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Zewudineh Gosa Ketema

Borana University

Tsalafo Chaka Chame

tsalafochaka8@gmail.com

Borana University

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Urbanization and the Transformation of Smallholder Farmers' Livelihood Strategies: A Case Study of Bahir Dar Zuria Woreda

Zewudineh Gosa Ketema^{1*} and Tsalafo Chaka Chame²

Department of Civics and Ethical Studies, Borana University, Yabello, Ethiopia

Corresponding Author: Tsalafo Chaka Chame

tsalafochaka8@gmail.com

ABSTRACT

This study examined how urban expansion affects the livelihood strategies of smallholder farmers in Bahir Dar Zuria Woreda. Using a mixed-methods approach, data were collected from 190 households in Yibab Kebele through surveys, interviews, focus group discussions, observation, and document reviews. Quantitative data were analyzed using descriptive statistics and logistic regression, while qualitative information was interpreted through thematic analysis. The findings revealed that urban expansion has reduced farmland availability, increased livelihood diversification, and encouraged shifts toward non-farm activities. Although compensation and institutional support systems exist, they mainly emphasize financial payments rather than long-term livelihood restoration. Factors such as age, education, livestock ownership, income, awareness, compensation received, and job opportunities significantly influenced farmers' adaptation strategies. The study recommends participatory planning and sustainable livelihood programs to enhance resilience.

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1. INTRODUCTION

Urban expansion is a global phenomenon, occurring at increasing rates, particularly in developing countries. Cities are growing both in number and spatial extent, driven by population growth, economic activities, and migration (Haregewoin, 2005). Currently, over half of the world's population lives in urban areas, a figure projected to rise to nearly 70% by 2050. Cities generate a substantial portion of global economic output, indicating that urbanization can support sustainable development through productivity and innovation if managed effectively.

However, rapid urban growth also presents significant challenges. Rising demand for housing, infrastructure, transportation, services, and employment are often outpaces planning and resources. Informal settlements house nearly a billion urban residents who face insecurity and limited access to services, while displaced populations increasingly settle in urban areas (Shiyin et al., 2022). In many developing regions, urban expansion encroaches on fertile agricultural land, increasing ecological and social vulnerability. Rural communities often experience displacement, livelihood disruption, and reduced access to resources (Aboda et al., 2019). Globally, development-induced and urbanization-related displacement affects millions annually (Terminski, 2013).

Ethiopia illustrates these trends, historically characterized by low urbanization and an agriculture-based economy (Hagos & Geta, 2016). Urban areas in the country are expanding rapidly, with the urban population projected to grow from 18 million in 2015 to as high as 49–55 million by 2035 (Gebrekristos, 2021). Rapid growth in peri-urban areas exerts pressure on agricultural land, affecting the livelihoods of smallholder farmers (Satterthwaite et al., 2010).

Bahir Dar Zuria Woreda, in particular, has attracted both domestic and foreign investment, converting farmland into industrial, residential, and investment plots. While these changes support economic development, they often displace original landholders, with limited institutional follow-up to ensure productive land use. This has implications for the livelihood strategies of peri-urban farmers, many of whom face reduced access to land, income, and employment opportunities.

In developing countries, urban expansion tends to be more rapid and less regulated than historically experienced in developed nations. Displacement and marginalization of farming communities are common, and the loss of productive land can contribute to lower agricultural output, reduced living standards, and food insecurity (Muluwork, 2014). Often, land conversion policies do not adequately account for the long-term social, economic, and cultural impacts on affected households.

Previous research in Ethiopia has highlighted these challenges. Studies show that displaced peri-urban households frequently experience poorer livelihood outcomes, increased poverty, and limited participation in planning processes (Solomon, 2018). However, few studies have examined the effectiveness of legal and institutional frameworks designed to support displaced farmers, leaving gaps in understanding whether challenges arise from inadequate legislation, weak institutional capacity, poor implementation, or other structural barriers.

This study addresses these gaps by focusing on the legal and institutional mechanisms intended to support smallholder farmers affected by urban expansion, with the aim of informing more equitable and sustainable urban development strategies. This study seeks to answer the following central research question:

1. What are the major causes of urban expansion in the study area?
2. Are there adequate legal and institutional frameworks to support farmers displaced by urban expansion?
3. What positive opportunities does urban expansion create for smallholder farmers in the study area?
4. What are the negative consequences of urban expansion on the livelihood strategies of smallholder farmers?

2. CONCEPTUAL AND THEORETICAL FRAMEWORK

2.1. Conceptual Framework

Urbanization refers to the demographic and structural shift from rural to urban areas, including the growth of towns and cities and the accompanying social, economic, and political transformations (Afzal, 2018). It is driven by the perception that cities provide better economic opportunities, infrastructure, services, and social mobility. Urbanization encompasses growth in all city sizes, from small towns to large metropolitan areas (Cohen, 2004). Urban expansion describes the physical growth of cities into surrounding peri-urban and rural areas. This expansion occurs through densification or outward development to accommodate residential, industrial, commercial, and infrastructural needs (Angel et al., 2021). Unplanned expansion is often associated with urban sprawl, inefficient land use, environmental degradation, and social impacts, including displacement and loss of agricultural land.

Smallholder farmers are typically defined by limited land, resources, and production capacity relative to larger commercial farms (Pratt et al., 2017). Definitions may focus on farm size, commonly less than two hectares, or family-based operations relying mainly on household labor (Varga, 2019). Despite definitional differences (Nagayets, 2005), smallholders are key actors in global food production and local livelihoods, with an estimated 525 million smallholder farms worldwide contributing to food security and rural economies (Lowder et al., 2016).

Livelihoods encompass the capabilities, assets, and activities needed for a means of living, including access to land, labor, knowledge, social networks, and institutions. They are influenced by broader economic, political, and socio-cultural contexts, which shape access to resources and opportunities (Mamidipudi, 2018). In peri-urban areas, livelihoods are especially dynamic, affected by changes in land use, employment, and market integration. Urban expansion affects livelihood systems by converting agricultural land, increasing land values and market integration, driving infrastructure development, and creating non-farm employment opportunities.

These changes influence households' livelihood assets (natural, physical, financial, human, and social capital) and prompt adaptation or diversification strategies, such as shifting to commercial

farming, engaging in wage employment, or combining farm and non-farm activities. Outcomes vary depending on households' asset endowments, with better-resourced households often benefiting, while vulnerable households face potential livelihood disruption (Asravor, 2018).

2.2.Theoretical Framework

This study is informed by selected theories explaining the drivers and consequences of urban expansion, particularly in peri-urban contexts.

Population Growth Theory

Population growth theory explains urban expansion as a consequence of rapid increases in urban population resulting from both natural population growth and rural–urban migration. The theoretical foundation of population growth is often traced to Malthus (1798), who argued that population tends to grow geometrically while resources expand arithmetically, creating pressure on land and livelihoods. Although Malthus focused on food supply and population imbalance, his argument provides an early explanation for spatial pressure on land, which is highly relevant to contemporary urban expansion.

In modern demographic analysis, rapid natural increase, characterized by high fertility rates and declining mortality, significantly contributes to urban growth, especially in developing countries (John R. Weeks, 2012). When birth rates remain high in urban centers, population density intensifies, increasing demand for housing, infrastructure, public services, and employment opportunities. As urban cores become congested and land values rise, expansion extends outward into peri-urban and agricultural areas.

Similarly, migration theories reinforce this explanation. According Todaro (1980), rural–urban migration is largely driven by economic differentials and perceived employment opportunities in urban areas. Migrants move to cities seeking better wages, education, healthcare, and improved living standards. This influx accelerates urban population growth beyond the absorptive capacity of existing infrastructure, thereby increasing pressure on land markets.

As a result, urban expansion often occurs through horizontal sprawl into peri-urban agricultural zones. Productive farmland is converted into residential, industrial, and commercial uses to

accommodate the growing population. In many developing countries, weak land-use planning and limited regulatory enforcement further intensify this outward expansion.

Economic Growth Theory

Economic growth theory explains urban expansion as a function of expanding economic activities, rising income levels, industrialization, and increased employment opportunities. As economies grow, demand for land intensifies to accommodate factories, commercial centers, transport networks, and residential housing. Urban areas become hubs of production and consumption, attracting both capital investment and labor migration.

The establishment of industries and large-scale infrastructure projects in peri-urban zones often accelerates spatial transformation. Agricultural land is converted into industrial parks, real estate developments, and service centers. According to Wu and Barnes (2008), economic expansion frequently leads to farmland loss and the displacement of rural communities, particularly where land markets are poorly regulated. Moreover, weak urban planning systems and ineffective policy enforcement amplify uncontrolled outward growth. When economic incentives outweigh regulatory constraints, speculative land acquisition and informal settlements proliferate. Consequently, economic growth becomes both a driver of development and a catalyst for peri-urban land-use change, often at the expense of smallholder farmers and environmentally sustainable practices.

Sociological Urban Expansion Theory

Sociological urban expansion theory emphasizes the role of human agency, collective behavior, and social organization in shaping urban growth. Rather than viewing expansion purely as a demographic or economic process, this perspective highlights how individual choices, social networks, cultural norms, and institutional arrangements influence spatial transformation. According to Briassoulis (2008), urban land-use change is deeply embedded in social structures and decision-making processes. Household preferences, social mobility aspirations, political power relations, and community interactions contribute to patterns of settlement expansion. Urban growth, therefore, reflects negotiated outcomes among different social actors.

This perspective aligns closely with human ecological approaches, which analyze the interaction between people and their physical and social environments. In peri-urban contexts, sociocultural transitions, such as shifts from agrarian to market-oriented lifestyles, reshape land use, employment patterns, and social relationships. Urban expansion thus becomes a socially constructed process influenced by cultural transformation and institutional dynamics.

Wirth's Theory of "Urbanism as a Way of Life"

Wirth conceptualizes urbanism as a distinct way of life shaped by three primary characteristics: population size, density, and heterogeneity. According to Wirth (2017), these elements fundamentally alter social interaction patterns, creating impersonal, segmented, and formalized relationships compared to rural communities. Urban living influences values, norms, and behavior patterns by promoting specialization, individualism, and social diversity. High density and heterogeneity weaken traditional bonds while encouraging functional associations based on occupation and shared interests. Social control becomes institutional rather than kinship-based.

In peri-urban areas experiencing rapid expansion, these transformations are particularly visible. Traditional kinship systems and communal networks gradually decline as new residents, economic activities, and institutional arrangements emerge. As urban lifestyles penetrate formerly rural settings, community structures and livelihood systems are reshaped, leading to both opportunities for modernization and challenges to social cohesion.

Human Ecology Theory

Human ecology theory views human beings as biological and social organisms interacting continuously with their physical, social, and cultural environments. Scholars such as Bubolz and Sontag (1993), building on earlier work by Hawley (1986), emphasize the interdependence between environmental systems and human well-being. The theory posits that families and communities function as resource management systems that transform environmental inputs, such as land, water, and energy, into goods and services necessary for survival. Changes in environmental conditions directly affect livelihood strategies, health outcomes, and social

stability. Thus, sustainability depends on maintaining balance between human demands and ecological capacity.

In the context of urban expansion, alterations in land use, resource availability, and environmental quality significantly influence peri-urban households. Farmland conversion, environmental degradation, and infrastructure development reshape livelihood opportunities and social adaptation mechanisms. Human Ecology Theory therefore provides a comprehensive framework for understanding how spatial transformation affects both ecological sustainability and community resilience.

2.3. Empirical Framework

The empirical review examines global, African, and Ethiopian urbanization trends, highlighting historical patterns, causes, and impacts. Evidence shows that while urbanization can generate economic growth and infrastructure development, unplanned expansion often leads to land conversion, displacement, environmental degradation, and increased poverty, particularly in peri-urban agricultural communities. In Africa, rapid urban growth is frequently characterized by informal expansion and weak planning institutions (Potts, 2013). In Ethiopia, although urbanization has historical roots dating back to the Axumite civilization, modern rapid urban expansion is a recent phenomenon linked to economic transformation, industrialization, and administrative centralization (Belay, 2014).

Urbanization in the Amhara Region, including Bahir Dar, has intensified pressure on infrastructure and agricultural land. Population growth, rural-urban migration, reclassification of settlements, and annexation of surrounding rural areas remain major drivers (Todaro, 1980; Cohen, 2004). While urbanization may create employment opportunities and improve market access, it also poses significant risks to smallholder farmers' livelihoods when poorly managed.

3. MATERIALS AND METHODS

3.1. Study Area Description

The study was conducted in Bahir Dar Zuria Woreda, located in the Amhara National Regional State of Ethiopia. The woreda occupies a strategically important location surrounding Bahir Dar City and forms part of the Lake Tana Basin. It is bordered by Yilmana Densa to the south, Mecha to the southwest, Semien Achefer to the northwest (separated by the Gilgel Abay River), Lake Tana to the north, and the Abay River to the east, which separates it from the Debub Gondar Zone. Its proximity to Bahir Dar city makes the woreda particularly susceptible to pressures from urban expansion.

Bahir Dar Zuria Woreda exhibits diverse ecological and economic characteristics. It includes the Zege Peninsula, known for its dense forests and historic monasteries, particularly Ura Kidane Mehret, as well as the Tis Issat (Blue Nile) falls and the Portuguese Bridge (Dilde) over the Abay River. These natural and cultural assets support tourism and contribute to local livelihoods. According to land-use data (Yeserah, 2018), 21% of the woreda is arable land suitable for cultivation, 9% is pasture, 8% is forest or shrubland, 36% is covered by water bodies (mainly Lake Tana), and 26% is degraded or categorized as other land uses, highlighting the environmental sensitivity of the area, especially under rapid urban expansion.

Administratively, the woreda consists of 36 kebeles. This study focused on Yibab Kebele, located southwest of Bahir Dar city and directly affected by the city's growth corridor. The kebele has a population of 2,411, including 1,131 males and 1,280 females (Yibab Kebele Administration Office). Its peri-urban setting makes it a suitable site for investigating the impacts of urban expansion on smallholder farmers' livelihood strategies.

3.2. Research Design

This study employed an explanatory research design, selected to explore cause-and-effect relationships between urban expansion and changes in smallholder farmers' livelihood strategies. Unlike descriptive approaches, explanatory research investigates the underlying mechanisms and determinants of observed phenomena, providing insights into why and how changes occur.

Urban expansion is a complex, multidimensional process shaped by demographic, economic, institutional, and infrastructural factors. The explanatory design enabled the researcher to examine how key variables, such as landholding size, compensation received, access to infrastructure, income level, and awareness, influence the adoption of alternative livelihood strategies among displaced farmers.

Moreover, this design facilitated the integration of both quantitative and qualitative methods. Quantitative analysis identified statistical relationships between variables, while qualitative data offered deeper insights into the experiences, perceptions, and challenges faced by affected farmers, resulting in a comprehensive understanding of the phenomenon.

3.3. Population, Sample Size, and Sampling Procedures

The target population comprised two categories. The first category included farmers displaced due to urban expansion in Yibab Kebele. These farmers represent the primary unit of analysis because they directly experienced land loss and livelihood transformation. According to official records from the Kebele Administration Office, 364 farmers were displaced due to urban expansion. These individuals constituted the main sampling frame. The second category included sectorial office experts and administrators from Kebele Administration, Land Administration, Agriculture, and Environmental Protection offices. These stakeholders provided institutional perspectives on urban expansion and compensation processes.

Since surveying all 364 displaced farmers would be costly and time-consuming, a representative sample was determined using Yamane's (1967) formula:

$$n = \frac{N}{1+N(e)^2}, \quad n = \frac{364}{1+364(0.05)^2} = 190$$

Where:

$$N = 364$$

$$e = 0.05$$

Thus, 190 displaced farmers were selected. In addition, 12 key informants were purposively selected from relevant sectorial offices. Therefore, the total sample size was 202 respondents. The selected sample size balances statistical representativeness with logistical feasibility. It ensures adequate statistical power for regression analysis while maintaining manageability.

Both probability and non-probability sampling techniques were applied. Systematic random sampling was used to select 190 displaced farmers from the official list. The sampling interval (k) was calculated by dividing the total population (364) by the sample size (190). After selecting a random starting point, every k^{th} respondent was chosen. Purposive sampling was employed to select 12 key informants. Selection criteria included professional experience, institutional role, and knowledge of urban expansion processes. This combination of sampling techniques ensured both representativeness and depth of information.

3.4. Data Types and Sources

The study relied on both primary and secondary data sources. Primary data were obtained directly from displaced farmers and institutional actors through questionnaires, focus group discussions, interviews, and observation. Secondary data were collected from policy documents, legal frameworks, urban development plans, academic literature, and government reports. These sources provided contextual and historical insights.

3.5. Methods of Data Collection

A structured questionnaire containing closed-ended and open-ended questions was administered to 190 displaced farmers. The instrument captured demographic characteristics, livelihood assets, compensation details, and adaptation strategies. The questionnaire method was selected because it allows efficient collection of standardized quantitative data suitable for statistical analysis.

Two FGDs were conducted with six participants in each group. Participants were purposively selected. Discussions focused on collective experiences of displacement, compensation adequacy, and adaptation strategies. FGDs allowed exploration of shared perceptions and community-level impacts.

Twelve key informants were interviewed: 2 from kebele administration, 4 from land administration, 3 from agriculture office, and 3 from environmental protection office. These interviews provided policy and institutional perspectives.

Direct observation was conducted to assess changes in land use, infrastructure development, and livelihood diversification activities. Relevant documents such as compensation policies, land administration records, and urban plans were reviewed to corroborate primary data.

3.6. Methods of Data Analysis

Quantitative data were analyzed using SPSS Version 26. Descriptive statistics (frequencies, percentages, and means) and inferential statistics (binary logistic regression) were applied. Qualitative data were analyzed using thematic analysis. Data were coded, categorized into themes, and interpreted in relation to the study objectives.

3.7. Data Validity and Reliability

Validity was ensured through triangulation and cross-checking data from multiple sources.

Reliability was measured using Cronbach's Alpha. The value obtained was 0.862 for 19 items, indicating very good internal consistency.

3.8. Ethical Considerations

Ethical approval was obtained from the Department of Governance and Development Studies. Respondents provided informed consent. Confidentiality and anonymity were strictly maintained. Cultural norms were respected throughout the research process.

4. FINDINGS AND DISCUSSIONS

4.1. Causes of urban expansion

Key informant interviews reveal that urban expansion in the study area is primarily driven by the increasing demand for investment space. According to informants, the expansion of Bahir Dar city toward the surrounding rural areas is largely associated with the city's growing economic activities and the need to allocate land for investors. One informant explained that *“Bahir Dar city's ongoing expansion in the study area is mainly due to the city administration's desire to secure more land for investment. As a result, farmers are being displaced from their land and compensated for their usufruct rights.”* This statement suggests that urban expansion is closely connected to the development agenda of the city administration.

Another informant indicated that over the past decade the area has experienced an influx of investors who have begun investing in various sectors such as real estate development, industries, and service establishments. As investment activities increased, many farmers were displaced and dispossessed from their agricultural land. According to the informant, the urban expansion projects implemented in the study area were designed and executed by the city administration primarily to create additional land for investment activities within the urban development plan.

Thus, based on interviews conducted with different informants, the researcher found that the major driving force behind the expansion of Bahir Dar city is the increasing demand for land to support investment activities. This reflects the broader economic growth of the city, which has been attracting domestic and foreign investors who require sufficient land to establish businesses and infrastructures. Consequently, the need to accommodate these investments has accelerated urban expansion toward peri-urban agricultural areas.

4.2. Legal and Institutional Support for Farmers Displaced by Urban Expansion

4.2.1. Legal Frameworks Supporting Displaced Farmers

In Ethiopia, the displacement of farmers due to urban expansion, development projects, land acquisition, and natural disasters has become a common phenomenon. Such displacement often results in loss of livelihoods and increased socio-economic vulnerability among rural

communities. In response to these challenges, the Ethiopian government has developed several legal frameworks aimed at protecting the rights of displaced farmers and ensuring that they receive compensation and support. The major legal provisions are outlined below.

A. The Constitution of Ethiopia

One of the most important legal frameworks supporting displaced farmers is the 1995 Constitution of Ethiopia. Article 40(4) of the constitution states that *“Every Ethiopian citizen has the right to reside and settle in any part of the country, to engage in any economic activity, and to acquire and dispose of property. The government shall provide assistance to those who are unable to support themselves.”* This provision ensures that farmers who lose their land or livelihoods due to development projects or other circumstances receive government assistance.

Furthermore, Article 40(5) recognizes the right to property and prohibits arbitrary deprivation of property. It also states that property may be expropriated only for public purposes and with appropriate compensation. This means that farmers displaced due to development activities such as road construction, industrial expansion, or urban development must receive compensation for their land and property.

B. Federal Land Administration Proclamation No. 455/2005

The Federal Land Administration Proclamation No. 455/2005 was enacted to regulate land administration, use, and management in Ethiopia. The proclamation aims to ensure that land resources are used efficiently, sustainably, and equitably for the benefit of all citizens. One of the key provisions of this proclamation concerns the rights of farmers who are displaced due to land expropriation for public purposes such as infrastructure development or urban expansion. Article 16 states that *“any farmer who has been displaced from his/her land for public purposes shall be entitled to compensation in accordance with the relevant laws and regulations.”*

In addition, Article 17 provides that displaced farmers should be given alternative land of comparable quality and productivity within a reasonable distance from their previous land. This provision recognizes the importance of land for rural livelihoods and attempts to ensure that displaced farmers are not left without access to productive resources.

C. Rural Land Administration and Use Proclamation No. 456/2005

Another important legal framework is the Rural Land Administration and Use Proclamation No. 456/2005, which regulates the management and utilization of rural land in Ethiopia. The law seeks to promote sustainable land use, safeguard farmers' rights, and ensure equitable access to land resources.

According to Article 17, any person whose rural landholding is expropriated for public purposes is entitled to prompt and adequate compensation. This means that farmers whose land is taken for projects such as roads, dams, or urban expansion must receive compensation for their losses. Furthermore, Article 18 specifies that farmers who are displaced due to land development or other activities are entitled to compensation for any loss or damage they suffer. In addition, the Amhara National Regional State Rural Land Administration and Investment Law provides similar protections to farmers whose land is taken for investment or other government purposes.

D. Urban Land Lease Holding Proclamation No. 721/2011

The Urban Land Lease Holding Proclamation No. 721/2011 is another legal framework that governs the leasing of urban land in Ethiopia. The proclamation contains provisions aimed at protecting farmers who are displaced due to urbanization. According to Article 16, the lessee must compensate individuals who hold rights over the land, including farmers, if their land is expropriated or their access to land is restricted as a result of urban development. This ensures that farmers receive compensation when their land is converted into urban development projects.

Furthermore, Article 17 requires that priority be given to displaced farmers and pastoralists when allocating land for investment activities. Article 18 further states that displaced farmers must be supported in engaging in alternative livelihood activities. These provisions collectively aim to mitigate the negative impacts of urban expansion on rural communities.

E. Ethiopian Investment Proclamation

The Ethiopian Investment Proclamation (2012) also plays an important role in regulating land acquisition for investment purposes. While the proclamation allows land to be expropriated for investment projects, it requires that affected farmers receive fair and timely compensation.

According to Article 5, the government may expropriate land for investment projects if such projects serve the public interest. However, the expropriation process must follow proper procedures including prior notification to affected farmers and valuation of land before compensation is paid.

F. National Policy on Resettlement and Rehabilitation

The Ethiopian government has also adopted the National Policy on Resettlement and Rehabilitation of Displaced Persons (2004). This policy recognizes the difficulties faced by individuals displaced due to development projects, conflicts, and natural disasters. The policy emphasizes providing displaced persons with access to essential services such as healthcare, education, housing, and livelihood opportunities. It also encourages participation of displaced communities in decision-making processes affecting their lives.

Similarly, the Agricultural Development Led Industrialization (ADLI) Strategy (1995) recognizes the central role of smallholder farmers in Ethiopia's economy and aims to improve their access to markets, credit, and technology. At the regional level, the Amhara National Regional State Rural Land Administration and Use Determination Proclamation No. 252/2017 provide additional protection. Article 41 requires that compensation be paid in advance in cash or in kind when land is expropriated for public purposes. Article 42 also obliges the regional government to maintain or improve the socio-economic conditions of displaced farmers.

4.2.2. Institutional Frameworks Supporting Displaced Farmers

This objective was examined using document analysis and key informant interviews. Institutional frameworks supporting displaced farmers exist at the national, regional, and local levels.

A. National Disaster Risk Management Commission (NDRMC)

The National Disaster Risk Management Commission (NDRMC) was established in 2013 to coordinate disaster risk management in Ethiopia. The commission plays an important role in assessing the impacts of disasters and displacement, including those resulting from urban expansion. The NDRMC conducts assessments to determine the number of affected farmers, the

extent of displacement, and their immediate needs. Based on these assessments, the commission works with government institutions, NGOs, and international partners provide emergency assistance such as food, shelter, medical care, and livelihood support.

B. Ministry of Agriculture (MoA)

The Ministry of Agriculture plays a crucial role in supporting farmers affected by urban expansion. The ministry provides training programs that enable displaced farmers to acquire new skills and adapt to alternative income sources. In addition, the ministry facilitates land-use planning processes to ensure sustainable land management and works with other institutions to provide financial assistance, social services, and agricultural support to displaced farmers.

C. Agricultural Transformation Agency (ATA)

The Agricultural Transformation Agency (ATA) was established in 2011 to modernize Ethiopia's agricultural sector. The agency supports displaced farmers through several programs including rural land administration, agricultural commercialization clusters, and agricultural extension services. These programs help farmers improve productivity, access new markets, and adopt modern farming techniques, thereby enabling them to rebuild their livelihoods after displacement.

At the regional level, in Amhara National Regional State, institutions such as the Land Administration and Use Directorate, the Urban Development Bureau, and the Ethiopian Investment Commission (EIC) are responsible for managing land administration, regulating urban development, and ensuring that investors comply with legal requirements related to compensation and land acquisition.

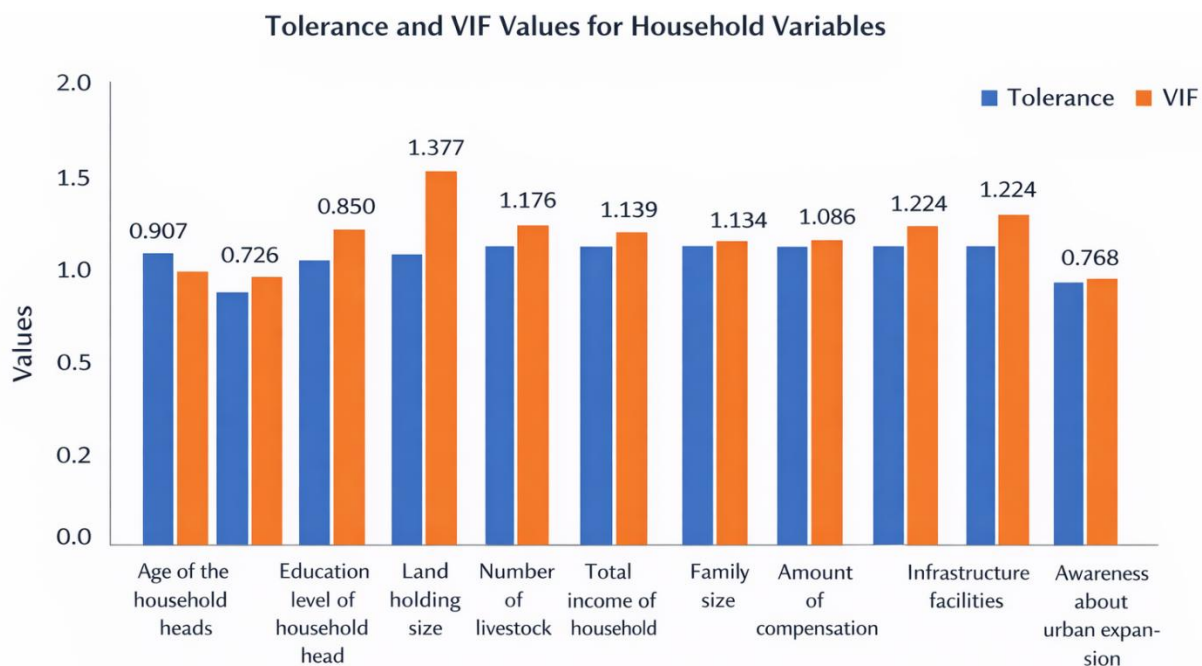
D. Local Institutional Challenges

Despite the existence of these institutional frameworks, key informants revealed significant implementation gaps. One kebele administrator stated: *"We kebele administrators are one of the institutional structures responsible for distributing support from the government or other bodies, but nothing has come to be distributed."*

Another informant emphasized that institutions created to support displaced farmers rarely coordinated with local officials or community leaders. They did not introduce themselves to kebele administrators, and no aid was distributed to affected farmers. Hence, informants agreed that there is a serious lack of coordination, communication, and collaboration between institutions responsible for supporting displaced farmers and local administrative structures.

4.3. Multicollinearity of Household Variables

Before conducting the regression analysis, the study examined multicollinearity among explanatory variables using Tolerance and Variance Inflation Factor (VIF) values.



Bar chart 1a: Multicollinearity of the household dependent variables on livelihood strategies

Tolerance represents the proportion of variance in an independent variable that is not accounted for by the other variables in the regression model, while the variance inflation factor (VIF) quantifies the extent to which multicollinearity inflates the variance of the estimated regression coefficients (Pardoe, 2018). A high tolerance value indicates that a variable is largely independent of the other predictors, whereas a high VIF signals that a variable shares substantial variance with other predictors, potentially distorting coefficient estimates and their statistical significance. Monitoring both measures is essential in regression analysis to ensure that the

assumptions of independence among predictors are reasonably satisfied, thereby maintaining the reliability and interpretability of the model.

The results of the current study indicate that all tolerance values exceed 0.1 and all VIF values remain below 10, which are widely recognized thresholds for detecting multicollinearity. This suggests that the independent variables in the model do not exhibit problematic inter-correlations that would compromise the stability of the regression coefficients. Consequently, each predictor, including age, education level, landholding size, livestock ownership, household income, family size, compensation amount, infrastructure facilities, and awareness about urban expansion, can be considered a valid and independent contributor to explaining variations in livelihood strategies. This finding supports the robustness of the regression analysis and ensures that the estimated effects of each variable can be interpreted with confidence..

4.4. Impacts of Urban Expansion on Livelihood Strategies

The impacts of urban expansion on the livelihood strategies of smallholder farmers were analyzed using a binary logistic regression model.

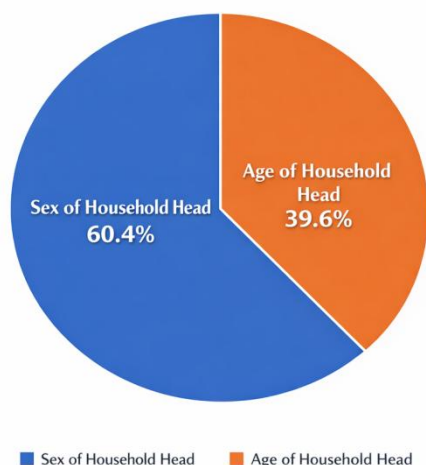
4.4.1. Sex of Household Heads

The results indicate that the coefficient for sex of the household head is -0.090, with an odds ratio of 0.914. This suggests that male-headed households are slightly less likely to adopt new livelihood strategies compared to female-headed households. However, the relationship is not statistically significant ($p = 0.787$). Focus group discussion participants explained that male household heads often possess traditional farming knowledge and experience but lack skills required for alternative employment after displacement. As a result, many male farmers struggle to adapt to new economic conditions. In contrast, women are often engaged in home-based economic activities, making adaptation somewhat easier for female-headed households.

4.4.2. Age of Household Heads

The results show that age has a statistically significant effect ($p = 0.005$) on the adoption of new livelihood strategies. The odds ratio of 0.598 indicates that older farmers are less likely to adopt new livelihood strategies compared to younger farmers. This suggests that younger farmers are

more flexible and better able to adjust to livelihood changes resulting from urban expansion, while older farmers face greater challenges in adapting to new economic opportunities.



Pie chart 1a: Relative effect of sex and age of household heads based on odds ratios.

4.5. Household Socio-Economic and Demographic Characteristics of Smallholder Farmers

Binary logistic regression analysis was employed to examine the determinants influencing the adoption of new livelihood strategies among smallholder farmers affected by urban expansion. The regression model estimates the probability that a household adopts alternative livelihood strategies based on several socioeconomic and institutional variables.

Table 1a: Education Level of Household Heads

Variable	B	S.E	Wald	Df	Sig	Exp(B)	95% CI Lower	95% CI Upper
Education Level	0.475	0.127	13.938	1	0.000	1.607	1.253	2.062
Constant	-1.537	0.331	21.619	1	0.000	0.215	—	—

Source: Binary Logistic Regression Output

The regression result shows that education level of household heads has a statistically significant and positive influence on the adoption of new livelihood strategies. The coefficient ($B = 0.475$) indicates that education contributes positively to livelihood diversification among displaced farmers. The odds ratio $\text{Exp}(B) = 1.607$ implies that a one-unit increase in the education level increases the likelihood of adopting new livelihood strategies by 1.607 times, holding other

variables constant. The p-value (0.000) is less than the significance level (0.05), indicating that education level is a significant predictor of livelihood transformation. The 95% confidence interval (1.253 – 2.062) does not include the value 1, further confirming the statistical significance of the variable.

The findings from FGD support the quantitative results. Participants emphasized that educated farmers are more capable of adjusting to economic changes caused by urban expansion. They noted that educated households possess better financial management skills, entrepreneurial abilities, and access to information, enabling them to establish alternative livelihood strategies such as small businesses, trade, and service activities.

4.4.3. Level of Awareness about Urban Expansion

Table 1b: Awareness Level about Urban Expansion

Variable	B	S.E	Wald	Df	Sig	Exp(B)	Lower	Upper
Awareness Level	0.840	0.294	8.145	1	0.004	2.316	1.301	4.122
Constant	-0.811	0.198	16.801	1	0.000	0.445	—	—

The regression analysis indicates that awareness about urban expansion significantly affects the adoption of new livelihood strategies. The coefficient value ($B = 0.840$) suggests a strong positive relationship between awareness and livelihood diversification. The odds ratio $\text{Exp}(B) = 2.316$ implies that households with higher awareness are 2.316 times more likely to adopt alternative livelihood strategies compared to those with lower awareness. The p-value (0.004) confirms that the variable is statistically significant.

During the focus group discussions, respondents explained that farmers who were informed about upcoming urban development were able to prepare earlier by investing compensation money, seeking employment opportunities, or starting small businesses. In contrast, farmers who lacked information were often caught unprepared and struggled to adapt to the changing economic environment. This suggests that information dissemination and awareness programs play an important role in helping farmers adapt to urban expansion.

4.4.4. Family Size of Household Heads

Table 1c: Family Size of Household Heads

Variable	B	S.E	Wald	Df	Sig	Exp(B)	Lower	Upper
Family Size	-0.022	0.259	0.007	1	0.932	0.978	0.589	1.624
Constant	-0.445	0.643	0.478	1	0.489	0.641	—	—

The regression result reveals that family size does not have a statistically significant influence on the adoption of new livelihood strategies. The coefficient value ($B = -0.022$) indicates a slight negative relationship. The odds ratio $\text{Exp}(B) = 0.978$ suggests that an increase in family size slightly reduces the likelihood of adopting new livelihood strategies; however, the p-value (0.932) is far greater than 0.05, indicating that the variable is statistically insignificant.

The focus group discussion revealed mixed perspectives. Participants argued that households dominated by children under the age of 15 are less likely to develop new livelihood strategies, as children are economically dependent. Conversely, households composed mostly of working-age members (above 15 years) are more capable of engaging in income-generating activities. Thus, although family size alone may not be statistically significant, the age composition within households may influence livelihood diversification.

4.4.5. Land Holding Size

Table 1d: Land Holding Size

Variable	B	S.E	Wald	Df	Sig	Exp (B)	Lower	Upper
Land Holding Size	0.380	0.263	2.079	1	0.149	1.462	0.872	2.451
Constant	-1.083	0.440	6.049	1	0.014	0.339	—	—

The regression results indicate that land holding size has a positive but statistically insignificant relationship with livelihood diversification. The coefficient ($B = 0.380$) suggests that households with larger landholdings tend to adopt new livelihood strategies more frequently. The odds ratio

Exp (B) = 1.462 implies that a one-unit increase in land size increases the probability of livelihood diversification by 1.462 times. However, the p-value (0.149) is greater than the threshold value of 0.05, indicating that the variable is not statistically significant.

Nevertheless, focus group participants strongly believed that land size plays an important role. Farmers with larger landholdings have greater access to resources such as land, capital, and agricultural assets, enabling them to diversify into other economic activities.

4.4.6. Amount of Compensation

Table 1e: Compensation Amount

Variable	B	S.E	Wald	Df	Sig	Exp (B)	Lower	Upper
Compensation	0.000	0.000	11.212	1	0.001	1.000	1.000	1.000
Constant	-1.403	0.321	19.155	1	0.000	0.246	—	—

The regression output shows that compensation amount is statistically significant ($p = 0.001$). However, the odds ratio $\text{Exp (B)} = 1.000$ indicates that compensation alone does not substantially change the likelihood of livelihood diversification. Focus group discussions revealed that the effectiveness of compensation depends on how farmers manage the money. Many farmers lack financial management skills, leading to rapid consumption of compensation payments without investing in sustainable income-generating activities. Participants highlighted that financial literacy training is essential to help displaced farmers effectively utilize compensation funds.

4.5. Socio-Economic Determinants of Livelihood Diversification

4.5.1. Job Opportunity

Job opportunity is the strongest predictor in the model. The odds ratio $\text{Exp (B)} = 5.623$ indicates that households with access to employment opportunities are 5.6 times more likely to adopt alternative livelihood strategies. This variable is highly significant ($p = 0.000$). Focus group participants emphasized that urban expansion creates employment opportunities in industries, construction, trade, and services, enabling farmers to shift from agriculture to wage employment.

However, many displaced farmers obtain low-skilled jobs such as security guards due to limited education and skills.

4.5.2. Total Income of the Household

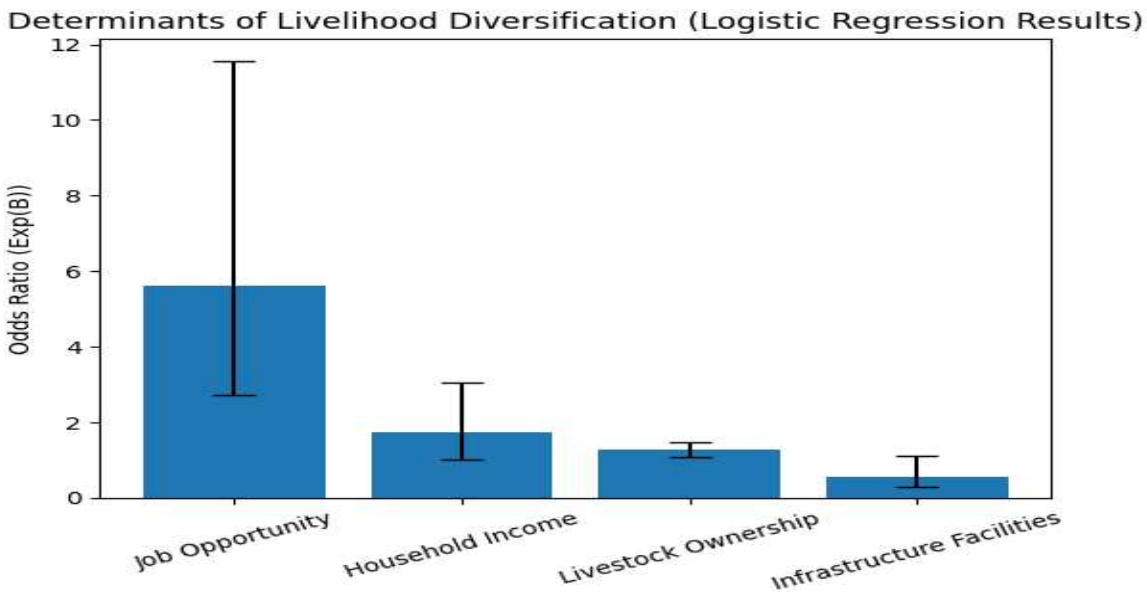
Household income has a positive and statistically significant effect on livelihood diversification. The odds ratio $\text{Exp}(B) = 1.746$ indicates that households with higher income are 1.7 times more likely to adopt new livelihood strategies. Higher income enables households to invest in businesses, trade activities, and urban employment opportunities.

4.5.3. Number of Livestock

The number of livestock owned by households has a positive and statistically significant effect on livelihood diversification. The odds ratio $\text{Exp}(B) = 1.264$ indicates that households with more livestock are more likely to diversify their livelihood strategies. Livestock serves as financial capital that can be sold or invested in alternative economic activities when urban expansion reduces farmland.

4.5.4. Infrastructure Facilities

Infrastructure facilities show a negative but statistically insignificant relationship with livelihood diversification. The p-value (0.092) exceeds the significance level of 0.05, indicating that the variable is not statistically significant. However, field observations suggest that improved infrastructure such as roads, electricity, and water services actually facilitate livelihood diversification by improving market access and supporting business development.



Bar graph 1b: Socio-economic determinants of livelihood diversification

Conclusion

The findings of the study indicate that urban expansion is a continuous and dynamic process that creates both opportunities and challenges for peri-urban communities. The results revealed that the primary factor contributing to the expansion of Bahir Dar city toward the study area is the city administration's demand for additional land for investment and development activities. Although various legal frameworks exist at both federal and regional levels to protect the rights of displaced farmers, including the Ethiopian Constitution, the Federal Land Administration Proclamation, the Rural Land Administration and Use Proclamation, the Urban Land Lease Holding Proclamation, and the Investment Proclamation, most of these regulations mainly focus on providing financial compensation for farmers whose land has been expropriated.

However, the findings indicate that compensation alone is insufficient to ensure sustainable livelihoods for displaced farmers. Many farmers who received compensation payments faced difficulties in effectively managing the money they received. As a result, the compensation did not significantly improve their long-term livelihood strategies. In many cases, displaced farmers resorted to low-paying jobs, particularly working as watchmen in newly established industries or investment areas, indicating limited access to diversified livelihood opportunities.

The study further revealed that there is a limited institutional support and intervention mechanism designed to help displaced farmers transition to alternative livelihoods. Although institutions responsible for supporting affected communities exist, their interventions appear inadequate in providing long-term livelihood solutions for displaced farmers.

The results of the binary logistic regression model identified several variables that significantly influence the adoption of new livelihood strategies among smallholder farmers. These significant factors include age, education level, number of livestock, level of awareness about urban expansion, household income, amount of compensation received, and job opportunities. These findings suggest that socio-economic characteristics and access to economic opportunities play crucial roles in determining how farmers adapt to the challenges associated with urban expansion.

Recommendations

Based on the findings of the study, several general recommendations are proposed to improve the support mechanisms for communities affected by urban expansion. First, policy frameworks related to urban development should move beyond compensation-based approaches and incorporate broader livelihood restoration strategies. These may include employment creation, access to skill development programs, and financial support systems that help displaced households to rebuild sustainable livelihoods. Second, institutional coordination among relevant stakeholders should be strengthened. Government institutions, local administrative bodies, development agencies, and community representatives need to collaborate effectively to ensure that the needs and challenges of affected communities are properly understood and addressed through appropriate development interventions.

Third, capacity-building programs should be promoted to enhance the economic resilience of affected households. Providing training in financial management, entrepreneurship, and technical skills can help communities make productive use of available resources and adapt to changing economic environments. Finally, urban development initiatives should promote inclusive and participatory planning processes. Involving local communities in decision-making can help reduce social and economic disruptions, support livelihood diversification opportunities, and ensure that development projects contribute to sustainable and equitable growth.

Ethics Approval

Ethical approval for this study was obtained from the Institutional Review Board (IRB) of the College of Social Sciences and Humanities, Borana University, Ethiopia. The review board evaluated and approved the study protocol, including the research objectives, data collection procedures, informed consent process, and measures to protect participants' privacy and confidentiality. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki and the ethical guidelines for research involving human participants.

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Conflict of Interest

The authors declare that they have no conflict of interest regarding the publication of this study.

Consent to Participate

Informed consent was obtained from all participants involved in this study. Before data collection, participants were informed about the purpose and objectives of the study, the nature of their participation, the types of information to be collected, and their right to participate voluntarily. They were also informed that they could decline to answer any question or withdraw from the study at any stage without penalty or negative consequences. Participants were assured that the information they provided would be treated confidentially and used solely for academic and research purposes. Consent was obtained prior to participation in the questionnaire survey and qualitative data collection activities. No participant was included in the study without providing informed consent.

Clinical Trial Number

Clinical trial registration was not applicable to this study because the research was an observational, non-interventional study examining the transformation of smallholder farmers' livelihood strategies in relation to urbanization in Bahir Dar Zuria Woreda. The study did not

involve any clinical intervention, medical treatment, therapeutic procedure, or assignment of participants to experimental treatment groups.

Clinical trial number: not applicable.

REFERENCES

Books / Book Chapters

Afzal, H. S. (2018). *Urbanization and housing in developing countries: The context of Bangladesh*. Dhaka: University Press Limited.

Bubolz, M. M., & Sontag, M. S. (1993). Human ecology theory. In P. Boss, W. Doherty, R.

LaRossa, W. Schumm, & S. Steinmetz (Eds.), *Sourcebook of family theories and methods: A contextual approach* (pp. 419–420). New York: Springer.

Mamidipudi, A. (2018). *Constructing common knowledge: Design practice for social change in craft livelihoods in India*. Cambridge, MA: MIT Press.

Malthus, T. R. (1798). *An essay on the principle of population*. London: J. Johnson.

Nagaye, O. (2005). Small farms: Current status and key trends. In Gitz, V., & Meybeck, A. (Eds.), *The future of small farms* (pp. 26–29). Rome: FAO.

Todaro, M. P. (1980). *Urbanization in developing nations: Trends, prospects, and policies*. London: Longman.

Wirth, L. (2017). *The city: Critical essays in human geography*. London: Routledge.

Yamane, T. (1967). *Statistics: An introductory analysis* (2nd ed.). New York: Harper & Row.

Journal Articles / Reports / Theses

Aboda, C., Mugagga, F., Byakagaba, P., & Nabanoga, G. (2019). Development-induced displacement: A review of risks faced by communities in developing countries. *Journal of Rural Studies*, 68, 112–121.

Angel, S., Lamson-Hall, P., Blei, A., Shingade, S., & Kumar, S. (2021). Densify and expand: A global analysis of recent urban growth. *Sustainability*, 13(7), 3835.

Asravor, R. K. (2018). Livelihood diversification strategies to climate change among smallholder farmers in Northern Ghana. *Journal of International Development*, 30(8), 1318–1338.

- Belay, E. (2014). Impact of urban expansion on agricultural land use: A remote sensing and GIS approach. *International Journal of Innovative Research and Development*, 3(6), 129–133.
- Belay, E. (2014). *Impact of urban expansion on agricultural land use: A remote sensing and GIS approach*. *International Journal of Innovative Research and Development*, 3(6), 129–133.
- Briassoulis, H. (2008). Land-use policy and planning: Theorizing and modeling. *Environment and Planning B: Planning and Design*, 35(1), 16–33.
- Cohen, B. (2004). Urban growth in developing countries: Trends and cautions regarding forecasts. *World Development*, 32(1), 23–51.
- Gebrekristos, T. (2021). Urbanization and development in Ethiopia: Policy issues, trends, and prospects. *Ethiopian Journal of Urban Studies*, 2(1), 1–20.
- Hagos, A., & Geta, E. (2016). Review on smallholder agriculture commercialization in Ethiopia. *Journal of Development and Agricultural Economics*, 8(4), 65–76.
- Haregewoin, B. (2005). *Urbanization and urban sprawl* (Master's thesis). Kungliga Tekniska Högskolan, Stockholm, Sweden.
- Lowder, S. K., Scoet, J., & Raney, T. (2016). The number, size, and distribution of smallholder farms worldwide. *World Development*, 87, 16–29.
- Muluwork, B. B. (2014). An assessment of livelihood and food security of farmers displaced due to urban expansion. Mekelle University, Ethiopia.
- Potts, D. (2013). Urban livelihoods and urbanization trends in Africa: Winners and losers. *Working Paper Series*, Department of Geography, King's College London, 30.
- Pratt, C. F., Constantine, K. L., & Murphy, S. T. (2017). Economic impacts of invasive alien species on African smallholder livelihoods. *Global Food Security*, 14, 31–37.

- Satterthwaite, D., McGranahan, G., & Tacoli, C. (2010). Urbanization and its implications for food and farming. *Philosophical Transactions of the Royal Society B*, 365(1554), 2809–2820.
- Shiyin, C., Qingxu, H., Raya, M., Jiayi, F., Liu, T., Chunyang, H., Ziwen, L., & Zhu, L. (2022). Updating global urbanization projections under the Shared Socioeconomic Pathways. *Scientific Data*, 9(1).
- Solomon, T. (2018). Livelihood outcomes of displaced smallholder farmers in Tigray, Ethiopia. *Ethiopian Journal of Rural Development*, 5(2), 14–27.
- Varga, M. (2019). Smallholder response to commercialization in Romania and Ukraine. *Canadian Journal of Development Studies*, 40(4), 528–545.
- Wu, J., & Barnes, T. (2008). Local planning and global implementation: Foreign investment and urban development of Pudong, Shanghai. *Habitat International*, 32(3), 364–374.