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# Reviewing Policy Tool Options to Tackle Land Fragmentation: Insights for Land Consolidation in Ethiopia

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## Abstract

*There are arguments for and against land fragmentation. Nevertheless, it is a serious problem in Ethiopia. It is reaching a critical point that calls for government policy action. However, studies that can guide evidence-based land fragmentation tackling policy tools are limited in Ethiopia. Most of the research in this regard concentrated on fragmentation as a problem and farmland consolidation as a solution. Hence, the main objective of this article is to review the different policy approaches and instruments initiated to tackle land fragmentation in Ethiopia and assess the legal and institutional situation of their application. To realise this objective, it employs a doctrinal legal analysis and desk-based review, along with analysing stakeholder input. This article highlights that land consolidation remains a fundamental and relevant tool for addressing land fragmentation. It offers policy options including tenure restructuring, such as parcel exchanges, market-led transactions, and expropriation, and land-use consolidation or agricultural clustering (cluster farming, cooperatives, and the like). Comprehensive policies with a focus on adopting fit-for-Ethiopia policy tools and a dedicated body, such as a land consolidation commission, are essential for managing fragmentation.*

## Keywords

Land Administration; Land Fragmentation; Policy Tools; Land Consolidation; Fit-For-Ethiopia



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## 1. Introduction

Land is a fundamental resource for human survival, economic growth, and environmental sustainability, serving as the basis for agriculture, rural livelihoods, and broader development. These days, effective land administration is critical to bring sustainable development. However, challenges such as land fragmentation constrain mechanisation, reduce productivity, and limit investment, thereby preventing the intended sustainable development, highlighting the urgent need for policies that strengthen land governance, improve efficiency, and promote sustainable land use.

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.[1] It profoundly affects various aspects, including rural development, land management, land use, land administration, and natural resource protection. Land fragmentation presents a significant administrative, productivity, and investment challenge, constraining the utilisation of modern agricultural machinery and thus impacting productivity.[2] This issue exacerbates poverty and conflict perspectives, rendering it a matter of great concern.[3]

Literature categorises land fragmentation into four distinct types: (1) fragmentation of land ownership, (2) fragmentation of land use, (3) fragmentation within a farm, and (4) separation of ownership and use.[4] Additionally, there are four fundamentally different types of land fragmentation stemming from various reasons which are, unavoidable fragmentation due to natural conditions; fragmentation arising from physical conditions resulting from human activities unrelated to agriculture (e.g., construction of roads, railways, canals, etc.), agricultural rational fragmentation (aimed at minimising the potential risks of climatic and natural disasters, enhancing soil and crop diversity, accommodating different growing conditions, and varied harvesting schedules depending on altitudes), and agriculturally irrational fragmentation, not falling within the first two categories.

Hence, in this article, it is not feasible to address all instances of land fragmentation. Ownership

[1] Bentley, Jeffery W., 'Economic and ecological approaches to land Fragmentation: In defense of a much-maligned phenomenon, Annual review of anthropology', Vol.16, 1987, P.31-67; Balogun, Olubunmi Lawrence, and Babatunde Ebenezer Akinyemi, 'Land fragmentation effects on technical efficiency of cassava farmers in South-West geopolitical zone, Nigeria, Cogent Social Sciences', Vol.3, No.1, 2017.
[2] Bezabih, Mintewab, and Degye Goshu, 'Land issues in Ethiopia: trends, constraints and policy options, Ethiopian Economic Association (EEA)', 2022.
[3] TMG, W., 'Opportunities for Voluntary Land Consolidation in Ethiopia: Farmers' Perspectives', 2019.
[4] Van Dijk, Terry, 'Dealing with Central European land fragmentation, Eburon', Delft 872, 2003.

and land use fragmentation are also noteworthy, with the former denoting situations where agricultural land ownership is divided among numerous owners of small and often irregularly shaped parcels, while the latter pertains to the actual utilisation of the land.

Land fragmentation arises from several factors that are categorised 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), and operational variations (land redistribution).[5] Additionally, population growth contributes to parcel fragmentation, negatively impacting production efficiency.[6] This fragmentation is caused by inheritance, exchange, alienation,[7] donation, land redistribution,[8] and intentional fragmentation intended to get heterogeneous land quality or characteristics.[9]

Land fragmentation is one of the critical problems to efficient crop production and agricultural modernisation.[10] On the other hand, there are counterarguments that are pro land fragmentation, claiming that it can also bring important benefits, such as intensification, crop diversification, and environmental risk management. According to this empirical evidence, landowners use land fragmentation intentionally to adapt to risks such as climate change and market fluctuations.[11] Besides, others also argue that land fragmentation is best for crop diversification and traditional manure application,[12] as this allows owners to avert risks across different soils and areas. As a result of this, proponents of land fragmentation claim that it contributes to food security through crop rotation, nutritional diversity, and sustainable production.[13]

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[5] Hartvigsen, Morten, 'Land reform and land fragmentation in Central and Eastern Europe, Land use policy', Vol.36, 2014, P.330-341.
[6] UNICEF, 'Population growth and rapid urbanisation: Food insecurity on the rise in urban settings, In Joint Meeting of the Executive Boards of UNDP/UNFPA, UNICEF and WFP', Vol.23, 2009.
[7] Ram, K. Anantha, A. Tsunekawa, D. K. Saha, and Tsuyoshi Miyazaki, 'Subdivision and fragmentation of land holdings and their implication in desertification in the Thar Desert, India, Journal of arid environments', Vol.41, No.4, 1999, P.463-477.
[8] Thein, Myat, 'The economics of farm size and land policy in the transition to a market economy, Sojourn: Journal of Social Issues in Southeast Asia', 1997, P.124-134.
[9] *Supra note., 2*.
[10] Sundqvist, Patrik, and Lisa Andersson, 'A study of the impacts of land fragmentation on agricultural productivity in Northern Vietnam', 2007.
[11] de Vries, Walter T., and Uchendu Eugene Chigbu, 'Responsible land management-Concept and application in a territorial rural context, fub. Flächenmanagement und Bodenordnung', 2017; Ntihinyurwa, Pierre Damien, and Walter Timo de Vries, 'Farmland fragmentation and defragmentation nexus: Scoping the causes, impacts, and the conditions determining its management decisions, Ecological Indicators', Vol.119, 2020,106828.
[12] Cholo, Tesfaye C., Luuk Fleskens, Diana Sietz, and Jack Peerlings, 'Is land fragmentation facilitating or obstructing adoption of climate adaptation measures in Ethiopia, Sustainability', Vol.10, No.7, 2018, 2120.
[13] Blarel, Benoit, Peter Hazell, Frank Place, and John Quiggin, 'The economics of farm fragmentation: evidence from Ghana and Rwanda, The World Bank Economic Review', Vol.6, No.2, 1992, P.233-254; Gedefaw, Abebaw Andarge, Clement Atzberger, Walter Seher, and Reinfried Mansberger, 'Farmers willingness to participate in

Despite some benefits, as per the existing literature, the disadvantages of land fragmentation are a critical issue. It is a critical challenge to agricultural productivity and mechanisation. Small and irregularly shaped parcels constrain economies of scale. Besides, managing scattered parcels and poor infrastructure, such as road access, increases labour costs, time required for cultivation, and the overall costs of production. Managing such fragmented parcels is inefficient. It has a high implication on post-harvest losses and higher transportation costs. Fragmentation also causes land loss because of several boundaries and access routes, increasing the possibility of land-related disputes due to a single parcel sharing boundaries with many adjacent parcels. Land fragmentation also discourages infrastructure development such as roads, irrigation, and drainage.[14] In addition, financial institutions are not interested in accepting fragmented parcels as collateral due to the associated higher management costs, which is a constraint to access financial products and engage in investment.[15] Besides, there is literature that talks about the impacts of land fragmentation on decreasing students' school enrollment and increasing school dropouts due to the need for more labour in a family for the management of fragmented parcels.

Ethiopia is not an exception to this, especially evident in areas where sedentary agriculture is practised.[16] Despite this, it is severe in most parts of the country. For instance, existing empirical evidence found that land fragmentation significantly affects the plains of southern Ethiopia, such as Woliata and Kebata zones, and certain areas of western Shewa. Moreover, land fragmentation is becoming a concern in the Gamo Highlands of southwest Ethiopia.[17] In Ethiopia, land fragmentation is prevalent, characterised by numerous small parcels with irregular shapes,[18] scattered over considerable distances between parcels. The absence of road

voluntary land consolidation in Gozamin District, Ethiopia, Land', Vol.8, No.10, 2019, P.148; Galli, Francesca, Stefano Grando, Anda Adamsone-Fiskovica, Hilde Bjørkhaug, Marta Czekaj, Dominic George Duckett, Henrik Almaas et al., 'How do small farms contribute to food and nutrition security? Linking European small farms, strategies and outcomes in territorial food systems, Global Food Security', Vol.26, 2020, 100427.

[14] Mwebaza, R., and R. Gaynor, 'Land sector analysis; land market, land consolidation, and land re-adjustment component, Rural Development Institute', 2002.

[15] *Supra note., 8*.

[16] Yimer, FIKERTE ABEBE, 'Fit-for-purpose land consolidation: An innovative tool for re-allotment in rural Ethiopia, Master's thesis, University of Twente', 2014; Leta, Teshome Beyene, Arega Bazezew Berlie, and Mehrete Belay Ferede, 'Current Land Tenure and Households' Perspectives to Voluntary Land Consolidation in South East Ethiopia, Available at SSRN 3745224 (2020); Alemu, Girum Getachew, Ezana Amdework Atsbeha, and Larissa Stiem-Bhatia Jes Weigelt, Opportunities for voluntary land consolidation in Ethiopia: Farmers' perspectives, TMG working paper', 2019; Wang, Jiayi, C. A. O. Yu, Xiaoqian Fang, Guoyu Li, and Yu Cao, 'Does land tenure fragmentation aggravate farmland abandonment? Evidence from big survey data in rural China, Journal of Rural Studies', Vol.91, 2022, P.126-135; Zewdie, Yihenew, and Lulseged D. Tamene, 'Toward an inclusive and evidence-based approach to farmland consolidation in Ethiopia', 2020.

[17] *Supra note., 13.*

[18] Demetriou, Demetris, John Stillwell, and Linda See, 'A new methodology for measuring land fragmentation,

access for each land parcel makes cultivation laborious, 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, parcel dispersion, and, in particular, the large potential distance between parcels and the owner's farmstead.[19]

It stands as a key constraint to Ethiopia's socio-economic development, notably impeding rural development and the pivotal task of enhancing agricultural productivity. According to the Ethiopian Statistical Service, approximately 7.4 million landholders (34%) have an average landholding of 0.1-0.5 hectares, with each holding an average of 4 parcels. In contrast, 2.8 million landholders (13%) own less than 0.1 hectares of land. Data from the National Rural Land Administration Information System (NRLAIS) reveal average parcel sizes of 0.44, 0.66, and 0.64 hectares in Amhara, SNNPR, and Oromia regional states, respectively.[20] Other studies indicate even more severe levels of fragmentation than reported in this article, underscoring the seriousness of the issue. Despite its negative impact, little has been done to address this issue of fragmentation.[21] If not, Ethiopia will likely continue to lose an estimated annual loss ranging from 31,403 tons to 281,073 tons at the national level, and the estimated grain loss due to parcel distance from homestead ranged from 15,702 tons to 202,023 tons.[22]

Despite numerous studies regarding land fragmentation and land consolidation as a management tool for the same, there is still a lack of a comprehensive study on different policy instruments that could be used to tackle land fragmentation in Ethiopia. Therefore, the primary objective of this article is to review the various policy approaches and instruments for addressing land fragmentation in Ethiopia and to evaluate the legal and institutional context of their implementation.

## 2. Research Methods and Materials

This article examines policy options to address land fragmentation in Ethiopia. The objective of the article is neither to quantify nor to generalise findings from a sample, but to develop an

Computers, Environment and Urban Systems', Vol.39, 2013, P.71-80; King, Russell, and Steve Burton, 'Land fragmentation: notes on a fundamental rural spatial problem, Progress in human geography', Vol.6, No.4, 1982, P.475-494.

[19] *Supra note., 18*.

[20] Amsalu Tadesse, 'Final Report on Meta-Analysis of Socio-Economic Impacts of Land Fragmentation in Ethiopia [Baseline Study], GIZ, Land Governance (LaGo) Project', 2023.

[21] *Supra note., 3*.

[22] *Supra note., 20*.

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in-depth understanding of the types of policy tools available to address land fragmentation and their applications and implications. Given the nature of the research problem, a qualitative research approach combining desk reviews with Focus Group Discussion (FGD) inputs directed by a legal doctrinal research approach was applied. This approach allows the article to capture both the legal frameworks and the practical issues related to the policy tools surrounding land fragmentation issues.

This article used both primary and secondary sources of qualitative data. Primary sources include policy and legal tools related to land fragmentation, including policies and laws that govern land consolidation and other policy tools. In addition, primary data were collected using FGDs, which were employed both at the federal and regional levels, to support the findings. These FGDs were undertaken particularly in the Amhara and Central Ethiopia regions, where land consolidation pilot activities are ongoing. Participants of the FGD include experts and officials working in the Ministry of Agriculture and the land bureaus of the two regional states whose work is in one way or another related to the subject area. A total of 20 experts and officials participated in the FGD.

This article also employed secondary data gathered through desk-based reviews, encompassing prior studies and reports gathered from federal and regional land administration institutions. Additionally, other frequently cited articles in these selected materials were identified through a backward literature search to ensure the inclusion of influential and foundational studies that may not appear in initial searches.

Thematic analysis was used for both primary and secondary data sources. For the policy and legal sources, legal analysis, synthesis, and methods of legal reasoning techniques were employed. Similarly, for data gathered through FGDs, coding was used to capture participants' perspectives, experiences, and insights related to the subject matter. The analysis of this article was informed by efficiency-based theories, as discussed below in the next section.

## 3. Reviewing Policy Tool Options to Tackle Land Fragmentation

This section explores various policy tools designed to reduce land fragmentation's negative effects. Both theoretical models and empirical research reveal multiple policy options, each providing different strategies to tackle the causes and impacts of land fragmentation. Theories related to land fragmentation and consolidation can be broadly divided into two major strands:

equity-inclined and efficiency-based.

Equity-inclined theories include Risk Diversification/Behavioural Theory and Distributive Justice Theory. The former theory advocates that landholders rationally use land fragmentation as a risk-coping strategy,[23] which is supported by empirical evidence where farmers, sometimes, opt to have fragmented parcels for an unofficial risk-coping strategy. On the other hand, the latter advocates that land fragmentation is the result of redistributive land reforms aimed at fairness rather than efficiency (e.g., Ethiopia's "Land to the Tiller" reform).[24]

Efficiency-based theories focus on productivity, cost minimisation, and economies of scale, generally treating fragmentation as a constraint on agricultural modernisation and economic performance. Property Rights Theory mostly focuses on the effect of weak or insecure tenure arrangements on the fragmentation of the land, which limits the use of land as collateral, which in turn restricts access to credit and investment in land improvements.[25] Clear and secure land rights reduce land fragmentation through facilitating efficient land markets such as buying, selling, exchanging, or leasing the land, thereby leading to consolidation of holdings.[26] Despite the theory providing valuable insights into the role of private property rights in promoting efficiency, it neglects issues related to equity, customary tenure, and communal rights, which makes the theory a less suitable fit for the current legal system of Ethiopia, where land buying and selling are prohibited by law.

The Economies of Scale Theory, similar to the previous theory, states that fragmented plots hinder mechanisation, raise labour costs, and decrease overall efficiency, thereby limiting agricultural modernisation.[27] On the other hand, larger, consolidated plots allow mechanisation, reduce input and labour costs, and enhance productivity. Fragmentation prevents achieving these economies,[28] and the theory advocates for land consolidation, despite its failure to discuss the ups and downs during the implementation of the policy tool. The Ethiopian rural land laws, though not detailed enough, adopt this theory as a justification for

[23] *Supra note., 1.*
[24] Bruce, John W., 'Review of tenure terminology, Land Tenure Center, University of Wisconsin-Madison', 1998.
[25] Feder, Gershon, and David Feeny, 'Land tenure and property rights: Theory and implications for development policy, The world bank economic review', Vol.5, No.1, 1991, P.135-153.
[26] Demsetz, Harold, 'Toward a theory of property rights, In Classic papers in natural resource economics, Palgrave Macmillan UK, London',1974, P. 163-177.
[27] *Supra note., 1.*
[28] Binswanger, Hans P., Klaus Deininger, and Gershon Feder, 'Power, distortions, revolt and reform in agricultural land relations, Handbook of development economics', Vol.3, 1995, P.2659-2772.

the provisions regarding land consolidation and clustering. Article 18 of the federal rural land administration and use proclamation number 1324/2024 explains that land consolidation is meant to make small and fragmented parcels suitable for development, and incentives are added for this purpose. A highly linked theory with the Economies of Scale Theory is Transaction Cost Economics, which explains that fragmented plots increase supervision, transportation, and monitoring costs, resulting in resource misallocation and higher production expenses.[29] Consolidation reduces these costs and increases efficiency.[30] The empirical evidence of this article strongly supports this theory. Landholders in Ethiopia face substantial transaction costs due to fragmentation that leads to an increased demand for policy interventions, such as land consolidation.

Land Consolidation Theory, which was developed primarily in Europe, promotes land reallocation, exchange, or pooling to reduce fragmentation and improve land use. It focuses on the spatial, economic, and social rationalisation of plots.[31]

The fit-for-purpose theory offers a vital integrative view by rejecting the idea of a one-size-fits-all or "black-and-white" method to land fragmentation and consolidation. It stresses that policy measures must be tailored to the unique social, economic, institutional, and environmental conditions of each community. Consequently, no single policy can be ideal everywhere. Instead, a selection of policy tools can be created, allowing policymakers to adopt those most suitable for each specific situation. This strategy helps achieve a balance between fairness and efficiency, making land governance more legitimate and effective by being sensitive to local needs.

In transitioning to a market economy, the farm structure and economies of farm size hold significant importance.[32] The size of farms and the amount of machinery owned are closely related, as they can generate extra income through hiring out machinery, in addition to their own use. International practice and academic discourse delve into various land policy instruments to tackle the development challenges posed by land fragmentation. While many instruments involve the reorganisation of landholding (e.g., voluntary land exchanges, various

[29]Coase, Ronald H., 'The Coase theorem and the empty core: a comment, The Journal of Law and Economics', Vol.24, No. 1, 1981, P.183-187.
[30] Williamson, Oliver E., 'The economics of organisation: The transaction cost approach, American journal of sociology', Vol.87, No.3, 1981, P.548-577.
[31] Van Dijk, Terry, 'Complications for traditional land consolidation in Central Europe, Geoforum, Vol.38, No.3, 2007, P.505-511.
[32] *Supra note., 8.*

forms of land consolidation, market-based land transactions, land banking, expropriation & compensation), others focus on consolidating land use (land use consolidation, yield clustering, cooperative formation). While these land policy instruments share common objectives and partly overlapping approaches, each one has comparative advantages and disadvantages, contingent upon the geographic and socio-economic context and their compatibility with agricultural development strategies.

Given the diverse landscapes and food production systems in Ethiopia, it is imperative to recognise that different land policy instruments must be applied and combined within a comprehensive strategy to address land fragmentation. Presently, there is limited yet widespread knowledge of the variety of individual instruments at the decision-makers' level in Ethiopia, and only a limited understanding of their advantages and disadvantages. To enhance understanding of the land policy instruments available to tackle land fragmentation and to assess the legal landscape of their application in Ethiopia, an analysis of such tools must be conducted. In summary, the following are the major policy tools that can be utilised to manage land fragmentation problems.

### 3.1. Land Consolidation

Land consolidation involves tenure restructuring through exchanging small land parcels or shares for one or more larger parcels with land value approximately equivalent to the original holding. It aims to create parcels that are more economically and rationally sized, shaped, and located. This approach helps improve the tenure structure to support rural development by tackling land fragmentation.[33] It contributes to uniting fragmented lands, reducing the number of parcels, increasing fragment sizes, and reshaping fragment shapes.[34] Land consolidation is closely tied to land tenure and property rights issues, utilising land tenure information (existing landowner, type of ownership, and 3Rs: Rights, restrictions, and responsibilities) to identify existing situations, potential changes, and updates.[35]

The FGD conducted revealed various benefits of land consolidation and ways to address its

[33] STUDIES, LAND TENURE, 'The design of land consolidation pilot projects in Central and Eastern Europe, FAO Land Tenure Studies', Vol.6, 2003, P.1-55.
[34] Tumer, Emine, Atilla Keskin, and Avni Birinci, 'Analysis of factors affecting land fragmentation in Erzurum Province, Turkey, African Journal of Business Management', Vol.4, 2010.
[35] Rubanje, Innocent, 'Linking land use, tenure and consolidation in Rwanda, Master's thesis, University of Twente', 2016.

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shortcomings in different scenarios, which legislation should consider. These benefits are closely linked to land tenure and property rights. Land consolidation reduces travel time, energy, and production costs. It reduces the number of oxen required for ploughing parcels and lowers energy consumption for transporting ploughing materials between parcels. It minimises boundary disputes by reducing the number of neighbouring landholders and boundaries post-consolidation. Additionally, it facilitates close management of crop residues for animal feeding and the preparation of organic fertiliser. It also decreases post-harvest crop losses by allowing harvesting at the same site. It helps avoid the tragedy of the anti-commons by establishing public and communal spaces such as roads and green areas. Overall, land consolidation is an innovative approach to land tenure that offers many benefits in Ethiopia's context of land fragmentation.

There is no universally defined approach to land consolidation; different countries employ various models and objectives.[36] Different approaches to land consolidation, including voluntary (100% landholders' acceptance), simple majority (50%+1 landholders or area), absolute majority (at least 75% of landholders or area), and mandatory-based approaches, may be considered, with selection dependent on specific geographic and socio-economic contexts and national policies.

Legal frameworks and institutional arrangements must align with a multi-purpose approach to land consolidation that extends beyond agricultural development to encompass community development, environmental initiatives, and infrastructure projects.[37] It is important to clarify that land consolidation does not involve the expropriation of land and properties. Individuals should not be dispossessed of their land during land consolidation projects. However, in countries with freehold tenure, land consolidation may offer landowners opportunities to sell their land voluntarily. The primary focus of land consolidation in Ethiopia should be on enhancing land structure and infrastructure to improve agricultural productivity and integrate with broader economic and rural development objectives.

The Food and Agriculture Organisation (FAO) has assessed good practices on land consolidation legislation and published a Legal Guide on Land Consolidation.[38] According to

[36] *Supra note., 34*.
[37] Hartvigsen, Morten, Tomas Versinskas, Margret Vidar, K. Mitic Arsova, F. Van Holst, and Maxim Gorgan, 'FAO recommendations on land consolidation legislation, In Annual World Bank Conference on Land Poverty Washington DC', March 2019, P.25-29.
[38] *Ibid.*

this guide, enacting context-oriented land consolidation legislation is essential for implementing land consolidation programs. Legislation should encompass competent dispute settlement and grievance redress mechanisms, among other essential elements, for Fit for Purpose land consolidation. Many countries have implemented land consolidation laws to improve land management and utilisation systematically, leading to more effective outcomes.

Land consolidation facilitates the creation of competitive agricultural production systems by enabling farmers to operate fewer, larger, and better-shaped parcels. This, in turn, allows the adoption of improved farming techniques and modern technologies. By reducing parcel fragmentation, it enhances opportunities for mechanisation, better utilisation of farm equipment and other fixed assets, and more effective organisation and supervision of labour, leading to higher land and labour productivity. Consolidation also reduces travel time, energy use, and post-harvest losses, improves transport efficiency between farms and residential areas, and minimises boundary-related disputes. These structural changes often result in substantial adjustments to land tenure arrangements and contribute to improved natural resource management and environmental conservation. Moreover, land consolidation enhances the efficiency and cost-effectiveness of both public and private infrastructure investments, such as transportation and communication networks, utilities, and irrigation systems, while lowering average input costs and increasing the profitability of farm enterprises. Collectively, these outcomes promote commercially viable family farming, support broader rural development, increase opportunities for agriculture-related investment, strengthen the monitoring of farm activities, and make farming and agribusiness more attractive to young people.

Land consolidation may not always constitute a fitting or standalone solution to land fragmentation, particularly when broader social, economic, and institutional conditions are not adequately addressed. Although it is often justified on the grounds of economic efficiency, land consolidation does not necessarily guarantee social efficiency, as its implementation is frequently constrained by limited public budgets, challenges in land and property valuation, difficulties in securing landowner approval and consensus, and the risk of future subdivision and renewed fragmentation of holdings. In addition, land consolidation projects typically require substantial initial investments and are both costly and time-consuming to implement; evidence from countries such as Serbia indicates that implementation costs have, in some cases, exceeded prevailing land prices. Nevertheless, such interventions should be understood as major social investments, as they tend to generate relatively high long-term returns and increase

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land values in relation to the land market once completed. At the same time, land consolidation may entail environmental and livelihood risks by reducing the diversity of soils and growing conditions, potentially undermining diversification strategies and family-level food security. Furthermore, increased reliance on mechanisation following consolidation can reduce demand for agricultural labour, disproportionately affecting smallholders and land-dependent households and potentially accelerating rural–urban migration in the absence of sufficient off-farm employment opportunities.

Despite not being fully established, legal frameworks and provisions are present in rural land administration and use laws, enabling the consolidation of land. Nevertheless, it requires a full-fledged law that governs the necessary aspects of land consolidation (See section 4 below about the Ethiopian legal environment regarding land consolidation).

## 3.2. Voluntary Parcel Exchange

This approach is considered a soft alternative to land consolidation.[39] Conceptually, it falls under the umbrella of land consolidation. However, voluntary parcel exchange alone cannot achieve large-scale land consolidation results, as it is limited to the parties involved in the exchange. This voluntary exchange of parcels can be employed to address issues of distance fragmentation and parcel fragmentation. Policies can incorporate various incentive mechanisms to encourage voluntary land exchange, thereby reducing land fragmentation. Voluntary parcel exchange can be particularly beneficial in restructuring holdings when a significant number of owners participate.[40]

Voluntary parcel exchange offers several advantages in addressing land fragmentation. It is particularly effective in resolving both distance and parcel fragmentation problems and can be highly beneficial in restructuring holdings when a large number of landowners participate. However, this approach also has limitations. Since it is restricted to the parties involved in exchanging their parcels, it may not lead to large-scale consolidation outcomes. Moreover, the process can become challenging as it requires negotiations among many individual landowners in isolation, unlike comprehensive land consolidation programs that adopt a broader and more

[39] Teijeiro, Diego, Eduardo Corbelle Rico, Juan Porta, Jorge Parapar, and Ramón Doallo, ‘Optimising parcel exchange among landowners: A soft alternative to land consolidation, Computers, Environment and Urban Systems’, Vol.79, 2020, 101422.
[40] *Ibid*.

coordinated approach.

### 3.3. Farmland Subdivision Restrictions and Creation of Family Farms

This principle restricts or prohibits the subdivision of agricultural land in certain transactions. For example, some countries limit the right to purchase or sell parts of agricultural real estate.[41] Moreover, since the subdivision and fragmentation of land partly stem from inheritance based on succession laws,[42] it is important to restrict or prevent subdivisions of agricultural businesses and land to curb further fragmentation. Farmland subdivisions fragment farms and jeopardise their future viability. Countries employ this mechanism as one solution to combat farmland fragmentation. For instance, federal and regional rural land laws include provisions that establish minimum parcel sizes, prohibiting parcel division below this threshold for any reason (inheritance, donation, rent, etc.). This may involve streamlining legacy transfer to one inheritor and setting a minimum land plot size that cannot be divided.[43] Conversely, restrictions on land subdivision, whether through inheritance or sale, may result in joint ownership by heirs and subsequently cooperative farming.

Switzerland employs Farmland Subdivision Restrictions as a policy tool to address fragmentation. The law incorporates exceptions into inheritance laws and land-market regulations, prohibiting parcel fragmentation to maintain competitive family farms. It aims to safeguard the structure of Swiss agriculture by prohibiting parcel fragmentation and splitting whole estates. Agricultural parcels cannot be divided into segments smaller than 25 Ares (a quarter hectare).[44] In inheritance, the legal estate is assigned to one heir, who must compensate the other heirs, which requires substantial investment, or they can opt to keep the family farm.

In Ethiopia, certain regional states have adopted a similar approach. For instance, the Amhara National Regional State has integrated subdivision restrictions into its land law. However, these restrictions do not always prevent farmers from dividing their land, whether through formal means (court decisions favouring subdivisions) or informally (without registering further

[41] Jacoby, Erich H., 'Land consolidation in Europe', No. 3E. Veenman, 1959.
[42] Ram, Rati., 'Financial development and economic growth: Additional evidence', 1999, P.164-174.
[43] Kurylo, Volodymyr, Petro Pantaliienko, Vyacheslav Bogdanets, and Sergij Ovcharuk, 'Land fragmentation in Ukraine: agricultural land-use management and jurisprudence issues, Problems and perspectives in management', Vol.15, No.2, 2017, P.102-109.
[44] Schmidt, Alena, Gabriele Mack, Anke Möhring, Stefan Mann, and Nadja El Benni, 'Stricter cross-compliance standards in Switzerland: Economic and environmental impacts at farm-and sector-level, Agricultural Systems', Vol.176, 2019, 102664.

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subdivisions). Consequently, this model faces enforcement challenges and lacks significant impact. To address this issue, a robust institutional framework is necessary to ensure strict adherence to the law.

Restrictions on farmland subdivision present both advantages and disadvantages. On the positive side, such measures can encourage cluster development and promote the formation of larger family-owned farms, which are generally more efficient and better suited for mechanisation. However, these restrictions may also raise challenges. They can be perceived as limiting individual liberty, making them vulnerable to legal and political contestation. In some cases, they may undermine women's land rights, particularly during divorce proceedings where subdivision rules apply. Effective monitoring of these restrictions is another difficulty, as it may encourage landholders to operate informally. Furthermore, joint ownership imposed by subdivision limits has the potential to increase family disputes and conflicts.

## 3.4. Land Swapping Through Forced Land Sale

This is one aspect of the land fragmentation management policy tool involving land contract transfer, used to combine small, fragmented land parcels into larger ones to achieve land use consolidation.[45] Larger farms can be formed through sale, leasing, or other transactions.[46] Some countries, like Germany, incentivise this kind of consolidation through land sale and swapping. In the Slovak Republic, there is an official land price during land consolidation. The state utilises this price to purchase the land that owners offer for sale through the Slovak Land Fund or the trustee.[47]

Land sales and swapping offer notable advantages in addressing fragmentation. They provide opportunities for landholders to sell smaller, scattered plots and acquire land closer to their larger holdings or homesteads, thereby facilitating land consolidation. This approach also allows uneconomical and excessively small parcels to be transferred to more efficient users, enhancing overall productivity. Nevertheless, such mechanisms are not without drawbacks. They tend to benefit individuals with greater bargaining power and financial resources,

[45] You, Li, 'Analysis of land fragmentation in PR China: Case study in Taizhou City of Zhejiang Province, Master's thesis, University of Twente', 2010.

[46] Platonova, Dace, and Anda Jankava, 'Research on the preconditions of land consolidation in rural districts, Economic science for rural development', Vol.26, 2011, P.174-181.

[47] Peráček, Tomáš, Mária Srebalová, and Andrej Srebala, 'The valuation of land in land consolidation and relevant administrative procedures in the conditions of the Slovak Republic, Administrative Sciences', Vol.12, No.4, 2022, P.174.

potentially widening inequalities. Additionally, they may lead to an influx of landless individuals residing in rural areas, creating new social and economic challenges.

In Ethiopia, land is not subject to sale or other means of exchange. This policy tool doesn't work in our current situation, where land sales are legally prohibited. Implementing this tool requires policy and legal amendments. Besides, the maximum-holding rule runs counter to this principle. As a result, a comprehensive analysis of the advantages and disadvantages of adopting this policy tool in Ethiopia is essential, supported by empirical data. This paper simply aims to present the available policy tools for further consideration.

### 3.5. Expropriation

Expropriation measures are necessary to make land available for enlarging farms.[48] This mechanism involves the government applying forced purchase or expropriation on small plots and consolidating them with neighbouring parcels to create larger, more suitable agricultural land. The forced sale of agricultural land can be considered a broader public purpose aimed at consolidating land. Laws can be developed to empower the government to expropriate fragmented parcels to achieve the public goal of creating more convenient fields for mechanisation and commercialisation. Forced rent to large farm owners can also be used as a short-term solution. The concept of expropriation differs 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.

Expropriation can be a useful tool for the government to ensure land is put to its most productive use. By acquiring very small or uneconomical plots, the government can consolidate land and allocate it for purposes that maximise efficiency and benefit.

However, expropriation is a complex process that requires strong legal, administrative, and commercial capacities. If not handled carefully, it can create opportunities for corruption and lead to perceptions of unfairness, making transparency and oversight essential throughout the process. It is also the main reason for tenure insecurity if proper compensation is not paid. In our case, since the land value is not computed in the compensation, it definitely creates tenure insecurity. Besides, the public purpose in the Ethiopian legal framework does not cover the

[48] *Supra note., 44.*

expropriation of land for land consolidation purposes. Still, there is a possibility to amend the law to broaden it so that it can include land consolidation as a public-purpose matter.

## 3.6. Agricultural Zoning as a Farmland Protection Tool

This policy tool implies that areas possessing good agricultural soils and a viable farming industry are prime candidates for agricultural zoning. This practice is common in countries like Georgia[49] and the United States.[50] Agricultural zoning involves designating land exclusively or almost exclusively for agricultural purposes, based on its land use. Farmland subdivision restrictions supplement this zoning up to a size appropriate for farming. Agricultural zoning permits the use of the land solely for agricultural purposes, allowing only a limited amount of non-farm-related development, such as compatible or accessory buildings. Residential farm dwellings are not permitted as they contribute to one form of land fragmentation.[51]

Agricultural zoning represents a cost-effective and widely recognised strategy for land regulation, fundamentally designed to preserve large tracts of land for farming. As a planning-based approach, it is not only inexpensive to implement but also generally well-accepted by the public, particularly among farmers who are already familiar with the concept. This method enhances landholder productivity and fosters economically sustainable agriculture, thereby enabling landowners to settle in areas characterised by improved social and economic infrastructures. Furthermore, the inherent flexibility of agricultural zoning allows it to be easily adapted to evolving circumstances, ensuring its continued relevance as a tool for long-term agricultural protection.

Implementing agricultural zoning poses several logistical and administrative challenges. Primarily, it increases the travel time required for farmers to commute between their centers and farmlands, thereby reducing operational efficiency. It is often difficult to monitor on a day-to-day basis and may face legal scrutiny regarding the perceived unfairness of restricting residential and commercial development. Furthermore, these measures are often susceptible to modification under intense development pressure, suggesting they do not offer a permanent solution for land preservation. Ultimately, because this method only addresses specific types

[49] Franzen, Emily, and UGA River Basin Center, 'Agricultural Zoning as a Farmland Protection Tool in Georgia, Atlanta, University of Georgia, 2006.
[50] Cordes, Mark W., 'Agricultural zoning: Impacts and future directions, N. Ill. UL Rev.', Vol.22, 2001, P.419.
[51] *Supra note., 52.*

of fragmentation, it must be integrated with complementary strategies to remain effective.

## 3.7. Land Use Consolidation

This process does not entail consolidating a single holding; instead, it focuses on consolidating the land use of various parcels owned/held by different individuals. In this endeavour, the aim is to streamline and optimise the utilisation of multiple land parcels, each owned by separate individuals. Rather than merging these parcels into a single entity, the focus is on harmonising their land use practices. By consolidating the land use of these diverse parcels, we can enhance efficiency, maximise productivity, and ensure a more cohesive approach to their management. This consolidation process allows for better coordination and utilisation 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.

### *3.7.1. 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 been particularly useful in employing mechanisation technologies and preventing 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 that it does not solve the problem of land waste because of many boundaries and ditches, which are still 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.[52]Cluster farming offers several advantages, particularly in improving efficiency and profitability for smallholder farmers. By consolidating the use of individual plots, it facilitates the use of mechanisation technologies and helps reduce post-harvest losses. Merging multiple small farms creates real profit potential, increases overall

[52] Dureti, Guyo Godana, Martin Paul Jr Tabe-Ojong, and Enoch Owusu-Sekyere, 'The new normal? Cluster farming and smallholder commercialisation in Ethiopia, Agricultural Economics', Vol.54, No.6, 2023, P.900-920.

harvests, boosts agricultural productivity, and enhances the production of value chain products.

Additionally, farmers engaged in cluster farming are better positioned to access timely market information. However, cluster farming also has notable limitations. It does not fully resolve land inefficiencies caused by numerous boundaries and on-field ditches, which can lead to the suboptimal use of natural resources. Growing similar crops across clusters may conflict with food security objectives. The approach only alleviates distance and travel-time issues if mechanisation is consistently available and applied throughout the farming cycle. Managing scattered parcels across multiple clusters can be complex for farmers, and the process entails high transaction costs due to extensive coordination requirements. Successful implementation often depends on ongoing public support and facilitation.

Despite the absence of a clearly defined legal framework, this policy tool is not explicitly prohibited under Ethiopian law. However, it is crucial to establish a comprehensive, well-defined regulatory and legal framework to address this matter effectively. Understanding this, a draft proclamation, titled a proclamation for the establishment of an agricultural business company, is under development by the Ministry of Agriculture through technical support from the Agricultural Transformation Institute (ATI).

### *3.7.2. Cooperative Farming*

Cooperative Farming is a land fragmentation management tool wherein landholders form a cooperative, bringing their parcels together, with or without amalgamating them, to cultivate jointly and share input costs and products based on predetermined criteria such as parcel size and fertility. Participating households voluntarily contribute finances and land for production according to a shared plan, process, and form of farming with similar input and output markets. Cooperative farming requires farmers to invest capital, which facilitates commercialisation.[53] It entails changing intercropping techniques to prioritise mono-cropping. The government can assist the cooperative in selling, processing, distributing, and marketing agricultural products, thereby incentivising farmers to engage in cooperative farming.[54] Cooperative farming may also involve in contract farming.

[53] Huggins, C., 'Consolidating land, consolidating control: State-facilitated 'agricultural investment' through the 'Green Revolution' in Rwanda, Land Deal Politics Initiative (LDPI) Working Paper', Vol.16, 2013.
[54] Kathiresan, Arumugam, 'Farm land use consolidation in Rwanda, Kigali: Republic of Rwanda, Ministry of Agriculture and Animal Resources', 2012.

Unlike other land use consolidation methods like cluster farming, this approach establishes a distinct legal entity for the cooperative. This unique characteristic empowers the cooperative to function cohesively as a single entity. This collaborative approach enhances efficiency and mutual benefit among members. By pooling resources and expertise, the cooperative can optimise agricultural practices and maximise yields. Additionally, shared costs help alleviate financial burdens on individual farmers. Agreed-upon criteria ensure fairness and transparency in both input and output distribution. This cooperative model fosters community and teamwork while promoting sustainable and profitable farming practices.

Cooperative farming provides several benefits by enabling farmers to collectively access government incentives for selling, processing, distributing, and marketing agricultural products. It supports the adoption of agricultural inputs and improves the livelihoods of cooperative members. Additionally, cooperative farming allows access to larger markets and encourages healthy competition, which can drive improvements in overall agricultural practices and outcomes. However, cooperative farming also presents challenges. Effective management is critical to prevent disputes and potential dissolution of the cooperative. Participating farmers must make an initial capital investment, and there is a risk that poorer farmers may be excluded from decision-making or market benefits. Corruption among cooperative leaders can compromise the cooperative's effectiveness, and some farmers may be reluctant to release land due to sentimental attachment, making management and coordination more difficult.

In Ethiopia, farmer cooperatives have a long and debated history characterised by a coercive top-down approach that compelled farm households to join cooperatives and place individual land holdings under cooperative control.[55] Even though the Ethiopian Cooperatives law can apply to this context, still it requires context-specific provisions applicable to cooperative farming.

### *3.7.3. 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. This provides a framework for both parties to outline their respective roles, responsibilities, and

[55] *Supra note., 56.*

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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 formalising agreements and establishing clear expectations, this practice promotes sustainable agricultural practices, enhances productivity, and fosters economic growth for all parties involved.

Contract farming offers several advantages as a tool for land commercialisation and large-scale agricultural investment. Unlike expropriation or land leasing, it allows investors to work with landholders without causing dispossession or displacement. It often introduces modern farming technologies, improved inputs, and facilitates the transfer of knowledge and expertise from companies to farmers, helping them adopt new production methods. Farmers also benefit from managerial, technical, and extension services, and they can secure higher incomes by negotiating fair prices while reducing exposure to fluctuating market conditions. However, contract farming has some limitations. It often encourages mono-cropping, which can reduce crop diversification. There are also risks associated with market failures or production challenges. Additionally, companies may prioritise maximising production over environmental protection, potentially relying on hazardous chemicals if regulatory frameworks are weak.

This potentially attractive tool for land commercialisation is being implemented in Ethiopia through Agricultural Commercialisation Clusters (ACC) contract farming. Ethiopia has adopted contract farming proclamation number 1289/2022. As a result, the policy tool has legal backing. 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 specialisation.[56] 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 specialisation policies and mandatory land use consolidation) to create an 'enabling environment' for agricultural investment.[57] This can be an alternative to expropriation and allows direct control of production by corporations,

[56] *Supra note., 2.*
[57] *Supra note., 57.*

without creating dispossession/displacement of landholders.[58]

# 4. Assessing Ethiopia's Land Fragmentation Management Policy Tools and Institutional Frameworks

## 4.1. Land Fragmentation Management Policy Tools at the Federal Level

According to the FAO legal guide, land consolidation law promulgation and implementation can either be centralised or decentralised 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.[59] As land consolidation and other land fragmentation management policy tools are one type of land management, utilisation, and conservation systems, the power to enact laws related to these aspects is entrusted to the federal government, and the administration and implementation of these rules to the regional states. The federal government can either promulgate all types of land fragmentation management tools, including land consolidation laws (proclamation, regulation, and directive), or delegate all or some legislative power to the regions. This approach gives room to balance issue of uniformity required at the federal level in one hand and to address regional specific situations, as the level of fragmentation and the solutions required for each regional state would not be the same.

Ethiopia's land policy has historically been shaped more by distributive justice than by considerations of consolidation or efficiency, and this orientation has been a major driver of farmland fragmentation. The 1975 Land to the Tiller reform, which prioritised distributive and redistributive allocation of farmland, intensified fragmentation through repeated division and redistribution of peasant holdings. The 1975 legacy left the 1995 FDRE constitutional frameworks of state ownership of land, rooted in equitable access and redistribution, even at the expense of productive efficiency. Subsequent land administration and use proclamations in 1997 and 2005 also leaned heavily toward equity, with limited emphasis on efficiency.

Although the current agricultural and rural development policy is supported by the recent rural land proclamation [60], seeks to strike a balance between equity and efficiency, but it still falls

[58] *Supra note., 58.*
[59] Federal Democratic Republic of Ethiopia Constitution, 1995, Art. 51(5), 52 (2(d)), and 50(9), Proc. No 1/1995. Fed. Neg. Gaz.
[60] The FDRE Rural Land Administration and Use Proclamation, 2024, Proc. No. 1324/2024, Fed. Neg. Gaz., 30th

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short of providing a comprehensive policy framework. The result has been the continual resising of farmland, producing widespread fragmentation. These fragmented holdings are often described as "starvation plots," reflecting their subsistence-oriented nature. At the core of the issue lies Ethiopia's inheritance and donation traditions, which perpetuate the subdivision of land across generations. Addressing this challenge requires a deliberate policy shift and the development of a comprehensive legal framework that reconciles distributive justice with long-term efficiency and sustainability that brings a solution for the tension between Ethiopia's equity-driven legal regime and the efficiency-driven logic of land consolidation and other policy tools.

Empirical evidences show that Policy-led efforts at land consolidation have only in their infancy in Ethiopia.[61] The Ethiopian agricultural policy[62], meant to compensate for the drawbacks of the previous policy, clearly recognised that farmland in Ethiopia is generally small in size, fragmented, and scattered, which is a barrier to mechanisation, efficiency, and productivity. As a policy direction, it recommends consolidating and merging small holdings to create medium and large farms to enhance the use of agricultural technology and inputs, thereby increasing production and productivity. Additionally, voluntary-based land consolidation through joint holding, leasing, or exchange is a policy tool proposed in the policy. However, the policy is still anchored with the equity model.

Furthermore, Proclamation No. 1324/2024 has a few provisions regarding land fragmentation and management policy tools, among others, consolidation of holdings, clustering, lease, voluntary exchange, determining minimum parcel size during land transactions, and the like. The law adopts two approaches to land consolidation: consent-based consolidation, which serves as the guiding principle, and mandatory consolidation, applied only in exceptional cases within irrigation areas where the government or its development partners have invested in infrastructure development. Other than these general provisions, the federal framework law does not have detailed provisions that guide farmland fragmentation management policy tools. Besides, there are still residual equity and redistributive provisions in the proclamation (such as distribution, re-distribution, inheritance by all descendants, donation, and determination of maximum holding size).

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Year, No.58.

[61] *Supra note.*, 3.

[62] The Ethiopian Agricultural and Rural Development policy, 2024.

## 4.2. Land Fragmentation Management Policy Tools at the Regional Level

Like the federal legal frameworks, the regional land laws have very few provisions on land fragmentation and its management policy tools, including land consolidation. For instance, the Oromia regional state rural land law[63] addresses the issue of farm plot consolidation. It stipulates that the merging of farm plots shall be undertaken voluntarily, based on the consensus and willingness of landholders, thereby adopting a voluntary land consolidation approach. Article 23 of the proclamation further specifies the minimum plot size, 0.5 hectares for annual crops and 0.25 hectares for irrigated land and perennial crops. These minimum thresholds also apply to inheritance and rental of private holdings, intending to prevent further land fragmentation.

The Amhara regional state rural land law[64] also enshrined provisions about land consolidation and other land fragmentation management measures. This law It stipulates about rights to exchange holdings[65] in which rural landholders may agree on their holdings individually to make small plots adjoined/consolidated and suitable for development.[66] The regulation adopted to implement the proclamation [67] further provides that any landholder can exchange his or her land with the view to making his land contiguous and consolidating his or her farm. This is one form of land fragmentation management measure.[68] This type of voluntary holding/parcel exchange can be used to manage distance fragmentation and parcel fragmentation issues. In relation to this, 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.

The Amhara rural land law[69] partially adopted defragmentation measures. Minimum Plot Size is defined in the proclamation as the smallest plot of land to be given for holding.[70] Based on this definition, the regulation enshrined 0.25, 0.06, and 0.02 hectares as a minimum plot/parcel

[63] Oromia Rural Land Administration and Use Proclamation, 2023, Proc. No. 248/2023, Megeleta Oromia, 31st Year, No. 7/2023.
[64] Amhara National Regional State Revised Rural Land Administration and Use Determination Proclamation, 2017, Proc. No. 252/2017, Zikre Hig, 22nd Year, No. 14.
[65] *Ibid., Art. 20(1).*
[66] *Ibid., Art 20(2).*
[67] The Revised Amhara National Regional State Rural Land Administration and Use System Implementation, Council of Regional Government Regulation, 2018, Art. 8 (1-4), Reg. No. 159/2018, Zikre Hig, 23rd Year, No 4.
[68] Ntihinyurwa, Pierre Damien, Walter Timo de Vries, Uchendu Eugene Chigbu, and Patrick Acklam Dukwiyimpuhwe, 'The positive impacts of farm land fragmentation in Rwanda, Land Use Policy', Vol.81, 2019, P.565-581.
[69] Amhara Rural Land Administration and Use Determination Proclamation No. 252/2017.
[70] *Ibid., Art. 2(14).*

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size for parcels cultivatable by rain, cultivatable through irrigation, and for the construction of a dwelling house, respectively.[71] It is, in any case, prohibited to give a plot of land, which is below this size.[72] 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.[73]

As land redistribution is one cause of land fragmentation,[74] land re-distribution prohibitions could be taken as one form of land fragmentation management measures. Understanding this, the Amhara regional state rural land law[75] prohibited land re-distribution except for irrigated lands. This is a very important measure to mitigate further land fragmentation, 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[76] except those parcels known to have existed before the enactment of the revised proclamation.[77] This is one further step in implementing subdivision restrictions.

Central Ethiopia has recently adopted its rural land law.[78] One of the unique natures of this law is that it has adopted the Voluntary Group Land Exchange (VGLE) in addition to bilateral simple land exchanges as a land fragmentation management policy tool.[79] Besides, voluntary land consolidation is one of the rights of landholders to make small fields suitable for development and the use of technology.[80] There are various incentive packages for those who participated in voluntary land consolidation programs.[81] Like that of the federal legislation, landholders benefiting from irrigation networks built by the government or non-governmental organisations are obliged to consolidate their holdings and cultivate through clustering.[82]

Despite these progresses, there are still provisions in the law that are anchored with a

[71] The Amhara Rural Land Administration and Use Regulation No. 159/2018, Art. 5(1).
[72] *Ibid., Art. 5(2).*
[73] Amhara Rural Land Administration and Use Determination Proclamation No. 252/2017, Art. 17(9).
[74] Haydaroğlu, Ceyhun, 'The relationship between property rights and economic growth: an analysis of OECD and EU countries, Danube', Vol.6, No.4, 2015, P.217-239
[75] The Amhara Rural Land Administration and Use Regulation No. 159/2018, Art. 6(1).
[76] Amhara Rural Land Administration and Use Determination Proclamation No. 252/2017, Art 35(7).
[77] The Amhara Rural Land Administration and Use Regulation No. 159/2018, Art. 26(5).
[78] Central Ethiopia Regional Government Rural Land Administration and Use Proclamation, 2024, No 32/2024, MAEKELAWI NEGARIT GAZETA, 2nd Year, No. __
[79] *Ibid., Art 21.*
[80] *Ibid., Art 22(1).*
[81] *Ibid., Art 22(2).*
[82] *Ibid., Art 22(3).*

distributive mentality. The distribution and re-distribution, and inheritance and donation provisions are among them. During the drafting process of the proclamation, regulation, and land consolidation directive, there were strong arguments that supported the distribution/partition of parcels even after the implementation of land consolidation pilots. For instance, the draft land consolidation directive enshrined that 2 hectares will be the minimum parcel size once land consolidation pilots are implemented. However, it was not supported by regional stakeholders, and officials tended towards distribution/partition.

One notable regional innovation is the recent initiative of the Amhara and Central Ethiopia Regional States, which have taken significant steps toward piloting land consolidation through the issuance of directives. The Amhara Region has already adopted its directive,[83] while the Central Ethiopia Region has finalised its draft[84] and submitted it for approval. These directives are comprehensive, addressing key aspects of land consolidation, including the objectives of consolidation, preconditions for initiating projects, criteria for selecting project areas from regional to local levels, implementation procedures, registration and surveying requirements, land and property valuation, as well as infrastructure development. The Central Ethiopia directive also incorporates a provision for Voluntary Group Land Exchange. However, it is important to recognise that land consolidation alone cannot solve the deeply rooted challenges of fragmentation, as the average landholding size remains below one hectare, meaning that even after consolidation, parcel sizes will continue to be small.

Therefore, land consolidation in Ethiopia must be complemented by additional policy tools, such as limiting the right to bequeath, and moving to a gradual shift toward a market-based system of full property rights. Many countries that have successfully reduced land fragmentation have done so through comprehensive property rights reforms, market-based instruments, and legal modernisation; examples can be drawn from Eastern Europe, East Asia, Türkiye, and Rwanda. Land markets, taxation mechanisms, and transferable rights have been mobilised to incentivise land consolidation. In contrast, Ethiopia’s prohibition on land sales and weakly developed land rental systems severely restrain the adoption of such instruments.

[83] Amhara National Regional State Farmland Consolidation Directive, 2024, No. 18/2024.

[84] Central Ethiopia Regional Government Farmland Consolidation and Voluntary Group Land Exchange Draft Directive.

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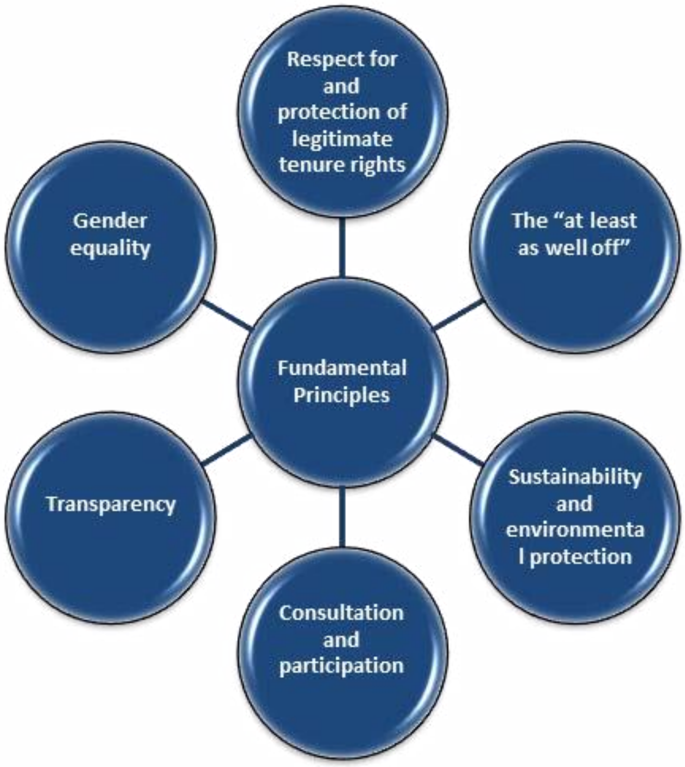


Figure 1: FAO land consolidation legal guide principles[85]

These six principles could be used as a criterion to assess the Ethiopian land consolidation legal environment. Significant gaps are evident in the limited provisions related to land consolidation. The existing legal frameworks, except for the directives in Amhara and Central Ethiopia, do not fulfill the six FAO land consolidation legal guide principles. The land consolidation provisions are silent about respecting and protecting legitimate tenure rights. The fate of communal landholders during land consolidation is unclear. Respecting and protecting legitimate tenure rights implies the need for some sort of registration and titling program in areas where land consolidation is implemented. This does not mean that unregistered rights and interests should be ignored.

The land consolidation law should consider all tenure types (including formal and informal, primary and secondary users, and the like). The Rural Land Administration and Use Laws do not reflect these issues. Principles such as "at least as well off," sustainability and environmental protection, the participatory approach, gender equality, and transparency are not adopted in those provisions. Land consolidation must pay attention to environmental protection and sustainable development. The provisions do not cover major thematic areas of land

[85] *Supra note., 38.*

consolidation such as valuation and rural infrastructure.

Additionally, the current legislation is unclear on whether land consolidation should be voluntary or mandatory though it leans toward land exchange as the main approach. However, consolidation may also involve intermediate stages that combine elements of both voluntary and mandatory actions. Furthermore, the provisions are unclear regarding the mandatory procedures required prior to the implementation of land consolidation. Key steps such as public consultation, stakeholder participation, and prior land registration are not explicitly articulated.

Beyond the above gaps, the law does not specify the scope, unit, or purpose of land consolidation. Provisions are needed to clarify whether consolidation applies at Woreda, Kebele, or Sub-kebele levels, noting that units need not follow administrative boundaries. While international practice shows consolidation may extend across villages or regions, Ethiopia requires a fit-for-purpose approach adapted to its context. The law should also clarify whether communal, state, and residential holdings fall within farmland consolidation programs. Given the high cost of creating new residential areas and the reluctance of landholders to leave long-established homes, excluding residential areas is crucial. Relational ontology underscores this need, highlighting the importance of respecting traditional practices, spiritual values, and local knowledge in implementation.[86]

In Ethiopia, pilot programs are being launched without comprehensive farmland consolidation laws in place. These programs aim to develop a legal framework based on the results of the pilots. However, it would be much more effective to establish a law beforehand and use the pilot programs to test and amend this legislation. This "learning by doing" approach can create a robust legal framework. Other countries have successfully adopted similar methods, implementing major amendments to their legislation after initiating their first land consolidation projects.

There is confusion about the difference between land use clustering (land use consolidation), used for coordinated crop planting, on one hand, and land consolidation (restructuring holdings) on the other. This confusion has serious policy implications. Ethiopia's reliance on cluster farming as a proxy for consolidation risks misrepresenting temporary land use coordination as structural reform. Greater conceptual clarity is therefore required to avoid

[86] Datta, Ranjan, 'A relational theoretical framework and meanings of land, nature, and sustainability for research with Indigenous communities, Local Environment', Vol.20, No.1, 2015, P.102-113.

policy substitution errors. As a result, the former brings together the land use of different parcels without necessarily consolidating holding rights. The purpose is to cultivate similar crops by different adjoining landholders without combining holding rights. The boundaries of the parcels still exist, and there will be no mixing of the products produced. On the other hand, land consolidation is bringing together different neighbouring/adjoining parcels into a single holding through different mechanisms, such as exchange, for instance.

When evaluating the legal status of land fragmentation management instruments in Ethiopia, notable gaps emerge beyond land consolidation. At present, only land consolidation and cluster farming are explicitly recognised under federal law.[87] Other measures, such as expropriation, cooperative farming, and agricultural zoning, remain legally ambiguous. For example, the Ethiopian legal framework does not define expropriation for the purpose of land consolidation as a public purpose. These approaches operate in a gray area, being neither explicitly permitted nor prohibited. It is, however, clear that land swapping through land sale is prohibited. Addressing the lack of legal recognition for additional land fragmentation management tools is crucial, as these instruments are essential for promoting efficient land use and sustainable development. Expanding the legal framework to incorporate such tools would enable more comprehensive and effective land management practices.

### 4.3. Institutional Arrangements for Land Fragmentation Management Policy Tools

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. [88] 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

[87] FDRE Rural Land Administration and Use Proclamation No. 1324/2024.
[88] *Supra note., 74.*

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 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. A significant gap exists on awareness, education and training on land consolidation, from the grass- roots level to officials.

## 5. Conclusions and Policy Implications

This article highlights that land fragmentation in Ethiopia has reached a critical level, characterised by very small, irregularly shaped, and spatially dispersed parcels, often lacking road access and basic infrastructure. Empirical evidence confirms that the average rural landholding is less than 1.5 hectares and is divided into multiple parcels, significantly constraining mechanisation, increasing transaction costs, discouraging investment, and undermining agricultural productivity and rural development.

In addition, this article expounds land consolidation as the most fundamental and relevant policy tool available to manage land fragmentation. International experience and Ethiopian practice demonstrate that fragmentation can be addressed through a combination of instruments, including voluntary land exchange, minimum parcel size restrictions, subdivision controls, clustering, cooperative farming, contract farming, agricultural zoning, and expropriation. Some of these tools can be used as preparatory or complementary measures to land consolidation, while others can operate independently depending on context.

The analysis of Ethiopia's legal framework reveals that, although recent federal and regional laws recognise land consolidation and clustering, the regulatory provisions remain fragmented, underdeveloped, and largely equity-oriented. Only land consolidation and cluster farming are explicitly recognised at the federal level, while other policy tools operate in legal grey areas. Moreover, significant gaps exist when assessed against the principles of the FAO land consolidation legal guide, particularly regarding tenure protection, participation, valuation, gender equality, environmental sustainability, and grievance redress mechanisms.

Institutionally, the article finds a major implementation deficit. There is no dedicated national institution, unit, or expert responsible for coordinating land fragmentation management or land consolidation. Responsibilities are dispersed across federal and regional bodies without clear mandates, technical capacity, or coordination mechanisms, leaving land fragmentation management in its infancy.

Accordingly, this article concludes that Ethiopia's land fragmentation challenge cannot be resolved through land consolidation alone. Fragmentation is a multidimensional problem shaped by legal, institutional, socio-cultural, and economic factors, requiring a fit-for-purpose policy approach rather than a one-size-fits-all solution. Policies must be tailored to diverse agro-ecological, tenure, and livelihood contexts, balancing equity objectives with efficiency and long-term sustainability.

A comprehensive national framework for land fragmentation management is therefore imperative. This includes the enactment of a dedicated federal Farmland Consolidation Proclamation aligned with FAO guiding principles, alongside legal recognition of complementary policy tools such as voluntary parcel exchange, subdivision restrictions, inheritance reform, and land-use consolidation mechanisms.

Finally, the article emphasises the need for strong institutional reform. Establishing a dedicated national body, such as a Land Consolidation or Land Fragmentation Management Commission, supported by regional structures, is essential to ensure coordination, technical support, capacity building, and policy coherence. Only through a legally grounded, institutionally supported, and context-sensitive approach can Ethiopia effectively manage land fragmentation and advance toward sustainable rural transformation.

**Conflict of Interest**

The author declares no conflict of interest.

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