fall of Mengistu's military-socialist Derg, farm collectives were quickly dissolved, and land tenure changed limitedly, to the frustration of several foreign donor agencies. In November 1991, the Declaration of the Transitional Government of Ethiopia on Economic Policy led to the continuation of the Derg regime's land policy. Since the fall of the military socialist Derg regime in 1991, land policy in Ethiopia has been controversial (Chigbu et al. 2019); many case studies have been conducted on the land use system in different parts of Ethiopia. Next, the government launched a land certification program to grant land use rights in order to resolve land tenure issues at the end of the 1990s, while it tried to maintain the ownership of all lands (Fleskens et al. 2014). In 1995, a new federal constitution in favor of public ownership of land was adopted in Ethiopia. By this, the government eliminated land policy as an efficient variable to control and monitor the changing circumstances affecting the rural economy (Ali et al. 2017).

2.2. Recent Changes in the Land Tenure System in Ethiopia

Ethiopia's new land tenure policy continues to be seen as a fundamental concern. Researchers are increasingly arguing about this controversial issue to persuade the government to change land policy. Dejene and Teferi (1994) evaluated the current tenure system by considering the existence of a high level of insecurity regarding land. Land insecurity, in particular, is an obstacle to farmers' interests in the conservation of soil and other natural resources. They concluded that land tenure security should ensure access to land for vulnerable groups, including pastoralists and women.

The backbone of Ethiopia's land economy is smallholder agriculture. With few exceptions, the rights of smallholders' access to land have been largely preserved. However, the conditions and criteria for women and pastoralists' access to land are poor and not properly understood. As a result, access to land by gender, occupational, religious, and ethnic minorities is at risk and must be carefully controlled. Historically, there have been concerns that Derg reforms have eroded the division of resources. Despite the fact that it seems that after the reforms, these efforts to strengthen the rights of women in the land were complementary to the changes that give equal ownership to men and women, some discrimination has subsequently increased since the land reform (Kumar and Quisumbing 2015; Flintan 2010).

Another neglected, but relevant, aspect is land access on behalf of indigenous nomad tribes (pastoralists) and women. The way that nomadic populations (pastoralists) wander from place to place and occupy areas for a limited period of time makes it difficult for them to assert their territorial rights (Gilbert 2007; Abate et al. 2015). The victims of international law are nomads and, therefore, their specific claims need to be recognized. In most societies, such as non-indigenous individuals or minorities, indigenous nomads face double discrimination. Despite the gradual evolution and recent progress in the international land tenure rights of nomads, they are still seen as nomadic societies in their homelands at the national level (Makki 2018; Tamrat 2010).

In Africa, when privatized land tenures promptly fragment pasture and sustain losses in ecosystem service services, intensified livestock production by privatizing is often inconsistent with mobility strategy (Basupi et al. 2017). Greater vulnerability to livestock disease incidences, climate variability, and land degradation can, therefore, challenge the livelihood prospects of pastoralists in communal grazing areas. According to Yang et al. (2020), cooperative grassland management practices have led to considerably higher household incomes, better equality of gender, and more managed grasslands than individuals. Nevertheless, because of their long-term customary activities, many pastoralists chose different grassland management

practices. In general, a new reform of rural tenure has enabled pastoralists to choose different pastoral practices, and the promoted, large-scale cooperative pastoral practices benefit the socio-ecological pastoral system. The academic debate has limited knowledge of the historical development, land use patterns of pastoral landscapes, and the way in which historical perspectives are embedded in the political process. The link between several historical factors and the developments in pastoralist landscapes and patterns of land use is less well understood. The sustainability of current rangeland policies depends on this lack of empirical analyses for the evolution of problems in the municipal rangeland (Fernandez-Gimenez 2006; Basupi et al. 2017). In addition, the principles and methods for enforcing the land tenure system were included in the newly drafted Ethiopian People's Revolutionary Democratic Front (EPRDF) constitution. Researchers, such as Bruce et al. (1994) and Dessalegn (2003), argued that the EPRDF's land policy is neither applicable to the agrarian society in Ethiopia nor an incentive for farmers to invest and increase productivity more than ever before. The pro-government advocate Hussein (2001) analyzed the unfair practice of land redistribution in the Amhara region in 1997. He added details on the policy overtones and implementation without the consent of the majority of peasants to participate in the reallocation program. Since 1998, rural land registration and qualification programs have been introduced in different regions of Ethiopia. Protecting land ownership and strengthening land-use practices are the primary objectives of the land registration system. The first phase began in 1998 in the Tigray region, followed by the Amhara region in 2002 and the Oromia region in 2004, respectively. The second phase is underway in all regions of the country. Ethiopia's agricultural land registration system is among the world's largest land registration projects and is fully implemented (Deininger et al. 2008; Tigistu 2011). The land registration system in Ethiopia involves the right (title of registration) with the name of the rightful owner and object of the right. The implementation of land registration is a highly participatory process, with the majority of the land demarcation input from the local community (Tigistu 2011).

In imperial and modern Ethiopia, land use policy, the real source of power, remains at the core of a controversial political debate (Crewett and Korf 2008). There are two antagonistic arguments concerning land ownership rights, which are the basis of the debate. The government of Ethiopia continues to advocate state land ownership, whereby landowners are granted usufruct rights solely (Getahun and Lanen 2015). To protect rural farmers from selling their land to the rich, leaving them without land or a source of livelihood, the right to sell or mortgage the land is ruled out (Crewett and Korf 2008). The government builds its argument on the

basis of two principles of social and historical justice: (1) justice acknowledged as egalitarianism, ensuring equal access rights to such land for every farmer in need of agricultural land, and (2) historical justice, providing tenure security to Ethiopian farmers who have experienced land deprivation and land expropriation through different methods during the process (Crewett and Korf 2008; Hussein 2001).

According to Lavers (2018), there are complex and potentially explosive problems with ethnic and religious minority land rights. Pre-revolutionary land tenure systems in most of Ethiopia were the result of conquest land alienation and settlement by northern groups. Therefore, if there is a conflict with the local opinion or tradition, the government must maintain the right to protect ethnic minorities, women, and natural resources (Tura 2018). Lavers (2018), however, states that the truth is not quite so clear-cut. While state ownership of land continues to dominate land tenure, the establishment of ethnic federalism has direct consequences for land governance, particularly in terms of non-indigenous ethnic minorities. In addition, in many parts of the nation, non-customary tenure systems have maintained some influence.

2.3. The Underlying Causes of Land Degradation in Ethiopia

Land destruction was often listed as a major driver of environmental change and had a broad range of environmental and socio-economic consequences, mainly due to deforestation, for agriculture and settlement. Ethiopia experienced major famines in the 1970s and 1980s because of deforestation and subsequent loss of productive capacity (Bai et al. 2008). Ethiopia's annual forest loss rate from 1995 to 2010 was estimated at 141,000 ha, which is approximately an annual decrease of 1.1 percent of the total forest area (FAO 2010). Demand for domestic oil, expansion of farmlands, and overgrazing have been considered as the key drivers of deforestation in Ethiopia (Belay et al. 2014).

There were extreme land cover conversions in the Ethiopian highlands, mainly due to demographic pressure (high population growth and densities) and the resulting increase in food and household energy demand and the subsequent expansion of croplands and destruction of forests (Rosell et al. 2017; Getahun et al. 2013). In the central highlands of Ethiopia, there has been a major expansion of agricultural land and settlements over half of the last century, which has taken place at the expense of forests. Amsalu et al. (2007) recorded an 83% forest loss between 1957 and 2000, and Minta et al. (2018) recorded a 73% reduction in forest cover in the Dendi-Jeldu mountains of the central Ethiopian highlands in 1957 and 2014. Both authors link this forest loss to the expansion of agriculture, pastureland, and settlements as a

response to the scarcity of available and suitable land for cultivation. The same trend of deforestation was found in North Central Ethiopia, South Wollo (Rosell et al. 2017).

As a result of both rural–urban and urban–urban migration, population growth in the satellite cities surrounding Addis Ababa has increased in recent years (Lohnert 2017). In particular, the migration of Addis Ababa’s urban people, who are finding job opportunities with the industries and developments in the urban fringes, has brought about major changes in land use. This indicates that urban growth and development cause vast deforestation ranges across major urban centers (Kasa et al. 2011; Mohammed 2015). The estimated cost of land loss associated with land use and land cover changes in Ethiopia is estimated at around USD 4.3 billion annually (Gebreselassie et al. 2016). According to Gebreselassie et al. (2016), in Ethiopia, the cost of rehabilitating the degraded land through land use and cover change was found to be around USD 54 billion over a 30-year duration. The land tenure, which will be addressed in the next section, is among many reasons for degradation (Chekol 2017).

As shown in Figure 2, there are three main levels for both land degradation and land improvement. The first level, drivers of land degradation, can be mediated and modified by the second level, the institutional environment. This process will/could lead to land improvement if the third level, land user resource allocation, is considered carefully. Land improvement and land degradation mitigation can result from a behavioral change of land users and their reallocation of resources (e.g., capital or time) to land improvement practices. The entire process will lead to land degradation, unless all these three levels are mediated and modified by a number of institutional programs on land tenure security.

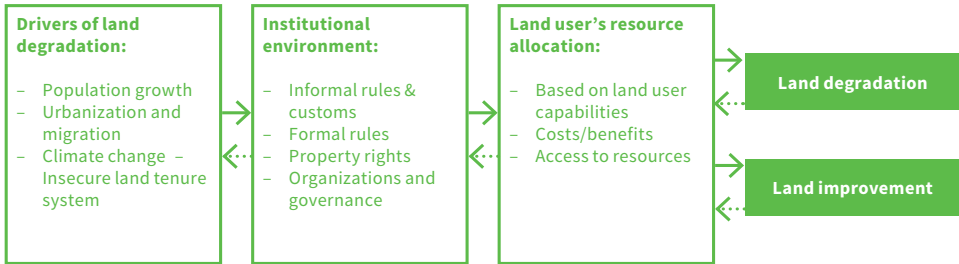


Figure 2. Three main levels of land degradation and land improvement.

3. The Challenge: Impacts of Land Tenure Insecurity on Natural Resources and Land Users

3.1. Land Degradation: Biodiversity Loss

Land degradation has been characterized by a steady decrease in the land's productive potential, which can occur through any combination of related processes, such as soil erosion, soil nutrient depletion, biodiversity loss, and deforestation (Le et al. 2012). Some of Ethiopia's environmental challenges today include the relationship between the environment and development in general, the poor involvement of citizens, and community-based organizations in environmental protection activities (Le et al. 2014). Furthermore, poor land management practices coupled with a lack of understanding lead to the significant depletion of natural resources, such as forest loss, soil degradation, and the scarcity of water supplies (Bai and Dent 2008). Ethiopia has developed a variety of significant policies and strategies regarding the climate. However, the formulation of sound policies and plans alone is not an ideal solution, since the goals can only be accomplished if they are applied correctly (Hansen et al. 2013). While poor policy and strategy implementation remains a major constraint, some other policies and practices hinder the proper implementation of successful and sustainable resource management activities, such as investment policy or regional policies (Le et al. 2014).

As discussed by Gete (2015) and MoARD and WB (2007), despite the fact that tackling land degradation and biodiversity loss through restoring degraded natural resources (e.g., soil and forest) was a priority for the country, organizations dealing with natural resource management were frequently restructured. This process resulted and still results in a high turnover of staff, loss of institutional capacity leading to discontinuity of activities and initiatives, and loss of institutional memory. More importantly, the absence of participation in the management of resources has resulted in the rejection of central government policies, such as settlement and resettlement, reforestation and soil conservation campaigns, and tree cutting prohibition programs (Yosef et al. 2013). In addition, public sector land development efforts have been made with little consideration of traditional land users.

3.2. Soil Erosion: Land Productivity Loss

A key element in soil degradation is the process, which leads to a reduction or loss in the current or future productivity of land and the ability to use it under the effect of different natural or human factors (EPRS European Parliament Research Service). The loss of soil is among the most obvious factors that affect farmers'

livelihoods and also indirectly affects the livelihoods of people depending on the production of food by farmers. Soil erosion is highly sensitive to the effects of both human and natural conditions (Pimentel and Burgess 2013). Gully erosion is among the different forms of soil erosion across the globe and has an impact on the productivity of land (Ionita et al. 2015).

Among the major causes of soil degradation in Ethiopia is soil erosion. Berry et al. (2003) mention that the country's annual economic loss derived from soil degradation in the form of soil erosion and nutrient depletion is in the range of 10–11% of agricultural gross domestic product achieved by the country's highlands. Several recent studies (Yesuf et al. 2008; Tsegaye 2019) have estimated the annual cost of soil degradation related to soil erosion and the loss of agricultural and grassland nutrients to be around USD 106 million. The rapid population growth in Ethiopia has led to a decline in the supply of cultivable land and very high soil erosion rates (Essays UK 2013). Generally, the insecure land tenure system and the historic changes in land use in Ethiopia have had a major impact on the country's biodiversity, natural resources, and farmers' livelihoods, which will be discussed in the following sub-section (Tsegaye et al. 2019).

3.3. Impacts on Farmers' Livelihoods: Low Income

Land degradation poses environmental challenges and causes land productivity losses that, in turn, lead to the conversion of high-value biomes, particularly in countries with low-income, where most rural farmers rely on natural resources (Lal et al. 2014). Land degradation caused by an unstable land tenure system has negative implications for the protection of household food and directly reduces rural communities' livelihoods in Ethiopia. The initial effect of soil degradation is lower crop yields, resulting in increased rates of poverty among farm households (von Braun 2013). This poverty leads to less potential for land users to invest in sustainable land management practices and thus higher land degradation rates (Bai et al. 2008). It is important to understand the causes of land degradation and their interactions to determine the correct steps to address it.

Land tenure, as a security feature, has fundamental roles in the livelihoods of farmers. Secure land tenure can provide reasonably good markets with additional benefits and opportunities, including production, input, and financial markets (Baumgartner et al. 2015). Sound land ownership rights broaden the planning scope of agricultural entrepreneurs and make expensive advances in sustainable land management more practical and competitive with significant mid- to long-term benefits (von Braun 2013). It is essential to recognize that a fair and efficient rule of

law is a prerequisite for secure land tenure, such that the effect of the rule of law on sustainable land management supersedes that of land-right protection. Therefore, in middle-income and advanced economies, sustainable land management has a positive relationship with land tenure protection (Baumgartner et al. 2015).

4. The Solution: Land Tenure Institutions and Access to Land

4.1. Strategies of Farmers to Secure Land Use Rights: Use, Control, and Transfer

Policies and initiatives aimed at preventing and reversing land degradation have long suffered from the lack of a strong and clearly defined goal for directing action and designing tangible progress. A breakthrough agreement on the concept of land degradation neutrality (LDN) was reached between the parties at the UNCCD in October 2015. The LDN aims to mitigate the projected losses of land-based natural resources and associated ecosystem features and services with metrics that produce alternative benefits through strategies such as soil regeneration and sustainable land management (Kust et al. 2018). The primary scope of land degradation research is currently centered on assessment and monitoring based on various data sources, measures in mitigation and ecological restoration, estimation of key drivers using different techniques at different scales, or simulation of growth patterns and forecasts using quantitative models. Yue et al. (2016) suggest that land use form and quantity should meet human needs and be in accordance with the natural conditions. The work of Kust et al. (2018) indicates that LDN policies need to communicate closely with climate change adaptation plans. Countries have to perform a thorough assessment of land degradation for non-farming land in order to make appropriate and timely land degradation policy decisions.

Regimes regulating tenure rights include access to productive capital. It is essential that land is accessed and managed at the farm level. This is crucial for the livelihood, equity, and productivity of farmlands, especially in rural societies (Lipton et al. 2009). Changing the property right system means either changing the political structure or making substantial efforts by the current regime. Ethiopian agriculture cannot produce enough to feed the country's fast-growing population. A brief historical analysis reveals that up to the end of the 1950s, Ethiopia was self-contained in the production of staple food and net food export (Belay and Manig 2004). More importantly, the development of the Ethiopian economy, in general, and that of the agricultural sector, in particular, have been affected by a range of policy factors, including Ethiopia's top-down approach, insufficient legislation, incorrect priorities, and poorly defined property rights. Highland farmers believe that the adoption of soil conservation measures is a pre-condition to achieve long-term land

use certificates in the sloping lands. Another strategy is to buy the farmland through “owner financing”. A contract of sale of installments or land is a contract under which the seller of the land (original owner) agrees to pay the selling price to a new buyer. The new buyer enters the ground and begins to pay the seller/owner directly on the basis of an agreed interest rate and other conditions (Belay and Manig 2004).

4.2. Implications of the Land Tenure System in Sustainable Land Use

Land tenure potentially impacts sustainable land use by improving incentives for production and increasing soil and water conservation investments. Thus, changes in access to farm holdings and the ability to exclude others from receiving benefits accruing from land result in resource use changes. This, in turn, affects the demand for labor and capital, productivity, and consequently, income and sustainability (Binayaw 2015). Land use policies are generally considered to have significant impacts on investments, but this might not be a universal formula applicable to all contexts. For instance, in Kenya, Deininger et al. (2006) found no empirical evidence proving that land titling enhances credit markets, land markets, and investments. A secure land tenure system provides countries with a framework to eliminate poverty by ensuring land tenure and ensuring stability on the land market (Holden and Otsuka 2014). Since economic development is among the common goals of many developing countries, such as Ethiopia, one might argue that Ethiopia’s current policy of introducing an urban cadastral system is advancing the level of economic development (Adem et al. 2020). Many land use planning programs were introduced in Ethiopia, but with varying degrees of success. Each of these (pilot) projects included cadastral device implementation trials, but these were not complementary to earlier projects. This has resulted in overlaps, redundancies, and ineffective and incoherent cadastral structures across the nation. The persistent absence of a project progress assessment during each process was among the most remarkable characteristics of these projects. In other words, the strengths and limitations of the previous projects are not analyzed regularly, and the methods used in initial projects are not being organized. On the other hand, international organizations should create standards and metrics that can perform these tasks, but such standards are not being implemented. For example, the FIG proposed a set of criteria for developing and accessing the security of tenure (EFQM 2019). As shown in Table 1, the important factors/issues relevant to land degradation and the institutionalization of land tenure include participation, inappropriate land use system, population pressure, and institutional failures. This table shows how these factors lead to land degradation and how they could be avoided using relevant measures (strategies). As

an example, an inappropriate land use system (e.g., deforestation, and overgrazing) could be avoided through a forest relations strategy and regulations on grazing management by implementing forestry and plant control policies and legislation.

Table 1. Significant issues and focus areas in the combat against land degradation and institutionalization of land tenure.

Important Issues/Factors	Main Problems	Main Solutions	Measures to Betaken	Responsible Body
Participation	<ul style="list-style-type: none"> - Lack of a supportive environment - Losing the knowledge - Failure to understand the partnership 	<ul style="list-style-type: none"> - Environment enhancement - Power development 	<ul style="list-style-type: none"> - Building awareness - Making local governance stronger 	NGOs (non-governmental organizations), international partners
Inappropriate land use system	<ul style="list-style-type: none"> - Steep slope farming - Deforestation - Overgrazing - Population pressure 	<ul style="list-style-type: none"> - Property ownership and property use regulation - Forest relations strategy - Regulation on management grazing - Policies on population 	<ul style="list-style-type: none"> - Appropriate land use, forestry, and plant control policies and legislation - Public education - Introducing a population strategy 	Regional government, NGOs/CBOs (community-based organizations), development partners
Population pressure	<ul style="list-style-type: none"> - Uncontrolled growth - The uneducated and motivated women to regulate their own fertility 	<ul style="list-style-type: none"> - Stabilized population growth based on the economic growth - Practiced family planning - Empowering females 	<ul style="list-style-type: none"> - Introduction of a population policy effectively (family planning) - Alternate job chances - Training and empowering women 	Governments, NGOs/CBOs, development partners
Institutional failures	<ul style="list-style-type: none"> - Institutional instability - Resource scarcity - Coordination and integration problem 	<ul style="list-style-type: none"> - Stable institutions, with clear mandates - Suitable resources - Clear integration and collaborative effort 	<ul style="list-style-type: none"> - Creating clear mandated and empowered institution - Fairly sufficient resources - Establishing a system where organizations integrate their activities and organize them 	Federal governments, regional states, NGOs, Development partners

Source: Berry et al. (2003).

5. Discussion

5.1. Natural Resource Policies and Land Use Decision Making

The determinants of land tenure include changes in vegetation cover and species spatial distribution, impacts on climate change, the effects of long-term human activities, and land management practices variations (Kakembo 2001). Land tenure is often cited in land transfers and improvements as a way of informally obtaining and owning property by citizens and businesses and improving tenure protection and alternative land usage, as observed in African countries, such as Ethiopia (Mwangi et al. 2018). As stated by Zinda and Zhang (2017), land tenure regimes shape how families use labor and other means of subsistence. Within a

given tenure system, existing households with changing trade-offs shift land–labor relationships over the household life cycle. Therefore, the legacies of land distribution after de-collectivization, in particular, secure access to land and restrictions on land transfers, can create separate patterns connecting livelihood strategies to household life cycles in Ethiopia alongside the growing market exchange of labor and production. Land tenure underlies some of the incremental uses of land and includes farmers' shift cycles, turning forests into areas first used for annual and subsequently for perennial crops (Wannasai and Shrestha 2008). Therefore, shifting land ownership in African countries will alter the landscape pattern and ruin mature forests for the production of modern agriculture. According to Gedefaw et al. (2020), land tenure patterns in Sub-Saharan Africa are rapidly changing. They argued that extensive changes in land tenure have occurred in some Ethiopian regions over the past three decades, such as Gozamin. These changes occurred primarily in agricultural lands and then moved to grasslands and forests. Based on the findings of this study, land degradation in Ethiopia has significant socio-economic and environmental tradeoffs, and we need to understand barriers within the social, economic, and political contexts. Kassa et al. (2016) argued that transformation of crop forests and grain-based forests affects biodiversity; soil fertility; soil loss; and economic, social, and cultural conditions of the Ethiopian people. In addition, the loss of natural forest cover in various areas threatens the sustainable agricultural practices and livelihoods of the local community. In another study by Hammad and Tumeizi (2012), it was found that the deterioration of land is a natural and socio-economic cause–effect phenomenon that is common across the globe.

The socio-economic degradation of land in Azerbaijan calls for efforts to improve farmers' awareness of the environment, environmental standards, and legislation, and for the reduction in land mismanagement, diversity of tenure has been observed in common occupation regimes at different land levels in Ethiopia. As a result, it can have different effects on management activities, such as forest cover and land use management. Asaaga et al. (2020) showed that different components of tenure security influence the adoption of non-consistent methods across the various components of tenure security or specific, sustainable land management procedures in African countries such as Ghana. According to the results, in Ethiopia, the relationship between tenure security and sustainable land management investments is also mediated by other important non-tenure factors (including access to credit, modernized agricultural inputs, and targeted extension service support). The results also correspond to and are confirmed in the studies by Kamwi et al. (2017), Walmsley and Sklenička (2017), and Um (2020). These findings, therefore, suggest that Ethiopian

land tenure policy will produce a range of positive and negative outcomes relating to investment in land conservation. This indicates the need to think more deeply about prioritizing sustainable land management interventions, especially in emerging areas in Ethiopia.

Overall, these findings are important for redesigning context-specific and appropriate land-use policies to address barriers to Ethiopia's sustainable land management. Furthermore, according to the findings, particular attention should be paid to tangible local incentives for taking action against land degradation. Due to land degradation, consolidating land ownership mitigates certain economic losses and costs (Nkonya et al. 2016). In confirmation of these findings, we can refer to the results of the study by Barbier and Hochard (2018). They believe that land is among the few productive assets that rural poor people own and that nearly all of these households are engaged in agriculture. In low-income countries, such as Sub-Saharan Africa, the rural poor population in agricultural degradation increased over the period 2000–2010. Although degradation threatens the survival of the poor population, this is a complex and economically, socially, and environmentally important interaction. This also limits the impacts of economic growth and economic reforms on poverty reduction.

The erosion of soil is a key cause of land degradation in various parts of the world. This concerns especially developing countries where soil erosion through water seriously endangers farm productivity and food security. In Ethiopia, precipitation is erosive, and soil erosion by water is a major environmental challenge (Fenta et al. 2017). The issue is particularly important because heavy rainfall, steep roots, and agricultural practices that reduce soil protection can lead to potentially high erosion rates (Ebabu et al. 2019). The soil erosion threats and trends were linked to land use and related land tenure practices, such as land fragmentation, especially in agricultural communities. This level of understanding indicates the importance that societies assign to their natural resources in their decision-making processes. The productive land tenure system shows a clear trend for improving resource management. By analyzing the findings of related studies, we learned that the enhancement of forests and the weeding of land biomes have been productive, primarily through participatory community engagement. This underlines the value of collective governance and by-laws that appear to be more effective when implemented and enforced at the local level. These results are consistent and in line with the findings of studies by Ntihinyurwa et al. (2019), Uddin et al. (2018), Terefe et al. (2020), and Sklenicka (2016).

5.2. *Land Governance and Land Use Decision Making*

Main aspects defining land governance include how land rights are defined, exchanged, and transformed; how public oversight of land use and land management is performed; how state-owned land is managed; and how information on land ownership is collected, controlled, and made publicly available (Hailu 2016). Land tenure, or access and rights to land, is essential to sustain people's livelihoods. The insecurity of perceived and de facto land tenure leads farmers through farming and non-farm job opportunities to explore alternative strategies and avenues for food supply. Therefore, from a political perspective, it is important to emphasize that people's livelihoods must be given priority in land governance, thus extending the current positioning of land solely as a pathway for agricultural or conservation production (Keovilignavong and Suhardiman 2020).

The way land governance is implemented can greatly influence how agricultural and non-agricultural land is used and whether long-term sustainability investments are being made. The land registration and certification of smallholder farms and communal land, for example, can encourage land managers to engage in higher value and more productive land uses (Byamugisha 2014). Secure rights can provide incentives for longer-term investments to enhance land productivity, protect local communities, and safeguard the environment in general (Falk 2016). Likewise, the level of clarity of land tenure on forestlands can affect the willingness of land managers to invest in future forest productivity or conversion to other land uses. Finally, overlapping rights and claims can create conflicts (Hailu 2016) and greater uncertainty for investors (Deininger and Ali 2007). Land management should enable different stakeholders to participate in government decisions and ensure the safety of their livelihoods (Azadi 2020). However, depending on the government's decision-making process, land governance could be poor or strong. So, land governance is a prerequisite in rural areas of developing countries for economic growth and poverty reduction (Bessa and Brunori 2017). In Ethiopia, the government is supporting the gradual reform of land administration and tenure within the country's system of state ownership of land. For example, the last five-year plan committed to scale up second-level land certification in the highlands, and innovative, pilot-level projects of community certification of land, for rangeland communities, for example, are underway (Woldegiorgis et al. 2018). However, gaps in land governance remain. A recent assessment highlights important challenges requiring urgent attention, such as strengthening rights to forest (Okoli 2019) and common lands (Ma Rhea 2018), increasing the effectiveness of rural land use regulations (Van der Sluis et al. 2019), improving public land management (Long and Qu 2018), making large land transfers

to private investors more transparent and competitive, and strengthening public provisions of land information (Hailu 2016).

The common land resources grant “common access” to everyone and are used for various economic gains, as the name indicates. They include the communal land, community pastures, forestry, wildlife, wastelands, common dumping, thresholds, banks, and river beds governed by social conventions and legal rules. Forests supply forests. Agriculture and social forestry are also used to support livestock pastures. In general, they represent a large proportion of poor Ethiopian farmers’ income, socio-economic growth, and livelihoods. The steady fall in agricultural incomes has caused small farms to become inviable for farming practices. Thus, most farmers use these resources to add to their income. Some farmers depend on them for their livelihoods. Therefore, lands that are used collectively have a great impact on the sustainability of environmental and social systems because they can provide natural resources in the event of various crises and be used as an alternative source when crops are damaged (Dwomoh and Wimberly 2017). Land tenure and environmental conditions are closely related: land tenure can promote land use practices that harm the environment, or it can serve to enhance the environment (von der Mühlen et al. 2020).

The findings of Fonjong et al. (2016) indicate that the government; leaders; and, to a certain extent, elites have played a central role in the formal and informal processes of providing investors with land. Nevertheless, both processes neglect women and communities affected because there are no mechanisms for holding actors, particularly women, to account for their livelihood on land. It is, therefore, essential to have a legislative framework that makes the process transparent and promotes responsibilities and gender inclusion. Given that, in general, insecurity in land tenure is a major limiting factor in Ethiopia and in developing countries for sustainable use, the government has introduced a Rural Land Certification Program to ensure land tenure. As shown by Mengesha et al. (2019), Alemu et al. (2020), and Abi et al. (2018), as soon as their land was certified, the majority of farmers in Ethiopia practiced sustainable land use. Land certification, therefore, makes a major contribution to sustainable land use. Since access to land for developing countries, such as Ethiopia, is a fundamental socio-economic requirement for sustainable agriculture and forestry, tenure security is key to development in poor populations and is essential to achieve sustainable development goals. Therefore, the rights of land tenure as the entry point for the empowerment of the poor should be considered. The security of land tenure is currently applied in Ethiopia with land registration and land certification. This helps improve sustainable land use practices. This enables other countries, particularly

developing countries, to learn from this achievement and emphasize land tenure rights for their country's development and sustainability (Rampa et al. 2020).

In fact, property ownership and tenure security are fundamental factors and are a good start for sustainable land management practices. Nevertheless, a policy on land use in order to implement sustainable land use practices should be developed. The land degradation and deforestation problem can otherwise not be resolved (Hendriks et al. 2019). In turn, this could threaten agricultural output and exacerbate the country's poverty situation (Lencucha et al. 2020). Moreover, the experts and local people have a weak tie to the plantations of tree plants. Practices and technology are most often developed using a top-down approach without local citizens being involved. Sustainable land use and sustainable development, in general, cannot lead to this situation (Liu and Ravenscroft 2017). Indigenous local people's knowledge should be integrated with scientific expert knowledge to improve sustainable land use and boost agricultural output (Adade Williams and Shackleton 2020). Most of Ethiopia's legal documents, including the constitution itself, stress the need and value of public involvement in natural resource governance (Gebreamanuel 2015). However, the literature warns that such fundamental freedoms cannot be expected to be followed because the decision-making power of the public is significantly undermined by policymakers. The ECA (Economic Commission for Africa) (2002) reported that current land policies have failed to achieve planned outcomes due to a lack of public participation and interaction, as it is structured using a centralized and top-down approach. According to the relevant studies (Gebreamanuel 2015; Meshesha et al. 2012), these government policies have resulted in a growing degradation of land.

6. Conclusions and Policy Implications

In conclusion, this study proposes some ways to tackle the problems arising from the insecure land tenure system in Ethiopia. The main problem found is the conversion of land classified as forest, protected area, or wetland to other uses affecting the biodiversity and environmental health in Ethiopia. To safeguard land, providing multiple ecosystem services and public goods, the official demarcation, mapping, and registration of public lands must accelerate. This must be aligned with a computerized land information system that supports public access. Performance gaps in allocating land for agricultural investments, a key driver of land use change, must be closed. Notable necessary improvements include increasing the institutional effectiveness of multiple land investment institutions, seeking comprehensive consultations and new

benefit sharing models with local communities, and encouraging clear and enforceable land contract clauses to safeguard water, biodiversity, and other natural resources.

The fact that the threats deriving from the commodification of agriculture and the competition from global markets are not mentioned as major challenges for the development of rural communities indicates that the sustainability paradigm is weak. Sustainability pathways and goals set by the UN are a weak sustainability paradigm for a poor, developing country, such as Ethiopia. This is because the UN sustainability pathways fail to consider the peculiarity of the Ethiopian context, where the majority of the population live in poverty (Worku et al. 2018), in rural inaccessible areas (Kea et al. 2018), with low levels of school enrollment (Ramachandran 2017), and very low access to capital (Manlosa et al. 2019) and investments (Haile et al. 2019). Although Ethiopia has enacted laws to achieve a sustainable agricultural market, considerable gaps remain in applying and enforcing these laws within the context of food security and the commodification of agriculture.

More importantly, to achieve more sustainable food and land use, a functioning monitoring system is required to enforce the existing legislative provisions or propose new ones. This, in turn, will require further studies on the current capabilities and practices within governmental structures and the awareness of landholders to apply land laws that support a sustainable food and land use system. The small farmers of Ethiopia play a significant role not only in feeding a large segment of the country's population but also in contributing to food security. There is, therefore, an urgent need to promote strong rural economies in rural areas of the country, empowering and renovating small-scale productive agriculture. This scales down the tide of out-migration from rural regions and creates adequate employment opportunities and strong foundations for food security. In this way, stronger sustainability paradigms, such as food sovereignty or agro-ecology, are more capable of fully addressing the sustainability needs of a developing country, such as Ethiopia. Although Ethiopia has enacted laws to achieve social and environmental objectives, considerable gaps remain in applying and enforcing these laws within the context of land allocation decisions. Expanding access to customized agricultural extension services for female farmers; increasing women's access to key inputs, such as seeds, fertilizer, and pesticides; building women's assets and improving their access to credit; and other gender reforms could support the transition towards a sustainable food and land use system. It is also essential to monitor smallholder commercialization closely in order to detect unintended risks that can lower nutritional outcomes or widen gender gaps within households. Land degradation is a common problem in Ethiopia and has a devastating effect on the socio-cultural and environmental settings of the

region. The findings revealed that major causes include rapid population growth, extreme soil erosion, deforestation, low vegetative coverage, and unbalanced crop and livestock production. To manage land loss, conservation policies have concentrated on physical management mechanisms (such as soil erosion) and stable land tenure systems throughout the past. Removing bottlenecks in land administration and strengthening land and resource security can create incentives for more sustainable land and resource management. Improved land administration results in economic and social returns. Future studies on improving low price soil fertility applications and the improvement of environmentally friendly or sustainable farming methods could help in improving land use. Policymakers should consider the above-mentioned points and consider the effective application of the laws.

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