

Comparative Analysis of Land Policy Instruments to Tackle Land Fragmentation

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SUMMARY

Land fragmentation has several manifestations, including but not limited to, the existence of very small parcels, having an awkward shape, scattered with a considerable distance between parcels, and the absence of road access for each land parcel. It is a serious problem in Ethiopia. It is reaching a critical point that calls for government policy action. Most of the research in this regard concentrated on fragmentation as a problem and farmland consolidation as a solution. Others also revolve around technical issues that need to be considered to implement farmland consolidation. There is no study, as far as I review and I know, on different land fragmentation tackling policy tools apart from land consolidation; and the legal regimes and institutional issues for managing land fragmentation. The main objective of this research is, therefore, to prepare a comparative analysis of different land policy instruments to tackle land fragmentation in Ethiopia and assess the legal and institutional situation of their application. Secondary data through a literature review is conducted using a systematic literature review approach. As the primary source, laws related to land consolidation are reviewed. The research revealed that land consolidation is not the only mechanism to manage land fragmentation, there are various policy instruments. While many instruments involve the re-organization of landholding (e.g., voluntary land exchanges, various forms of land consolidation, market-based land transactions, land banking, expropriation & and compensation), others focus on the consolidation of land use (cluster farming, cooperative formation). Some of the alternative policy tools may be used as preparatory initiatives for land consolidation, while others can be taken as standalone management tools. Other measures, like determining minimum parcel size, encouraging voluntary land exchange that will bring holding consolidation or mitigate distance fragmentation, prohibition on land re-distribution, revisiting inheritance rules, cluster farming, and so on could be considered. It is imperative to have comprehensive and full-fledged policies and laws for managing land fragmentation. Besides, it is essential to establish a land fragmentation management organization, which should include a land consolidation commission or unit to oversee national land fragmentation management initiatives. Moreover, there should be an understanding that not all land fragmentations are problems. Research, education, training, and awareness creation on farmland fragmentation and its management tools, one of which is land consolidation, is very important.

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1. INTRODUCTION

Land fragmentation is a serious administrative, productivity, and investment problem. It limits the application of modern agricultural types of machinery vis-à-vis productivity ([Bezabih & Goshu, 2022](#)). Ethiopia is not an exception to this problem. It is a critical problem in the highland part of Ethiopia ([Yimer, 2014](#)) ([Alemu et al., 2017](#); [Leta et al.](#)) ([Zewdie & Tamene, 2020](#)); ([Gedefaw et al., 2019](#)); ([Beyene, 2019](#)); ([Alemu et al., 2019](#)). Even though, land fragmentation is comparatively severe in the highland parts of the country, it is also quite a problem in the plain areas of southern Ethiopia, e.g. Woliata and Kebata zones, and some parts of western Shewa. Land fragmentation is also high and increasing in the Gamo Highlands of southwest Ethiopia ([Cholo et al., 2018](#)).

It is considered a key constraint to socio-economic development in Ethiopia. The challenges of rural development in Ethiopia, particularly the thorny issue of increasing agricultural productivity, are partly attributed to it. According to the Ethiopian Statistical Service, about 7.4 million landholders (34%) have an average of 0.1-0.5-hectare landholding, each having four parcels on average. Whereas 2.8 million landholders (13 %) have less than 0.1-hectare landholding. On the other hand, based on data generated from the National Rural Land Administration Information System (NRLAIS), the average parcel size is estimated at 0.44, 0.66, and 0.64 ha in Amhara, SNNPR, and Oromia regional states respectively ([Amsalu, 2023](#)). Other studies show the level of fragmentation is more severe than the one reported in this study. This shows that land fragmentation is a serious problem in the country. However little has been done to address this fragmentation problem ([TMG, 2019](#)).

Land fragmentation is defined as the situation in which a single farm or ownership consists of numerous spatially separated and non-contiguous land plots scattered over a wide area ([Balogun & Akinyemi, 2017](#)). Land fragmentation has a profound impact on various aspects such as rural development, land management, land use, land administration, and natural resource protection. This issue worsens the conditions of poverty and conflict perspectives, making it a matter of great concern ([TMG, 2019](#)). In Ethiopia, land fragmentation is a prevalent issue characterized by the presence of numerous small parcels with irregular shapes ([Demetriou et al., 2013](#)), ([King & Burton, 1982](#)) scattered with a considerable distance between parcels, and the absence of road access for each land parcel, which makes cultivation labour and time-consuming and very difficult to apply modern agricultural practices. The main shortcomings associated with land fragmentation include the small size and irregular shape of the land parcels, the dispersion of parcels, and, in particular, the large potential distance between the parcels and the owner's farmstead.

Pieces of literature divided land fragmentation into four different types: fragmentation (1) of land ownership, (2) of land use, (3) within a farm, and (4) separation of ownership and use ([Dijk, 2003](#)). Besides this, there are four fundamentally different types of land fragmentation rooted in different reasons for fragmentation.

- ☞ That which is unavoidable because of natural conditions
- ☞ That which arises from physical conditions from human activities not connected with agriculture (e.g. due to construction of roads, railways, canals, etc.)
- ☞ That which is agricultural rational (to minimize the potential risk of climatic and natural disasters, greater variety of soils, crops, and growing conditions, different harvesting schedules depending on altitudes)
- ☞ That which, not falling within the first two categories is agriculturally irrational. Thus, not all land fragmentation can or shall be combatted.

There are also ownership and land use fragmentation where the former refers to the situation where the ownership of agricultural land is split between many owners of small and often badly shaped parcels, whereas the latter implies the actual use of the land.

Land fragmentation is caused by several occurrences. Population growth causes parcel fragmentation, which negatively impacts production efficiency (UNICEF, 2009). This land fragmentation is caused by inheritance, exchange, alienation (Ram et al., 1999) donation, land re-distribution (Thein, 1997), and heterogeneous land quality (Bezabih & Gosshu, 2022). Besides, causes of land fragmentation are divided into four: socio-cultural variations (inheritance laws, population growth, marriage, etc.), variations in economic efficiencies (land market, land transactions); (3) physical variations (soil qualities, topography, location, operational variations (land redistribution) (Hartvigsen, 2014).

In Ethiopia, the root cause of the matter is the nation's land inheritance tradition. The 1975 'Land to the Tiller' reform backed by distributive and redistributing rules of farmlands aggravated the situation of Land Fragmentation via repeated distribution and redistribution of farmlands of peasants. The effect was a frequent resizing of farmlands, which led to the present condition of Land Fragmentation. The fragmented plots are dubbed at times 'starvation plots' to indicate the subsistence nature of the landholding typifying rural Ethiopia. While land fragmentation can be considered a risk management strategy for landholders as it allows for a diversification of production in various agro-ecological zones, it hinders mechanization, leads to time loss, and constrains plant growth monitoring due to long distances between plots.

Besides the fragmentation of parcels, increasing fragmentation of agricultural production can be observed in Ethiopia. It is projected that the number of small agricultural enterprises having less than 2 ha, and particularly having less than 0.5 ha will be increasing exponentially in the coming years. This significantly reduces the competitiveness of Ethiopian small-scale farmers against larger agricultural producers in Ethiopia and against imports from abroad.

Despite the presence of several studies in the country on land fragmentation on one hand and land consolidation as a tool to manage the former on the other, there is no comprehensive study on comparative analysis of different land policy instruments to tackle land fragmentation in Ethiopia.

Therefore, the overriding objective of the study is to prepare a comparative analysis of different land policy instruments to tackle land fragmentation in Ethiopia and assess the legal and institutional situation. To achieve this objective various secondary and primary sources are used. Data is collected from secondary sources, including but not limited to, laws, previous studies, and reports from land administration offices at the federal and regional levels. A review of the federal and regional laws related to land fragmentation is conducted. A literature review is conducted to scrutinize and evaluate many studies in particular topical areas is employed.

2. LAND POLICY TOOLS TO TACKLE LAND FRAGMENTATION

In a transition to the market economy, the farm structure and economies of farm size are very important ([Thein, 1997](#)). There is a close relationship between farm size and the amount of machinery owned as they can earn extra income by hiring them out, in addition to using them. The “Land to the tiller” policy and inheritance traditions and rules due to population growth have created a fragmented small and uneconomical farm size that, in the long term, affects the efficiency of the land. International practice and academic debate discuss various land policy instruments to address the development challenges of land fragmentation. While many instruments involve the re-organization of landholding (e.g., voluntary land exchanges, various forms of land consolidation, market-based land transactions, land banking, expropriation & compensation), others focus on the consolidation of land use (land use consolidation, yield clustering, cooperative formation). While these land policy instruments share common objectives and use partly overlapping approaches, they all encompass specific comparative advantages and disadvantages depending on the geographic and socio-economic context and in their compatibility with agricultural development strategies.

Given the diverse landscapes and food production systems in Ethiopia, it is understood that different land policy instruments must be applied and combined within a comprehensive strategy to tackle land fragmentation. So far, there is no widespread knowledge of the variety of individual instruments on a decision-makers level in Ethiopia and only a limited understanding of their advantages and disadvantages. To improve the knowledge about land policy instruments available to tackle land fragmentation and to assess the legal situation of its application in Ethiopia, an analysis and overview shall be prepared. In brief, the following are some of the policy tools that can be used to manage land fragmentation problems.

2.1 Land Fragmentation as a Land Management Mitigation Mechanism

Land fragmentation is labelled as a constraint to efficient crop production and agricultural modernization ([Sundqvist & Andersson, 2007](#)). On the contrary, there are studies, which argue that small family farms are as efficient as large farms through enhancing intensification, facilitating crop diversification, risk aversion mechanism, and so on. There is no consensus that fragmentation is strictly a negative phenomenon. Land fragmentation can be considered a tool for land management. Farmland fragmentation is not necessarily a problem ([Ntihinyurwa & de Vries, 2020](#)). Landholders utilize land fragmentation as a strategy to address their vulnerability to climate impacts and fluctuating market prices. While enacting land consolidation and other land fragmentation management laws, it is very crucial to understand that not all land fragmentations may require land consolidation as a management strategy. There are intentional fragmentations made by households as a responsible land management tool ([de Vries & Chigbu, 2017](#)) for crop diversification, climate change adaptation, and mitigation, and risk management strategies ([Ntihinyurwa & de Vries, 2020](#)). A high land fragmentation also promotes crop diversification, manure application and terracing ([Cholo et al., 2018](#)). Nevertheless, in any case, there is a minimum amount of land that is efficient and productive. The potential benefits of land fragmentation must be compared with the potential costs. To achieve this, a thorough examination is necessary to understand the potential consequences of land fragmentation in the face of climate change. By quantifying the risks associated with this phenomenon, we can gain valuable insights into the expected loss and damages. Simultaneously, it is crucial to acknowledge the perceived risks, which may differ from the quantifiable ones. As a result, there

should be incentives to avoid further land fragmentation below the efficiency line. This needs a clear and transparent land policy responsive to local contexts and local demands having incentive clauses that allow land as collateral and efficient transactions ([Thein, 1997](#)).

2.2 Land Consolidation

Pieces of literature divided land fragmentation into four different types: fragmentation (1) of land ownership, (2) of land use, (3) within a farm, and (4) separation of ownership and use ([Dijk, 2003](#)). One of the tools to overcome this serious problem is land consolidation, in addition to other fragmentation management tools ([Gudina, 2011](#)); ([Tenagne, 2018](#)); ([Ntihinyurwa et al., 2019](#)); ([Gedefaw et al., 2019](#)); ([Beyene, 2019](#)); ([Alemu et al., 2019](#)); ([Ortiz-Becerra, 2021](#)).

Land consolidation is the process through which small land parcels or shares in land are exchanged for one or more larger parcels that are approximately equivalent in value to the original holding. It creates parcels of more economic and rational size, shape, and location. Land consolidation can be used to improve the tenure structure in support of rural development by addressing land fragmentation ([STUDIES, 2003](#)). It helps fragmented lands to be united, fragment numbers decreased, fragment sizes increased and fragment shapes are re-formed ([Tumer et al., 2010](#)). It is highly linked with land tenure and property right issues as it uses land tenure information (existing land owner, type of ownership, and 3Rs (Rights, restrictions, and responsibilities)) in the identification of the existing situation, potential changes, and updating the new changes ([Rubanje, 2016](#)). The researcher's practical experience revealed that land consolidation could bring different benefits, and save its shortcomings in different situations, which the law should take into account. These benefits are in one way or another linked with land tenure and property rights. Land consolidation saves traveling time, energy, and cost of production. Reducing the number of parcels via land consolidation means a lot, especially cost reduction. Let alone other costs, it will reduce the number of oxen required to plough the parcels. Carrying and traveling the ploughing materials from parcel to parcel consumes a lot of energy. It reduced boundary disputes as the number of neighbouring landholders and boundaries after land consolidation will be reduced. It helps to manage crop residuals closely both for animal feeding (fattening) and organic fertilizer preparation. Land consolidation can also reduce post-harvest crop losses as the crops can be harvested at the same place. Besides, it can avoid the tragedy of anti-commons, as public and communal areas (such as roads and green areas) will be created. In general, land consolidation is an approach that can lead to a new and innovative tenure arrangement, which can lead to cluster farming and joint development. All these benefits make sense against the backdrop of a clear depiction of the level and challenges of land fragmentation in Ethiopia.

There is no single universal definition or approach to land consolidation; different countries apply different models and follow different objectives ([Food & Nations, 2003](#)). A voluntary, simple majority (50%+1 landholders or area), an absolute majority (at least 75% of landholders or area), and mandatory-based land consolidation approaches could be considered, but what matters is determining which one best fits a certain area/location. Land consolidation is the process through which small land parcels or shares in the land are exchanged for one or larger parcels that are approximately equivalent in value to the original holding. It creates parcels of more economic and rational size, shape, and location (Glossary of Land Related Terms with a Focus on the VGGT). The purpose of land consolidation should go beyond supporting

agricultural development and include community development, and environmental and infrastructure projects ([HARTVIGSEN et al., 2019](#)). Legal frameworks and institutional arrangements must align with this multi-purpose approach.

It should be made very clear that land consolidation has nothing to do with expropriation of land and properties. This implies that no one should be dispossessed from his or her land during land consolidation project implementation. In countries that have a freehold tenure arrangement, land consolidation may offer opportunities for landowners to sell their land to others but this should be done willingly. The main objective of land consolidation is to improve rural livelihoods that is more than improving agricultural products.

Promulgation of context-oriented land consolidation legislation is a crucial requirement to implement land consolidation programs ([HARTVIGSEN et al., 2019](#)). Among other essential elements/requirements for Fit for Purpose land consolidation (such as institutional capacity, recognition of customary and secondary rights, good governance in the process (Public participation for instance), updating land information system infrastructure) legislation including competent dispute settlement and grievance redress mechanisms is a very critical one. Understanding this FAO has conducted an assessment of good practices on land consolidation legislation and published a Legal Guide on Land Consolidation ([HARTVIGSEN et al., 2019](#)). Most countries tested their land consolidation legislation instead of developing a new law from the pilot. The FAO legal guide identified six principles of the land consolidation legal framework. These are respect for and protection of legitimate tenure rights; “at least as well off”; sustainability and environmental protection; the participatory approach; gender equality; and transparency ([HARTVIGSEN et al., 2019](#)). From the principles, gender equality is very narrow. It has to address other social inclusion aspects beyond gender equality. The respect for and protection of legitimate tenure rights shows that there should be some sort of registration and titling program in areas where land consolidation is going to be implemented. As a result, the SLLC completion of an area may help to make the implementation of the consolidation program in Ethiopia smooth.

The establishment of an appropriate institutional arrangement is a crucial prerequisite for the successful implementation of land consolidation programs. According to the legal guide provided by the Food and Agriculture Organization (FAO), there is no pre-existing, one-size-fits-all institutional arrangement for this purpose. Instead, the specific arrangement required depends on the objectives of the consolidation initiative and the unique circumstances of the country in question. Ideally, this role should be closely linked to sectors such as agriculture, environment, water management, and food, as this alignment offers the greatest potential for achieving the defined objectives. Establishing a public Lead Agency is of utmost importance in order to effectively determine the land consolidation policy and establish a comprehensive legal framework. This agency will bear the ultimate responsibility for these crucial tasks. The decision-making and approval of the re-allotment plan can be executed through two distinct approaches: administrative approval, which grants the power to the lead agency, or judicial approval, which designates a separate land consolidation commission to wield this authority. Among others, the public lead agency would uphold fairness and transparency in land consolidation processes. By implementing clear guidelines and regulations, the agency would prevent favoritism, corruption, and disputes. This would instill confidence among landowners, encouraging their active participation in consolidation initiatives

2.3 Voluntary Parcel Exchange

This approach is considered a soft alternative to land consolidation ([Teijeiro et al., 2020](#)). Conceptually, this is one type of land consolidation. Nevertheless, voluntary parcel exchange cannot bring large-scale land consolidation results, as it is limited to parties who are exchanging their parcels. This holding/parcel voluntary exchange can be used to manage distance fragmentation and parcel fragmentation issues. The policy can take different incentive mechanisms to encourage voluntary land exchange, which has the effect of decreasing land fragmentation. Voluntary parcel exchange can be very useful in restructuring holdings when a large number of owners participate ([Teijeiro et al., 2020](#)).

2.4 Farmland Subdivision Restrictions and Creation of Family Farms

This principle restricts or forbids subdivision of agricultural land during several transactions. For instance, some countries restricted the right to purchase or to sell parts of agricultural real estate ([Jacoby, 1959](#)). Besides, as the subdivision and fragmentation of land is partly caused by at the time inheritance based on the succession laws ([Ram et al., 1999](#)), it is important to restrict or prevent subdivisions of agricultural businesses and agricultural land to protect further fragmentations. Farmland subdivisions fragment the farms and affect their future viability. Countries use this mechanism as one solution in combating farmland fragmentation. For instance, the federal and regional rural land laws enshrined provisions that determines minimum holding/parcel size, where dividing a parcel because of any reason (inheritance, donation, rent, etc.) below this size is prohibited by the law. This may, for instance, involve introducing a mechanism for simplification of legacy transfer to one inheritor and determining a minimal land plot size that may not be divided ([Kurylo et al., 2017](#)). On the other hand, the restrictions on the subdivision of land either through inheritance or through sale, may lead to joint ownership by the heirs, and in turn cooperative farming.

Switzerland is known for using Farmland Subdivision Restrictions as a policy tool in tackling fragmentation. The law embeds exceptions into the inheritance law and land-market regulations. It restricts subdivisions and aims to pass the land ownership to competitive family farms. It strives to protect the structure of Swiss agriculture by way of a ban on the fragmentation of parcels and the de facto splitting of whole estates. Agricultural parcels may not be partitioned into segments smaller than 25 Ares (a quarter hectare) ([Schmidt et al., 2019](#)). During inheritance, the legal estate will be assigned to one of the heirs, while the heir taking the estate is obliged to pay compensation that requires a huge investment. Alternatively, a family farm may be created. In Ethiopia, certain regional states have implemented a similar arrangement. For example, the Amhara National Regional State has already incorporated subdivision restrictions into its land law. However, these restrictions do not prevent farmers from dividing their land, either through formal means (with court decisions favoring sub-divisions) or informally (without registering further sub-divisions). Consequently, this model encounters enforcement challenges and appears to lack significant impact. To address this issue, a robust institutional framework is necessary to ensure strict adherence to the law.

2.5 Land Sale/Land Swapping

This is one aspect of the land fragmentation management policy tool, that involves land contract transfer used to combine small fragment land parcels into large ones to realize land use consolidation ([You, 2010](#)). Larger farms can be formed through the sale and leasing, or other transactions ([Platonova & Jankava, 2011](#)). There are countries, like Germany, which incentivize

these kinds of consolidation through land sale and swapping. In the Slovak Republic, there is an official price of the land during land consolidation. This price is used by the state to buy the land that the owners offer for sale through the Slovak Land Fund or the trustee ([Peráček et al., 2022](#)).

2.6 Expropriation

Expropriation measures are necessary to make land available for the enlargement of farms ([Jacoby, 1959](#)). This is a mechanism where the government applies forced purchase/expropriation on small plots and consolidate them with the neighbouring, by different modalities, parcels in order to create bigger land suitable for agriculture. The forced sale of agricultural land can be considered as a broader public purpose to consolidate land. Laws can be developed that give power to the government to expropriate fragmented parcels to attain the public goal of creating a more convenient farm field for mechanization and commercialization. Forced Rent to large farm owners can be also used as a short-term solution. The concept of expropriation sets it apart from land banking as it allows for forceful implementation without the need for landowners' consent. In contrast, land banking is a voluntary approach that refrains from imposing on landowners who may require additional support through promotion and awareness initiatives.

2.7 Agricultural Zoning as a Farmland Protection Tool

This policy tool implies that areas that possess good agricultural soils, a viable farming industry are prime for agricultural zoning. This is common in countries like Georgia ([Franzen & Center, 2006](#)) and the United States ([Cordes, 2001](#)). It is zoning land exclusively or almost exclusively to agricultural purposes, according to the land use. This zoning is supplemented by farmland subdivision restrictions up to a size appropriate for farming. Agricultural zoning permits the use of the land for agricultural purposes only, allowing for a very limited amount of non-farm-related development such as compatible or accessory buildings. Building residential farm dwellings are not allowed as they create one form of land fragmentation ([Franzen & Center, 2006](#)).

2.8 Land Use Consolidation

This process does not entail consolidating a single holding; instead, it focuses on consolidating the land use of various parcels owned by different individuals. In this endeavor, the aim is to streamline and optimize the utilization of multiple land parcels, each owned by separate individuals. Rather than merging these parcels into a single entity, the focus is on harmonizing their land use practices. By consolidating the land use of these diverse parcels, we can enhance efficiency, maximize productivity, and ensure a more cohesive approach to their management. This consolidation process allows for better coordination and utilization of resources, leading to improved outcomes for all stakeholders involved. Furthermore, this approach promotes collaboration and cooperation among landowners, fostering a sense of unity and shared purpose. It enables the pooling of expertise, resources, and efforts, resulting in a more effective and sustainable land use strategy. The following are the types of land use consolidation.

2.8.1 Cluster Farming

This is also referred to as Crop Consolidation, which is the consolidation of the use of agricultural lands, in terms of unifying the cultivated crop. This is one of the tools for managing land fragmentation challenges. Cluster farming has particularly very useful in employing

mechanization technologies and the prevention of post-harvest losses. Cluster Farming creates real profit by merging several smallholder farms, helping farmers to increase harvest, agricultural productivity, and value chain products; and boost food security. Nevertheless, the drawback with this policy tool is it does not solve the problem of land waste because of many boundaries and ditches, which still is inefficient in terms of the use of natural resources. In Ethiopia, cluster farming involves about 30–200 smallholder farmers with adjacent farm plots who voluntarily pool a portion of their land to benefit from targeted government support and cluster economic agglomeration ([Dureti et al., 2023](#)).

2.8.2 Cooperative Farming

This is a kind of land fragmentation management tool where landholders form a cooperative and bring their parcels together, without amalgamating them, cultivate them together, and share the input costs and products based on prior agreed criteria (parcel size and fertility for instance). This is where households volunteer to make contributions of finance and land for production according to a common plan, process, and form of farming with similar markets of input and output. Cooperative farming requires an investment of capital from farmers, which facilitates commercialization ([Huggins, 2013](#)). This involves changing intercropping techniques for high-priority mono-cropping. The government can support the cooperative in selling, processing, distributing, and marketing agricultural products for the cooperative ([Kathiresan, 2012](#)). This support by the government encourages farmers to engage in this cooperative farming mechanism. Cooperative farming may involve contract farming.

This collaborative approach allows for increased efficiency and mutual benefit among members. By pooling resources and expertise, the cooperative can optimize agricultural practices and maximize yields. Additionally, the shared costs help alleviate financial burdens on individual farmers. The agreed-upon criteria ensure fairness and transparency in the distribution of both inputs and outputs. This cooperative model not only fosters a sense of community and teamwork but also promotes sustainable and profitable farming practices. Farmer cooperatives in Ethiopia have a long and debated history, which were characterized by a coercive top-down approach that forced farm households to join cooperatives and put individual land holdings under the control of cooperatives ([Dureti et al., 2023](#)).

2.8.3 Contract Farming

It is a well-defined practice in which agricultural producers enter into agreements with buyers or companies for a given period to cultivate and supply specific crops or livestock, which provides a framework for both parties to outline their respective roles, responsibilities, and expectations. Farmers commit to producing a predetermined quantity and quality of agricultural products within a specified timeframe. In return, buyers or companies offer various forms of support, such as technical assistance, inputs, and ensuring a guaranteed market for the produce. This collaboration fosters a sense of security and stability for farmers, as they can rely on a predetermined price and market for their goods. By formalizing agreements and establishing clear expectations, this practice promotes sustainable agricultural practices, enhances productivity, and fosters economic growth for all parties involved.

This is potentially attractive tool for land commercialization is being implemented in Ethiopia through Agricultural Commercialization Clusters (ACC) contract farming. This is a potential

tool that can be used as a land fragmentation management tool. It facilitates contract farming-based large-scale land investment through consolidating smallholder farms under a crop/commodity of specialization ([Bezabih & Goshu, 2022](#)). For instance, in Rwanda, foreign agricultural investment involves contract-farming arrangements with cooperatives, which are facilitated by the state, which when necessary, uses coercive mechanisms as well as highly interventionist strategies (such as regional crop specialization policies and mandatory land use consolidation) to create an ‘enabling environment’ for agricultural investment ([Huggins, 2013](#)). This can be an alternative to expropriation and allows direct control of production by corporations, without creating dispossession/displacement on landholders ([Kathiresan, 2012](#)).

3. DOES ETHIOPIA HAVE THE REQUIRED LAND FRAGMENTATION MANAGEMENT POLICY TOOLS AND INSTITUTIONAL FRAMEWORKS?

According to the FAO legal guide, land consolidation law promulgation and implementation can either be centralized or decentralized based on the country’s specific situation. Ethiopia seems to follow a hybrid approach where the power of legislation is given to the federal government; whereas implementation is to the regional states.

Historically the 1975 “land to the tiller” policy and laws played a huge role in the current land fragmentation. As a result, individuals typically possess approximately 4-5 parcels that are widely dispersed. These parcels are fragmented and relatively small, with an average total holding size of about 1.5 hectares, equating to an average of 0.3 hectares per parcel ([Amsalu, 2023](#)). Ethiopia does not have a comprehensive land policy unless otherwise it is inferred from the constitution, different sectoral policies, and other subordinate legal frameworks. Article 40 of the constitution enshrines governing provisions about the ownership and administration of land. However, it is silent about land fragmentation and its management policy tools. Other sectoral policies, including, but not limited to, agricultural rural development policies, strategies, and tactics do not even mention the word “land consolidation” and other land fragmentation land management policy tools. It describes land use consolidation, consolidating the land use of fragmented parcels for large-scale agricultural investment. According to the existing Agricultural Rural Development Policy¹, this can be achieved through rental contract arrangements between landholders having small parcels and investors. The policy overlooked landholding consolidation where smallholder farmers can exchange their parcels voluntarily and create comparatively bigger-sized holdings suitable for agricultural farming. The policy also tried to balance landlessness and land re-distribution. It stated that there might be a need to redistribute land considering the negative impact of it, tenure insecurity. This is one major cause of land fragmentation, and its mitigation strategy is not boldly included in the policy.

“Policy-led efforts at land consolidation have been only in their infancy in Ethiopia” ([Bezabih & Goshu, 2022](#)). A draft agricultural and rural land policy is submitted to the Council of Ministers for approval. This policy is meant to compensate for the drawbacks of the previous policy. One of the problems is issues regarding land consolidation. The draft policy considers land fragmentation, both locational and size fragmentation, as a threat to agricultural production

¹ The draft Agricultural and Rural Development Policy, in conjunction with the Food Systems Strategy, have endeavored to address the challenges posed by land fragmentation and land consolidation as crucial tools for effective management policies. The strategy reads “Implementing land reform and land administration that will ensure the right to lease land, and use it for collateral to facilitate land consolidation, adoption of innovation, and reduce environmental degradation”

and productivity; and brought the concept of voluntary land consolidation as a fragmentation management tool. The main objective of this land consolidation, according to the policy, is to make it simple to apply modern agricultural technologies and practices, increase agricultural production, productivity, and quality, responsible natural resource use, etc.

As stated above, subsequent legislations have a policy and enforceable legal provisions regarding land management and administration. Both the federal and regional legislations govern these matters. Settlement and villagization programs to be undertaken at the request and participation of the community should be undertaken taking into account the objective of land consolidation. However, this provision is not clear regarding the implementation of land consolidation during resettlement and villagization programs ([FDRE, 2005](#)), Art 11(5). Besides, the law puts restrictions on the fragmentation of parcels by proclaiming a minimum size of holding (Ibid, Art. 11 (2&3)). Landholders are also encouraged to voluntarily exchange their farmlands to make small farm plots convenient for development (Ibid, Art. 11(3)). Other than these general provisions, the federal framework law does not have detailed provisions that guide farmland fragmentation management policy tools including land consolidation. Regional land laws have very few provisions regarding land fragmentation and its management tools, including land consolidation.

The Oromia rural land administration and use proclamation number 248/2023, talks about the consolidation of farm plots. The merging of farm plots shall be made based on the consensus and willingness of the holders. This implies that voluntary land consolidation is chosen from the approaches. As per article 23 of the proclamation minimum farm plot size is determined to be 0.5 hectares for annual crops, and 0.25 hectares for irrigation and perennial plants. This plot size is also applicable during inheritance and renting of private holding. This is meant to mitigate further land fragmentation.

The Amhara National Regional State Revised Rural Land Administration and Use Determination Proclamation No.252/2017 also enshrined provisions about land consolidation and other land fragmentation management measures. It talks about holding exchange (art. 20(1)). Rural landholders may agree on their holdings individually to make small plots adjoined/consolidated and suitable for development (art 20(2)). The regulation further explained this and prescribes that any landholder can exchange his or her land with the view to making his land contiguous and consolidating his or her farm (art. 8 (1-4)). This is one form of land fragmentation management measure ([Ntihinyurwa et al., 2019](#)). This holding/parcel voluntary exchange can be used to manage distance fragmentation and parcel fragmentation issues. Updating of land information for land exchange transactions that have the effect of land consolidation is made free of payment. This is meant to encourage land consolidation. As discussed by Ntihinyurwa et al., 2019, there is also another defragmentation (fragmentation management) measure; among them is farmland subdivision restrictions. The Amhara rural land law partially adopted it. Minimum Plot Size is defined in the proclamation as the least plot of land to be given to as holding (art. 2(14)). Based on this definition the regulation enshrined 0.25, 0.06, and 0.02 hectares as a minimum plot/parcel size for parcels cultivatable by rain, cultivatable through irrigation, and for the construction of a dwelling house respectively (art. 5(1)). It is in no case prohibited to give a plot of land, which is below this size (art. 5(2) of the regulation). Farmland subdivision restrictions are also applicable during inheritance. Heirs cannot divide the inheritance farmland if their share will be below the minimum plot size

determined above, instead, they can use it commonly (art. 17(9) of the proclamation). Hartvigsen, M., 2014 explained that land re-distribution is one cause of land fragmentation. Land re-distribution prohibitions could be taken as one form of land fragmentation management measures. Understanding this the Amhara land law prohibited land re-distribution (art. 6(1) of the regulation) except irrigated for lands. This is a very important measure to mitigate further land fragmentations, in addition to the purpose it has in strengthening tenure security. The regional land law goes further in achieving subdivision restrictions on parcels, which would be below the determined minimum plot size. Parcels divided against the subdivision restrictions are ineligible to be registered and certified (art 35(7) of the proclamation) except those parcels known to have existed before the enactment of the revised proclamation (art. 26(5) of the regulation)). This is one further step in implementing subdivision restrictions.

The federal government has been amending the rural land administration and use Proclamation 456/2005, which is now approved by the Council of Ministers. The new draft proclamation has very few provisions regarding land consolidation and other defragmentation measures. It seems the draft law adopted two land consolidation approaches: consent-based land consolidation as a principle, and exceptionally mandatory land consolidation in irrigation areas where the government or partners build the infrastructure. Other defragmentation measures include; ordering regions to promulgate land provisions on minimum plot size, parcel exchange (which could be used to manage distance fragmentation), prohibition of further land re-distribution activities, land rent (it can manage land use fragmentation), etc. Except for the federal, Amhara, and Oromia land laws, other regional land laws do not have that many exemplary land consolidation provisions.

It is a commonly accepted view that institutional structure is one of the most important indicators of property rights and that there is an interaction between it and economic growth ([Haydaroglu, 2015](#)). Institutional arrangements are key to implementing policies and legal frameworks. Land fragmentation management policy tools are not exceptions to this principle. According to the legal guide provided by the FAO, there is no pre-existing institutional framework for land consolidation and other policies aimed at managing land fragmentation. The implementation of such tools depends on the specific objectives a country wishes to achieve and its unique local circumstances.

The federal Rural Land Administration and Use Lead Executive Office, under the Ministry of Agriculture, is responsible for coordinating rural land-related activities, among which is implementing farmland fragmentation management policy tools. There is currently no dedicated institution or department established within this ministry to address the matter at hand. Under the lead executive, there is no team and even an expert who is responsible for the implementation of farmland fragmentation management policy tools. A thorough evaluation was undertaken to assess the job descriptions of all experts operating under the lead executive. The findings revealed a notable absence of any designated individual responsible for farmland consolidation and other land fragmentation management techniques. This indicates that there is neither an institution nor an expert at the federal level who coordinates land fragmentation and its management approaches activities and supports regional states on the matter.

Implementation power is given to regional states (institutions from region down to kebele level). Still, regional states do not have a specific unit/section or expert dedicated to the implementation of farmland fragmentation management policy tools. The lower-level land

administrators, Kebele Land Administration experts, and Kebele Land Administration and use committees, do not have express power on it. This shows that farmland fragmentation management mechanisms are at their infant stage both from their legal and institutional arrangement perspective in Ethiopia. Education and training on land consolidation, from the grassroots level to officials, remains an ambiguous domain. A significant gap in awareness and knowledge regarding this subject matter persists.

4. CONCLUSIONS AND POLICY IMPLICATIONS

Land fragmentation has several manifestations including, but not limited to, the existence of very small and several parcels, having an irregular shape, scattered with a considerable distance between parcels, and absence of road access for each land parcel. Ethiopia's land fragmentation is reaching a critical point that calls for government policy action.

There are a lot of land fragmentation management tools, among them is land consolidation. Land consolidation is costly and time-consuming, even though, once implemented, it creates a comparatively high return on investment and brings a comprehensive rural development. The implementation requires extensive political, legal, and logistical requirements. As a result, looking into other alternative land fragmentation management policy tools is also an option. Some of the alternative policy tools may be used as preparatory initiatives for land consolidation, while others can be taken as standalone management tools. Some of the tools may require policy changes, for instance, land swapping.

Farmland fragmentation may not necessarily be a problem. It may be used for crop diversification, climate change adaptation, mitigation, and risk management strategies. However, it has also problems related to economic efficiency, for instance. Ethiopia does not have a full-fledged policy, legal frameworks, and institutional arrangements for farmland fragmentation management tools. Based on the findings of the research, the following recommendations are made:

- ⇒ Land consolidation is not the only mechanism to manage land fragmentation. Other measures, like determining minimum parcel size, encouraging voluntary land exchange that will bring holding consolidation or mitigate distance fragmentation, prohibition on land redistribution, revisiting inheritance rules, cluster farming, and so on should be considered.
- ⇒ It is imperative to have comprehensive policies and laws for managing land fragmentation.
- ⇒ It is essential to establish a land fragmentation management organization, including a land consolidation commission or unit to oversee national land consolidation initiatives.
- ⇒ Take a case-by-case approach to land consolidation, keeping in mind that not all land fragmentations pose problems.

It is crucial to do research and provide education, training, and awareness raising on land fragmentation challenges on one hand, land consolidation, and other land farmland fragmentation management strategies on the other.

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