MEKELLE UNIVERSITY

ETHIOPIAN INSTITUTE OF TECHNOLOGY MEKELLE (EiTM)SCHOOL OF ARCHITECTURE AND URBAN PLANNING POST GRADUATE PROGRAM IN URBAN PLANNING AND DEVELOPMENT

ASSESSING FERTILE LAND EXPROPRIATION IN PERI-URBAN AREAS: THE STUDY OF ADIGRAT TOWN, TIGRAY REGIONAL STATE, ETHIOPIA

BY

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Assessing Fertile Land Expropriation in Peri-Urban Areas: The Study of Adigrat Town, Tigray Regional State, Ethiopia

Thesis Submitted to The Graduate Studies of Mekelle University, school of Architecture and Urban Planning post graduate program in urban planning and development for The Partial Fulfilment of Master of Science in Urban Planning and Development

Principal Advisor Gidey Desta (PhD)

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Declaration

I hereby declare that this thesis represents my own work, conducted after my registration in the postgraduate program in Urban Planning and Development at Mekelle University. This work is solely mine. I declare that the thesis entitled 'Assessing Fertile Land Expropriation in Peri-Urban Areas: A Case Study of Adigrat Town' has not been authored by any other individual or postgraduate student. This thesis has not been submitted to Mekelle University or any other higher institution in Ethiopia. Therefore, copying, editing, and reprinting in any format is prohibited without the author's permission.

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Nov 2025

Araya Gebreanenya Nirea _____

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Advisor's Thesis Approval Sheet

This is to certify that the thesis entitled Assessing Fertile Land Expropriation in Peri-Urban Areas: A Case Study of Adigrat Town is submitted in partial fulfillment of the requirements for the degree of Master of Science with a specialization in Urban Planning and Development. The graduate program of the Faculty of Architecture and Urban Planning has been carried out by Araya Gebreanenya Nirea. Therefore, we recommend that the student has fulfilled the requirements and is hereby allowed to submit the thesis to the department for defense.

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The thesis entitled "Assessing Fertile Land Expropriation in Peri-Urban Areas: A Case Study of Adigrat Town", carried out by Araya Gebreanenya Nirea, has been approved by the following board of examiners to certify that the thesis has been accepted in partial fulfilment of the requirements for the Master of Science degree in Urban Planning and Development.

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Acronyms/ Abbreviations

CSA	Central Statistical Agency
FDRE	Federal Democratic Republic of Ethiopia
FUPI	Federal Urban Planning Institute
GIS	Geographic Information System
NGOs	Non-Governmental Organization
RUPI	Regional Urban Planning Institute
SPSS	Statistical Package for the Social Sciences

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ABSTRACT

This study examines the primary drivers of land expropriation in Adigrat Town, identifying infrastructure development as the leading cause (45.45%), followed closely by the establishment of educational and healthcare facilities. The legal framework governing these expropriations is rooted in the land regulation system, which accounts for 60.38% of the authority exercised. Although land is predominantly expropriated for commercial, administrative, and infrastructural purposes, the process is often characterized by arbitrariness (35%). Compensation is provided in only 30% of cases, and 43.3% of respondents perceive it as unjust. Property value assessments largely focus on current productivity (36.36%), and while affected individuals are typically notified six months in advance (65%), the compensation usually fails to cover the associated social, environmental, and economic costs (40%). The consequences are substantial, including the loss of rural farmland (63.63%), decreased agricultural productivity, unsustainable urban growth, and high unemployment rates among displaced farmers (each approximately 61.8%). Following expropriation, a staggering 71.81% of affected individuals experience unemployment, while only 12.2% become self-employed. Although 49.39% relocate within the area, a substantial portion (25.15%) move to other parts of the town. Initial reactions are predominantly negative, with 32.12% expressing strong frustration. This research underscores the urgent need for reforms in the expropriation process to ensure fair compensation and sustainable development practices that protect agricultural livelihoods and promote community welfare.

Key Words: *Eminent Domain, Public Use, Fertile Land, Expropriation, and peri urban*

CHAPTER ONE

1.1 Introduction

In Ethiopia, land is the primary economic, political, social, and cultural asset. It is a crucial source for generating livelihood income for society and remains an asset through which farmers can accumulate wealth and transfer it to future generations. Rural farmers and pastoralists are guaranteed a plot of land free of charge, while urban residents can secure land through ground lease arrangements (Shiferaw, 2017).

Expropriation refers to the compulsory taking of land by the government for public purposes, accompanied by advance payment of compensation. It is a common method of acquiring land for large-scale commercial farms in Africa, Asia, and Latin America. Between 1988 and 2008, a minimum of 300 million people worldwide lost their land due to expropriation (Tura, H.A, 2018). Many individuals around the globe are losing their homes, livelihoods, health, and even their lives because of this practice. Expropriation occurs when a public agency (such as provincial governments, regional districts, municipalities, school boards, and utilities) takes property for purposes deemed to be in the public interest, even if the property owner is unwilling to sell. Consequently, land expropriation to the periphery is exacerbated by development projects such as industry, infrastructure, communication systems, and road networks (Oqubay, 2018).

Displacement due to land expropriation is a more significant issue in developing countries than in developed countries because the majority of people in developing nations are highly concentrated in peripheral areas and depend on agriculture with fragmented land holdings (Adam, 2016). This situation is prevalent in countries like Ethiopia, where land remains government property, and the amount of compensation paid depends on government decisions. The urban land lease policy is not particularly favorable to rural households in general and poor landholders in particular (Tsegay, 2010).

The policy implementation process has not adequately considered the lives of rural peasants living in proximity to cities. As a result, the implementation of this policy has marginalized rural settled peasant communities. The non-farm-based economic sector has not been able to absorb the displaced farmers, as most of them are unskilled laborers. Thus, issues related to land expropriation

and compensation require greater policy emphasis and improved implementation (Deininger, K. 2003).

1.2 Statement of the problem

The rapid urban expansion in Ethiopia, particularly in Adigrat City, has led to the expropriation of agricultural land from surrounding rural communities, impacting over 12,198 farmer households across six Kebeles. This unconventional approach to land conversion, driven by the increasing demand for urban space and dwindling available land for city growth, raises significant concerns regarding the adequacy of compensation and the security of land rights for those affected. Despite constitutional guarantees that protect land rights and stipulate compensation for expropriated land, there is an urgent need to evaluate the effectiveness of these legal protections and their actual impacts on the livelihoods of displaced individuals.

Inadequate land securities can discourage investment among landholders, highlighting the necessity to investigate the extent of protection afforded to land rights and the freedom to exercise them within the context of Adigrat. The current study aims to assess the legality of expropriation procedures in Adigrat City and their impact on the livelihoods of peri-urban farmers, with a particular focus on compensation practices based on agricultural productivity. By examining these factors, this research seeks to identify potential solutions for mitigating the adverse effects of land expropriation on affected communities, ensuring that their rights are respected and their livelihoods supported amidst urban development pressures.

1.3. Research Questions

The questions that will be answered through the findings of this research are as follows:

1. What are the causes of land expropriation?

2. What procedures are followed for land expropriation due to urban expansion in the area?

3. How does land expropriation affect the area socially, environmentally, economically, and politically?

4. What appropriate strategies can be implemented to mitigate the effects of land expropriation in the study area?

1.4 Research Objectives

1.4.1 General Objective

The main objective of this study is to identify the causes, processes, and effects of land expropriation in the study area. Additionally, the study aims to determine appropriate strategies to mitigate the negative impacts of land expropriation on the affected communities.

1.4.2 Specific Objectives

1. To determine the causes of land expropriation in the hinterland areas of Adigrat town, thereby providing insights into the underlying factors that contribute to this phenomenon.

2. To investigate the procedures followed for land expropriation in the hinterlands of the town, ensuring a comprehensive understanding of the legal and administrative frameworks involved.

3. To examine the impacts of land expropriation on the dwellers of the hinterland, focusing on social, economic, environmental, and political dimensions.

4. To recommend appropriate strategies for improving the process of land expropriation in the study area, with a focus on minimizing adverse effects and promoting sustainable development.

By addressing these objectives, this study seeks to contribute valuable knowledge and practical recommendations for policymakers and stakeholders involved in land management and urban planning.

1.5. Significance of the Study

The main significance of this research lies in its investigation of the primary causes and impacts of land expropriation in the hinterland areas of Adigrat town. It can serve as a valuable reference for other researchers interested in this field. The findings of this research will also assist the city administration in coordinating responsible stakeholders, such as government institutions, NGOs,

CBOs, and the community at large, to participate in creating an appropriate land expropriation system. Additionally, this research will provide useful input for policymakers to address land expropriation issues and highlight the need to revise land transfer policies. Furthermore, this research will enable the researcher to be awarded an MSc degree in the field of urban planning and development.

1.6 Organization of the Study

This thesis is organized into five sequential chapters. Chapter One introduces the research, outlining the problem statement, questions, objectives, and significance. Chapter Two presents a comprehensive review of the relevant literature on land expropriation. Chapter Three details the research methodology, including the study area description, research design, and data collection and analysis methods. Chapter Four is dedicated to presenting, analyzing, and discussing the research findings. Finally, Chapter Five provides the conclusion drawn from the study and offers pertinent recommendations for policy and practice.

CHAPTER TWO

2. Literature Review

2.1 Introduction

The purpose of this literature review is to critically examine the existing research related to land expropriation, to draw lessons, and to identify ideas that have not been addressed in these studies. The review has explored theoretical concepts related to land expropriation, urbanization, squatted settlements, urban sprawl, and compensation. Overall, this literature review provides a comprehensive synopsis of the current state of knowledge on the issue of land expropriation and offers insights on how to mitigate or reduce its impact

2.2 Definitions, Concepts, Theories, and Practices

The term "expropriation" encompasses all forms of the State's taking of private property for public use, whether in times of peace, war, or national emergency (Epstein, 1985). Expropriation involves the compulsory acquisition of property, where the owner may not wish to sell, yet their property is taken against their will. The remedy available to the owner is compensation, determined according to statutory guidelines. The expropriator (usually the State) and the expropriates (the affected individuals) may negotiate the amount of compensation. The underlying principle of expropriation is generally not aimed at acquisition itself but rather at serving a public need (Searles, 1974).

Expropriation, also known as compulsory acquisition or eminent domain, refers to the government’s power to force an individual to sell their home, business, or other property at a price deemed "just compensation." This practice represents one of the most extreme forms of government coercion and is increasingly common (Sandefur, 2006).

Different terms such as compulsory purchase and "taking" refer to the same legal institution that allows states to acquire property against the owner's will for purposes of general interest. Historically, expropriation has been a key instrument of land policy; however, it now faces significant criticism and social resistance. Campaigns advocating for housing rights, movements defending property rights, legislative and judicial activism, and land tenure reforms are altering

the conditions under which governments exercise their power of eminent domain (Antonio Azuela and Carlos Herrera, 2007).

Expropriation is characterized by the government's compulsory taking of land for public purposes, accompanied by advance payment of compensation (Tilahun Dires et al., 2021). This process is defined across various legal systems and countries as the government's acquisition of private property for public use without the owner's consent, while providing fair compensation in advance.

2.3 Urbanization and Expropriation

Currently, land is in short supply due to the increasing number of construction projects and infrastructure expansion (Wang et al., 2023). This necessitates the transfer of large amounts of land for various project and investment operations. In an agrarian country like Ethiopia, land serves not only as the primary source of income but is also often used as a means to accumulate wealth (Deininger Jin, 2006). The world is experiencing rapid urbanization, particularly in developing countries. Although Eastern Africa was once the least urbanized sub-region globally, it is now rapidly urbanizing (UN-Habitat, 2020). The growing demand for urban land is largely met by converting rural land on the outskirts of existing urban areas. Since most people in developing countries live in densely populated peripheral areas and rely on agriculture with fragmented landholdings, displacement due to land expropriation poses a more significant challenge in these regions compared to developed countries (Ribot, 2009).

Land expropriation has been shown to accelerate urbanization and transform rural villages in developing countries (Baker, 2012). While urbanization and urban construction have deep historical roots in Ethiopia, the government and development agents have only recently embraced them as formal concepts. Rapid urbanization in Ethiopia often leads to land expropriations that come at the expense of farmland and forests. Furthermore, the likelihood of increased land expropriations is high, as Ethiopia, with its predominantly rural population, requires further urbanization to achieve its policy objectives (World Bank, 2017). The high rate of land transformation in peri-urban areas is expected to continue, making expropriation a major concern that affects the livelihoods of various segments of the population.

The horizontal expansion and development of urban areas in Ethiopia is a complex process, where the vast majority of peri-urban farmers lose out while a few private investors and residents benefit (Melesse Hailu, 2018). The expropriation of land and the large-scale transfer to investors have far-reaching negative consequences for the livelihoods of rural communities and the environment. Development-induced displacement is becoming a significant issue in Ethiopia, with varying levels of concern across different regions. Municipalities often expropriate land to address needs such as housing, urban infrastructure, and investment; however, some engage in extensive land expropriation beyond their actual requirements (Yami et al., 2019).

Farmland is frequently taken from peri-urban households for horizontal urban development and infrastructure projects. Development initiatives in rural Kebeles (the lowest administrative division in Ethiopia, similar to a municipality) surrounding Debre Markos city also result in the displacement of many rural households from their farmland.

2.4 Historical and Empirical of Land Expropriation

The process of urbanization is a global phenomenon that has been observed since the early nineteenth century and is recorded in the history of all urban centers (Tassie Wegedie, 2018). In developing countries, land expropriation is a significant source of conflict between governments and farmers, profoundly altering the living conditions of agricultural communities. For instance, in China, rapid economic development and the government's need for land financing have led to the large-scale conversion of agricultural land into construction land through expropriation (Wang Y, Liao DJ, Yan B, Lu XH, et al. 2023).

The trend of urbanization is particularly pronounced in developing countries, including regions such as Latin America, Asia, and Africa. Latin America experiences a 1.7% urbanization rate, Asia 2.3%, and Africa averages 3.5% (Yeshitla Agonafir Ayenachew et al., 2024.). This rapid urbanization has increased demand for land, particularly from surrounding rural and peri-urban areas (Mbiba, 2017).

As urbanization progresses, agricultural land is often expropriated from peri-urban farmers (Che and Zhang, 2017). This conversion of peri-urban rural lands for urban use has far-reaching

consequences for farmers' livelihoods, including losses of income, land tenure, shelter, production capacity, employment opportunities, and various socioeconomic and psychological effects.
Empirical studies indicate that rapid urbanization in African cities contributes to their expansion into peri-urban areas (Chirisa, 2008). This trend has led to significant encroachment into peripheral regions, resulting in the expropriation of land from peri-urban farmers to meet the growing demand for urban land. Such compulsory land expropriation is often characterized by inadequate, inequitable, and untimely compensation payments.

Ethiopia is one of the African countries experiencing rapid urbanization and increasing demand for urban land. The country primarily employs expropriation as a strategy for land acquisition to address the needs of its urban centers (Ambaye, 2013).

2.5 Types of Land Expropriation

A. Direct Expropriation

Direct expropriation refers to a mandatory legal transfer of property title or its outright physical seizure. Typically, the expropriation benefits the State or a State-mandated third party. In this case, there is clear, deliberate intent, as evidenced by a formal law, decree, or physical act, to deprive the owner of their property through the transfer of title or outright seizure (Sornarajah, 2010)

B. Indirect Expropriation

Indirect expropriation occurs when a state takes measures that do not involve a direct seizure of property but nonetheless significantly diminish the value or use of an investment. This concept is crucial in international investment law, as it addresses situations where government actions may effectively deprive investors of their rights without formal expropriation. The principles surrounding indirect expropriation are thoroughly discussed by Dolzer and Schreuer (2012), who emphasize the need for a careful analysis of the state's actions and their impact on the investment to determine whether an expropriation has occurred (Dolzer Schreuer, 2012).

2.6 Procedures for Land Expropriation

Land expropriation in Addis Ababa follows a structured process initiated by the land development and management agency or other recognized higher government bodies, such as the city council. Private individuals cannot propose plans due to the lease-based urban land system; only government institutions, such as the roads authority and urban renewal agencies, have the authority to propose plans for land expropriation. The implementing agency must provide data on the proposed land and its location to the land development and management agency at least one year before the project's inauguration, as stipulated in Proclamation No. 455/2005. These provisions are actively implemented to ensure a transparent and systematic approach to land expropriation within a defined legal framework.

In cases of land acquisition, procedural guarantees and compensation during expropriation follow phases that illustrate a typical expropriation process. This process explicitly addresses the payment of compensation in cash and/or kind. Regulatory practices for land expropriation for public purposes, such as manufacturing industries, are covered under these provisions.

Landholding trajectories play a vital role in identity formation, sustainable welfare, autonomy, rootedness, opportunity, social space, spiritual inhabitance, and cultural integrity. Escobar's proposition on constitutive development emphasizes the need for inclusivity. There is a possibility of increased counter-litigations that could hinder local governments from exercising their constitutionally delegated powers effectively in an increasingly globalized context.

Land serves as a source of income and welfare security for farmers in Ethiopia. The township of Sabata is located within the Oromia National Regional State of Oromia Special Zone Surrounding Finfinnee, which acquired its urban status in 1994. Before selecting the site, a pre-assessment was conducted through interviews with local villagers. During this process, I noted that as soon as I concluded my interviews, strong reactions emerged from the interviewees (Fekede Terefe Gemeda et al., 2023).

2.7 Impacts of Land Expropriation

The impact of land expropriation in Ethiopia is characterized by the diminishing of agricultural lands due to rapid horizontal urban expansion and development-induced projects. This reduction in agricultural land primarily results from the transformation of farmland into urban land uses through expropriation (Agegnehu Mansberger, 2020). Additionally, land expropriation in peri-urban areas often leads to the relocation or displacement of existing settlers, resulting in the loss of social and economic values. Overall, the current scenario in Ethiopia indicates that development projects and horizontal urban expansion are encroaching on fertile and arable land, converting it to other land use types (Mohammed, 2018).

The risks of impoverishment for those displaced or who lose their assets can be mitigated through multifaceted approaches that include (i) compensation for expropriated assets and (ii) rehabilitation measures aimed at improving or restoring incomes and living standards. Any development project aims to bring economic benefits to all citizens, including those who must be displaced or who lose their assets. Affected individuals whether they are titleholders or informal dwellers should be considered integral beneficiaries of such development projects rather than merely victims.

Cultural changes have also influenced perceptions of large infrastructure projects, such as dams, highways, and ports, which have lost their status as symbols of progress. In Ethiopia, rapid urbanization results in land expropriations that often come at the expense of farmland and forests (Admasu et al., 2020). The urbanization program in Ethiopia lacks participatory elements and fails to support peripheral farmers, negatively impacting the livelihoods of expropriated landholders (Mohammed et al., 2017). The process of horizontal urban expansion is complex; while a few private investors and residents profit, the majority of peri-urban farmers lose out (Mohammed et al., 2017). The large-scale transfer of land to investors in Ethiopia has far-reaching negative consequences for rural communities' livelihoods and the environment (Tura, 2018).

Surrounding farmers in Addis Ababa have expressed concerns to various authorities regarding inadequate compensation and resettlement support provided by the city administration during expropriation (GebreEgziabher, 2014).

A review of existing literature reveals two conflicting perspectives on the effects of urban expansion on peri-urban farmers. One viewpoint sees urban expansion positively, suggesting it brings new development opportunities and fosters greater entrepreneurialism among those affected. Conversely, another perspective portrays urban expansion as detrimental, leading to the destruction of agricultural livelihoods for farmers. As urban areas encroach upon peri-urban regions, farmers lose their agricultural assets and are compelled to seek alternative sources of income. The expropriation of farmland disrupts farmers' ways of life, forcing them to adapt to new environmental and socio-economic conditions. This adaptation may involve changes in occupation, income, ownership, assets, and social interactions.

2.8 Policies and Directives of Land Expropriation

Currently, Ethiopia is experiencing rapid urbanization driven by fast population growth and rural–urban migration. This urbanization is accompanied by swift socio-economic development, which has attracted both local and foreign investments. Consequently, the demand for land has been growing alarmingly. However, municipalities are struggling to meet this demand, particularly in cities like Addis Ababa (Ozlu et al., 2015).

The Constitution of the Federal Democratic Republic of Ethiopia, in Article 40, states that land is a common property of the Nations, Nationalities, and Peoples of Ethiopia and shall not be subject to sale or other means of exchange. Despite this public ownership, a series of reforms have taken place since the establishment of the new government, which has moved towards a market economy. This shift has resulted in a separation of land use rights from land ownership; while land remains publicly owned, use rights are allocated to private individuals. Since land is publicly owned, expropriation involves only the withdrawal of land use rights.

The Ethiopian government may withdraw land use rights from holders for several reasons: (i) public interest, (ii) expiration of land use terms without renewal or denial of the renewal application, or (iii) dissolution or relocation of the holder of administratively allocated land rights. This process significantly affects the property rights of landholders and warrants thorough scrutiny regarding its implementation and implications. The right holders are entitled to compensation corresponding to the remaining years on their lease contracts and the extent to which the land has been developed. Proper property valuation and compensation for lost assets are crucial

counteractions to mitigate impoverishment risks for displaced persons and achieve successful compensation and resettlement outcomes.

The Constitution states, “In Ethiopia, land is the common property of the state and the people, and hence is not subject to sale, exchange, or mortgage” (Constitution, 1995). It guarantees that “rural farmers and pastoralists are entitled to a plot of land free of charge,” while “urban residents can secure land use rights through ground lease terms.” This indicates that rural farmers have usufructuary rights, granting them possessory or holding rights to use and enjoy, rent, donate, and inherit the land (Ambaye D. W., 2015).

In urban areas, residents can obtain land on a lease basis for a specified term depending on its intended use, and these rights may be freely transferable. The Constitution prohibits the eviction of landholders without just cause and prior payment of appropriate compensation. However, as specified in Article 40(3), the government can expropriate private property use rights for public interest, subject to advance payment of compensation commensurate with the property’s value (Constitution, 1995).

Expropriation is primarily understood as the inherent power of the state over its territory, under which all property owners, including those with land, exercise their property rights subject to this power of the state known as “eminent domain” (Reynolds, 2010).

2.9 Summary of the Literature Review and Identified Research Gaps

This literature review has synthesized the foundational knowledge on land expropriation, establishing it as a critical instrument of state power used globally for public purposes, ideally accompanied by fair compensation. The review traced the theoretical definitions, from eminent domain to compulsory acquisition, and explored its intrinsic link to rapid urbanization, particularly in developing nations. A key focus was the Ethiopian context, where land is publicly owned, and expropriation involves the withdrawal of usufructuary rights from rural and peri-urban farmers, a process governed by a specific legal and constitutional framework(GebreEgziabher, 2014).

Despite this comprehensive body of work, a significant conceptual gap persists. The existing literature often treats expropriation as a binary conflict between state power and property rights, overlooking the complex socio-legal terrain of its implementation. There is a lack of critical analysis on how the principles of "public purpose" and "fair compensation" are operationalized,

interpreted, and perceived by different stakeholders at the local level. This study will address this gap by investigating the dissonance between statutory ideals and their practical application, focusing on the lived experiences and perceptions of justice among affected communities in Adigrat(GebreEgziabher, 2014).

Furthermore, a clear empirical gap justifies this research. Most studies in Ethiopia have concentrated on major metropolitan areas like Addis Ababa, leaving secondary cities like Adigrat in the Tigray region critically under-researched. The specific drivers, procedural characteristics, and the multifaceted livelihood impacts of expropriation in this unique regional and urban context remain largely unknown. This research will fill this void by providing a granular, case-specific analysis, employing mixed methods to generate robust, localized evidence that captures the realities on the ground(Agegnehu Mansberger, 2020).

CHAPTER THREE

3 Research Methodology

3.1 Introduction

In this chapter, the research methodology and methods used in this study, which have aided in achieving the research objectives, are discussed in detail. Specifically, the chapter provides a description of the research philosophy, approach, methods, sampling techniques, data sources, and analysis methods in a thorough and specified manner

3.2 Description of the Study Area

This study was conducted in Adigrat, the second largest town in the Tigray region of Ethiopia. Located in the eastern part of Tigray, Adigrat is situated 895 km from Addis Ababa, the capital city. Its absolute coordinates are 14° 16' 25" N / 39° 27' 42" E. The town lies along the road connecting Mekelle to Zalambessa and Adwa. Covering a total area of 5,801.5 hectares, Adigrat serves as the capital of the eastern zone of Tigray and functions as a political and economic hub for the region. According to the Central Statistical Agency (CSA) in 2007, the town's population was 57,588, with a projected population of 124,376 by 2024. Adigrat has a two-tier government structure comprising the town administration and kebeles, which are divided into seven kebeles. This study focused on the expansion areas of the town and regions annexed from the neighboring woredas of Ganta-Afeshum and Gulomekda. Figure 3.1 shown below depicts the location map of the study area.

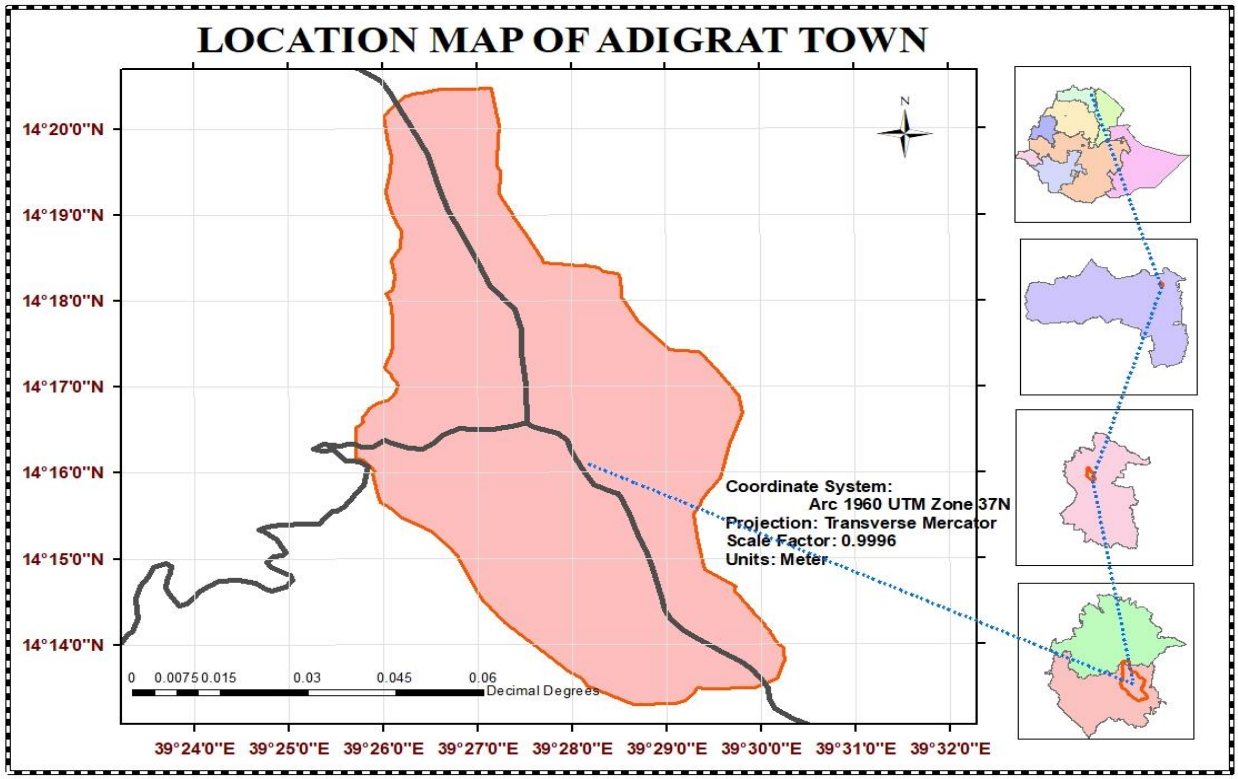

Figure 3. 1 location map of the study area

3.3 Research Approach

This research employed a mixed-methods approach, combining correlational and descriptive research, to investigate the implications of land expropriation on the livelihoods of expropriated farmer households in purposively selected peri-urban areas of Adigrat, Tigray, Ethiopia. The mixed-methods approach facilitated the collection of diverse data types from various sources, allowing them to mutually reinforce one another and enhance the overall reliability of the research data and findings.

The correlational research type was utilized to establish the existence of a relationship between land expropriation and the lives of those affected in the expansion areas of Adigrat. This aspect of the research focuses on identifying the impact of land expropriation on individuals whose lands have been taken for public services by the government. Meanwhile, the descriptive research type

was employed to characterize the existing conditions in the peri-urban areas, with the aim of drawing informed conclusions based on these descriptions.

This study used both qualitative and quantitative research approaches. Quantitative methods were applied to analyze quantifiable variables related to land expropriation issues in the peri-urban areas, while qualitative methods were used to explore respondents' attitudes, perceptions, and experiences regarding public amenities in these areas through interviews. In-depth opinions were gathered from participants, particularly municipal experts from the urban planning department and the land administration and development office. Experts from the urban planning department were interviewed to identify problems observed in the peri-urban areas, while those from the land management and development office provided insights into the system or approach of land expropriation in Adigrat.

Both quantitative and qualitative data were collected from peri-urban settlements to evaluate residents' perceptions and satisfaction levels with the current land expropriation system implemented by the city administration, as well as to assess the existing situation of the dwellers.

3.4. Influence area

The influence area for Adigrat town is delineated based on its geographic proximity, measured by the distance from the town. This area represents where residents and the city's land administration and development authorities demand expansion. As urbanization in Adigrat continues to increase, the land expropriation system has also expanded into neighboring woredas, particularly Ganta Afeshum and Gulo Mekada. These two woredas are the primary influence areas for Adigrat town and have been significantly affected by land expropriation. Since 2011 E.C., approximately 2,500 hectares have been expropriated from these woredas for the town's expansion. The extent of the town's growth into neighboring areas in all directions is illustrated in Map 3.2 below.

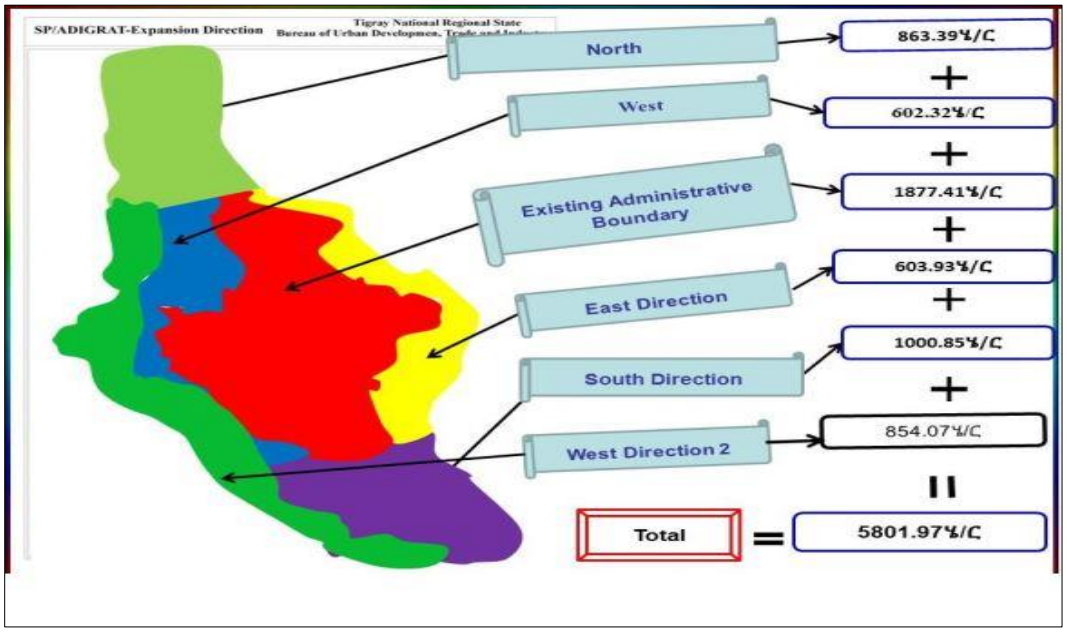

Figure 3. 2 land use maps of Adigrat town

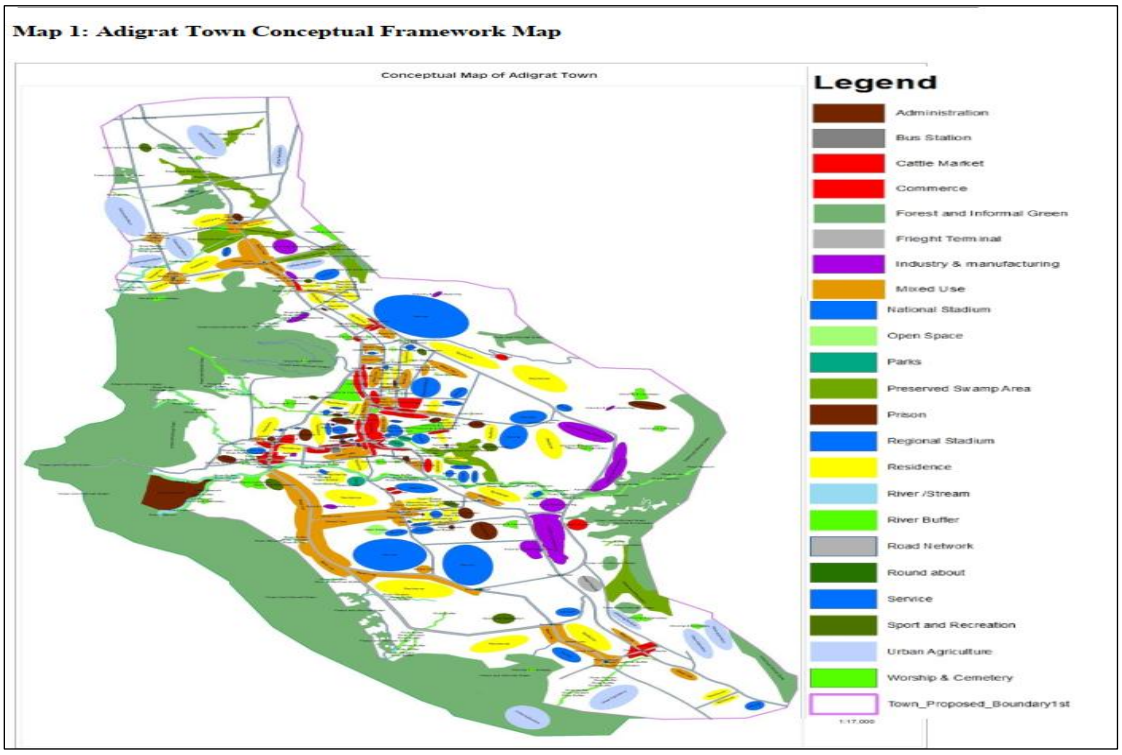

Figure 3. 3 existing land use map of Adigrat town

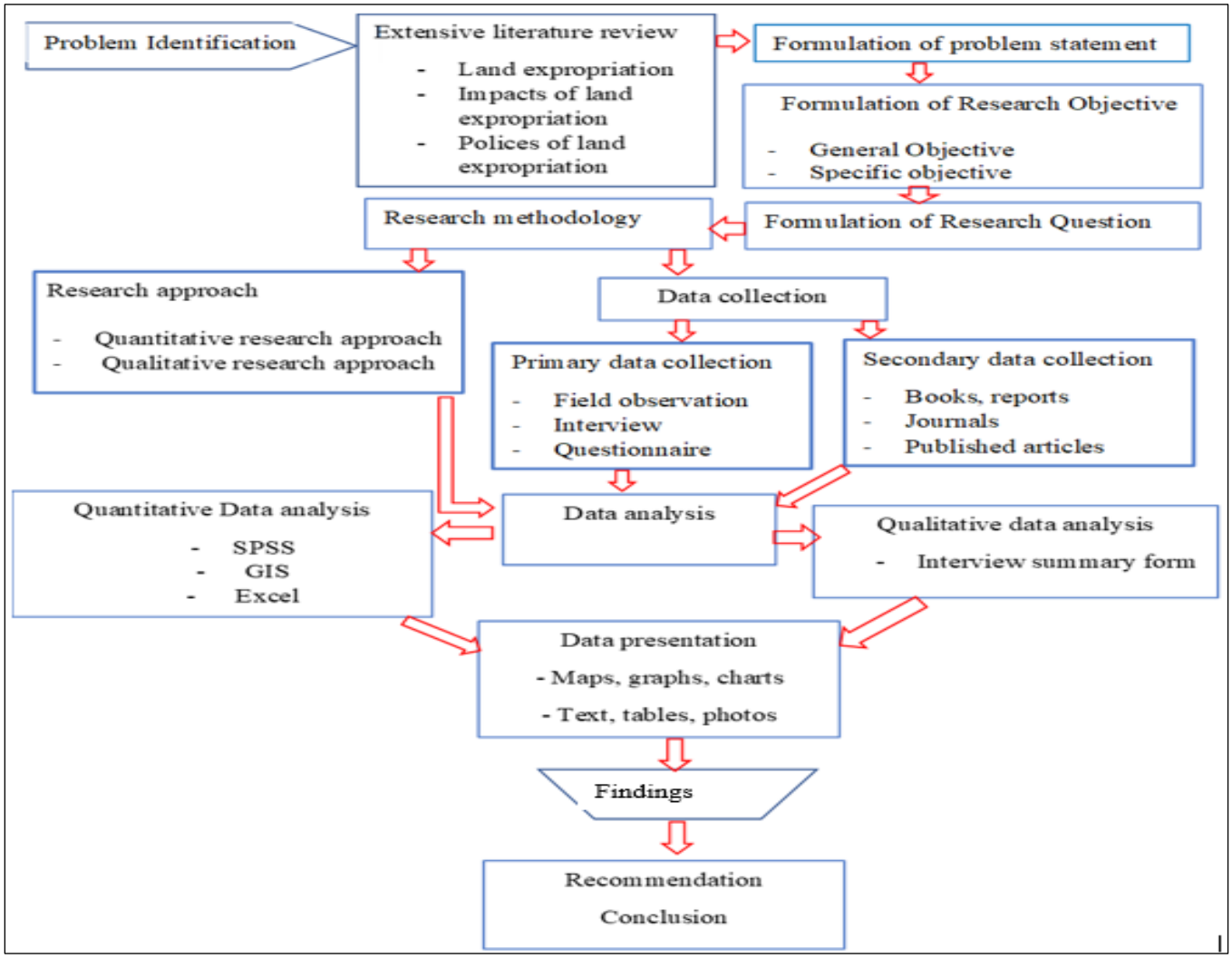

Figure 3.4 Research Design

3.5 Data Collection Methods tools and data source

This research utilized both primary and secondary data sources. Primary data were collected through questionnaires, structured or semi-structured interviews with municipal experts from the departments of urban planning and land management and development. Additionally, primary data were gathered from households in the expansion areas using questionnaires. Physical observations of the peri-urban areas were conducted to obtain detailed information about the study site, employing methods such as sketching, mapping, note-taking, and photography.

Secondary data were sourced from various documents, including city municipality reports, structure plans, neighborhood development plans, and various registers and publications (such as books, journals, and structure plan documents). Internet resources and satellite images of the city were also utilized. Both structured and unstructured questionnaires served as the primary tools for data collection through interviews.

In addition, the following methodologies were used to collect data for the research:

I. Questionnaire: A questionnaire is a systematic compilation of questions related to the research topic, designed to collect information from respondents.

II. Interview: This two-way method allows for an exchange of ideas and information between the respondent and the interviewer. Data were gathered directly through face-to-face interactions, ensuring confidentiality. Information was obtained through both written and oral formats.

III. Physical Observation: During data collection, physical observation was employed to gather information. The researcher conducted field observations in the peri-urban areas of Adigrat town, particularly in the expansion areas.

3.6 Data Analysis Methods

Once data were collected from various sources and through different methods, they were analyzed. Data analysis encompasses a range of qualitative and quantitative activities. Descriptive analytical methods were employed to analyze the collected data, chosen based on the research's focus: evaluating the existing conditions of the riverside settlement and the city's structural plan. To provide a comprehensive report on the study area, descriptive analysis was deemed the most effective method for examining the actual conditions.

Data obtained from official records were categorized and analyzed using statistical methods such as percentages and graphs. Information from both primary and secondary sources contributed to a descriptive analysis of the situation, leading to relevant conclusions and recommendations.

After qualitative data collection, an interview summary form was prepared following each interview. This form included practical details such as the time, place, participants, duration, and content of the discussion to assist the researcher in data analysis. In this research, both comparative

and thematic analyses were utilized for deductive reasoning (moving from general to specific conclusions).

Quantitative data collected from various sources were encoded into software such as SPSS (Statistical Package for the Social Sciences) and GIS. This data was analyzed by producing tables, charts, maps, and graphs for interpretation.

3.7 Ethical consideration

To ensure the validity and reliability of the information, the questionnaire was not filled out by the respondents themselves. The researcher employed two professional experts and four additional data collectors. The experts supervised the data collectors and assisted in gathering data from relevant sectors. The data collectors were responsible for collecting information based on a sampling system from households. They conducted surveys to gather the required data from residents. Since the study included interviews with responsible experts, the results are considered valid and reliable.

CHAPTER FOUR

4. RESULT AND DISCUSSION

4.1 Introduction

This section analyzes and describes the data gathered from respected institutions, field observations, and input from local respondents and experts. Secondary data were obtained from the municipality of Adigrat, the Ethiopian Map Agency (Mekelle branch), Adigrat Land Administration, and various websites. Primary data were collected through direct field observations and interviews with respondents and selected experts from the municipality.

4.2 Topography and Elevation

According to the topography map, the altitude of Adigrat Town varies, with slopes ranging from 2% to over 20%. The predominant topographical feature of the area is a rolling to medium plateau. Based on the traditional agro-ecological zonation used in the country, the urban region predominantly falls within the 'Weina Dega' zone, located in the southwestern part of the town. The elevation ranges from 2300 to 2332 meters above sea level. The steep slope to the northwest is bounded by a rocky mountain surface, which can only be modified through extensive excavation. Steps for the footpath can be arranged and drilled accordingly. Fig 4.1 and 4.2 shown below represents the topo images and slop map of the study area.

Figure 4. 1Topo Images

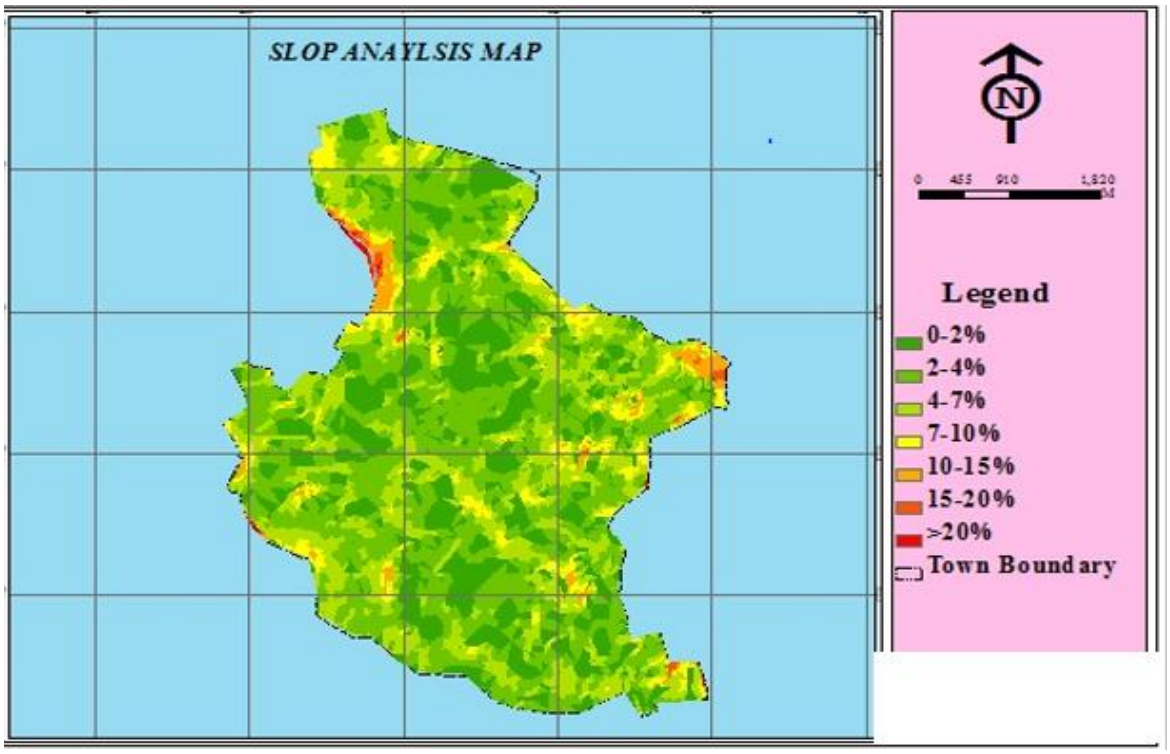

Figure 4. 2 Slope Map

Fig. 4.3 depicts the slope analysis, and the results are described in the table below. The site is situated between the mountains, where the opposing slopes accumulate soil deposition and create a stream. The stream flows towards the southeast of the town. Except for the edges of the mountains (slopes greater than 20%), the remaining areas are suitable for housing development, residential areas, and services.

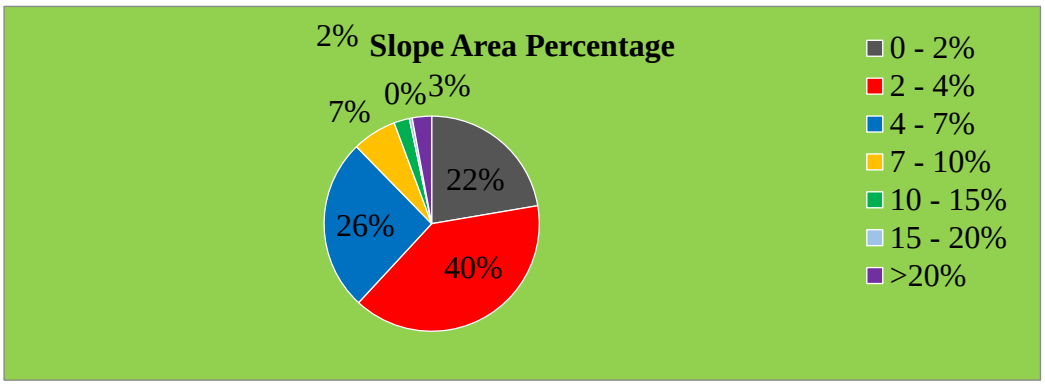

Figure 4. 3 Slope Analysis

4.3 Socio-Economic Background of Respondents

4.3.1 Sex versus Age Group

The age group and sex distribution indicate that most of the respondents are aged 30-45 years (44.24%). This information is presented in Table 4.1.

Table 4. 1 Sex versus Age Group (based on our own survey)

Age Group	Male No	Female No	Total	%
18-25 Years Old	2	1	3	0.909091
25-30 Years Old	6	3	9	2.727273
30 – 45 Years Old	108	38	146	44.24242
45 – 64 Years Old	86	35	121	36.66667
64 Years Old	36	15	51	15.45455
Total	238	92	330	100

4.3.2 Education Level

As table 4.2 below indicates, the level of education among the professionals and expropriated respondents shows that 62.72% are illiterate, while 21.21% have not completed grade 12.

Table 4. 2 Education Level (based on our own survey)

Education Level	Male No	Female No	Total	%
Illiterate	148	59	207	62.72
< 12 Grade	51	19	70	21.21
Certificate	29	8	37	11.21
Diploma	8	3	11	0.33
Degree and Above	2	3	5	1.5
Total	238	92	330	100

4.3.3 Duration of Dwellers in the Area

The farmers have lived in the area for 20 to 25 years (32.8%), while 24.8% have lived there for 15 to 20 years**.**

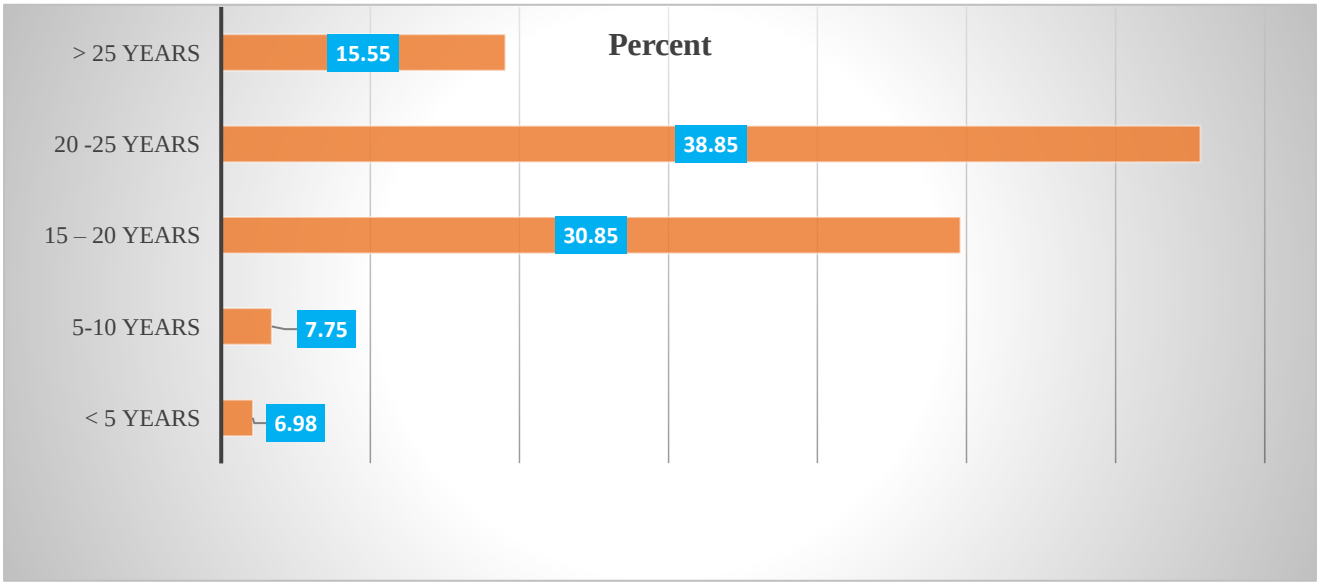

Figure 4. 4 Duration of Dwellers in the Area

4.4 Causes of Land Expropriation

The primary cause of land expropriation is for infrastructure, accounting for 45.45%. Other causes include the establishment of schools, health centers, and administrative areas. Table 4.3 shown below indicates the causes of land expropriation in the town.

Table 4. 3 Causes of Land Expropriation (based on our own survey)

Causes of Land Expropriation		Male No	Female No	Total	%
Purpose the Expropriated Land					
	For infrastructure	117	33	150	45.45
	For school	42	22	64	19.39
	For parks	67	33	100	30.3
	Other	12	4	16	8.48
	Total	238	92	330	100
Legal Authority of Government Expropriation Process	Eminent domain	79	3	82	24.84

	Land regulation system	136	63	199	60.38
	Negotiation	23	25	48	15.37
	Specify if other	0	1	1	0.03
	Total	238	92	330	100.62
Reason Expropriate the Land	For read 109 infrastructure	38		147	44.54
	For the 41 construction of health center	25		66	0.2
	For educational 74 service	27		101	30.6
	For religious 14 institution purpose	2		16	4.84
	For public recreation purpose	0	0	0	0
	If other specify	0	0	0	
	Total	238	92	330	100

The legal authority for the expropriation process is governed by the land regulation system (60.38%). Generally, land is expropriated for various purposes, including commerce, business and administration, industry, manufacturing, warehouses, depots and workshops; open spaces and environmental aspects; residential use; roads, transportation, utilities and infrastructure; services; and special functions and administration.

Figure 4. 5 Houses Demolished for Infrastructure Development

4.5 Physical Analysis and Urban Growth of Adigrat Town

The total area of 1,904 hectares in the town is divided into the following categories: residential, administration and commercial, service, green area, urban agriculture, manufacturing and storage, roads and transport, and special functions.

As critically assessed and analyzed by the researcher, the land use proposal made by NUPI in 1998 was relatively good and considered the existing situation of the town, although it has encountered some implementation problems. These issues include: unfair distribution of markets, a cemetery located at the center of the town, governmental offices not being separated from one another, the previous master plan excluding rural settlements and contributing to homelessness, inadequate private and common open spaces for residential units, a lack of parking lots, and a large block arrangement pattern that lacks designated industrial sites. The land use map of the city is shown in Fig. 4.6. and table 4.4.

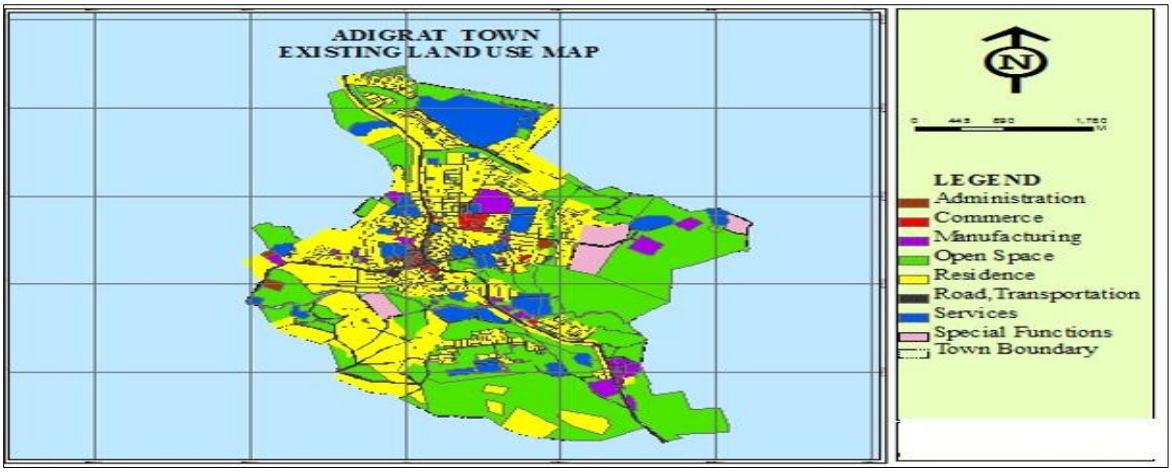

Figure 4.6 land use map of Adigrat town (own survey)

Table 4. 4 Existing General Land Use Classification in Percentage (based on our own survey)

Structure Plan Component	Percentage	Observation
Residence	50 - 60%	30.29%
Business, Commerce and Market Places	5 - 10%	1.76%
Services and Special Function	5 - 10%	12.60%
Manufacturing and Storage	10 - 15%	2.79%
Transportation, Infrastructure and Utilities	15 - 25%	9.07%
Open Spaces and Environmentally Sensitive Area	15 - 20%	43.50%

4.5.1 Vegetation Coverage

Adigrat town and its environment are not endowed with dense natural vegetation cover; however, the compounds of schools, religious centers, main streets, and parks (such as Wolwalo and the Youth Center), as well as areas around rivers and certain parts of the town—especially on hilltops and under mountains have relatively better vegetation cover. Besides their aesthetic value, this vegetation cover protects the soil from erosion (which is a serious problem in the town due to flooding) and moderates the microclimate, thereby creating a lively urban environment for the residents. Generally, the area covered by vegetation is 7.58 percent. The mountainside vegetation cover is dominated by Beles, a local food item that is available during the months of June, July, and August. This plant is known for its capacity for water absorption. The eucalyptus tree, however, is found along riverbanks and within individual compounds. The area around the Adigrat

Figure 4. 7 Cactus fruit around study area

Pharmaceutical Factory, the swampy area to the south of the Military Camp, and Wolwalo Park are mainly endowed with this plantation. Tid and Wanza are other local plants found in the town.

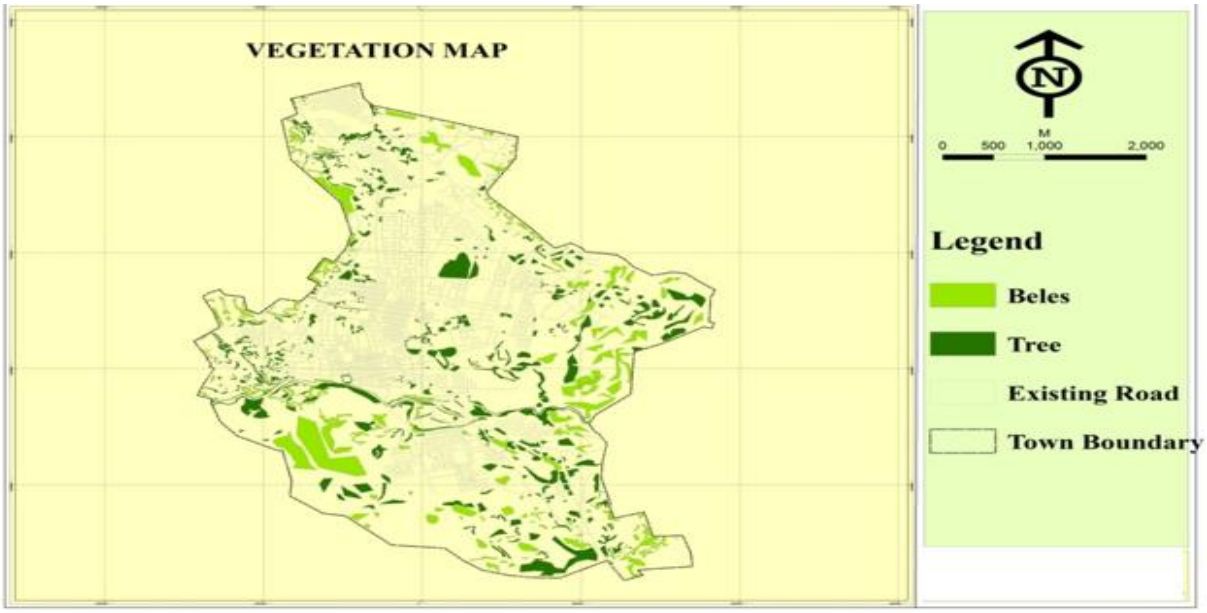

Figure 4. 8 Vegetation Map of study area

4.5.2 Land Use Change

Some of the previous land use proposals for the town's expansion have been changed to other land uses, both legally and illegally. Some of the legally changed land uses based on demand include: greenery converted to kindergarten, greenery to youth center, commerce to residential, and residential land uses to animal fattening. Most of the illegally changed land uses include: residential

to storage, residential to garage, residential to mill, and residential to kindergarten. The land use change map of the city is represented in Fig. 4.9 and table 4.5 below.

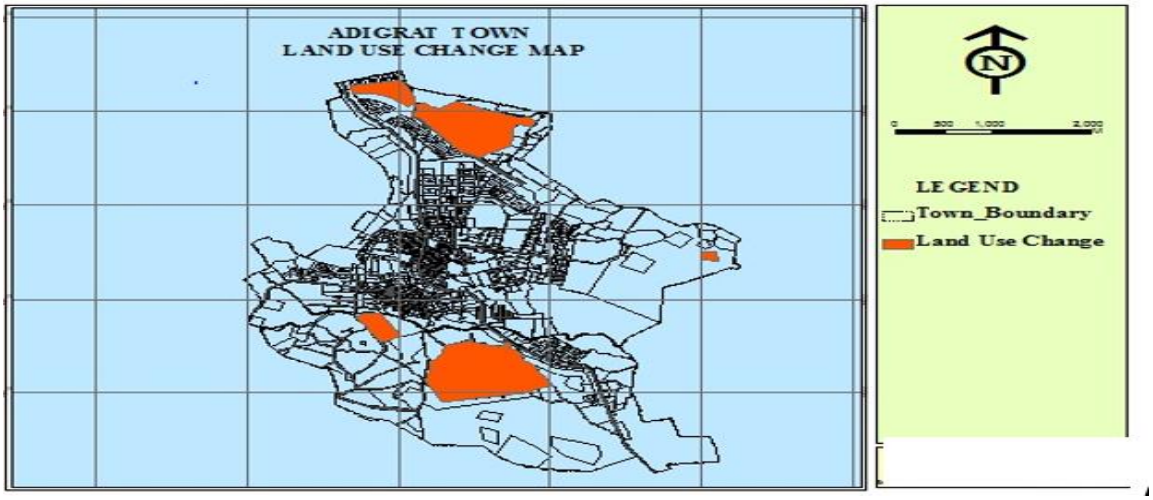

Figure 4. 9 Land Use Change map of study area

Table 4. 5 Land use change

No	Previous land use	New land use	Remark
1	Residence	Adigrat University	
2	Airport	Road and Transport office	
3	Agriculture Area	TVET	
4	Cemetery	Road	
5	Agriculture Area	Residence	
6	Residence	Garage	
7	Agriculture	TVET	
8	Airport to Airport	Road and Transport office	
9	Residence.	Kindergarten.	

4.5.3 Land Delivery System

Urban land belongs to the government, as it is explicitly recognized and confirmed by Article 40 of the Constitution of the Federal Democratic Republic of Ethiopia (FDRE) of 1995. It cannot be sold or exchanged. The law (Proclamation No. 272/2002) permits urban land to be allocated through lease for a definite period.

According to the Ethiopian Urban Development Policy, the urban land delivery system should adhere to principles that include: using urban land for its intended purpose as outlined in the urban plan in priority order; ensuring adequate provision of infrastructure; implementing the delivery of urban land in a sustainable and efficient manner; delivering plots for different functions in a balanced and integrated way; and promoting the affordability of land for the poor. Additionally, it aims to facilitate the efficient and sustainable delivery of land to investors engaged in the construction of residential and commercial buildings for sale or rent.

4.5.4 Land Grading

Land grading is a tool for urban land administration that ensures municipal revenue and facilitates the distribution of services and infrastructure within the town. The Adigrat municipal administration head committee has established local land grading standards by setting the following indicators: proximity to infrastructure, closeness to services, presence in commercial areas, and adjacency to main roads. The land grades of Adigrat town are primarily grouped into three categories, which are further subdivided into three subcategories based on the criteria mentioned above.

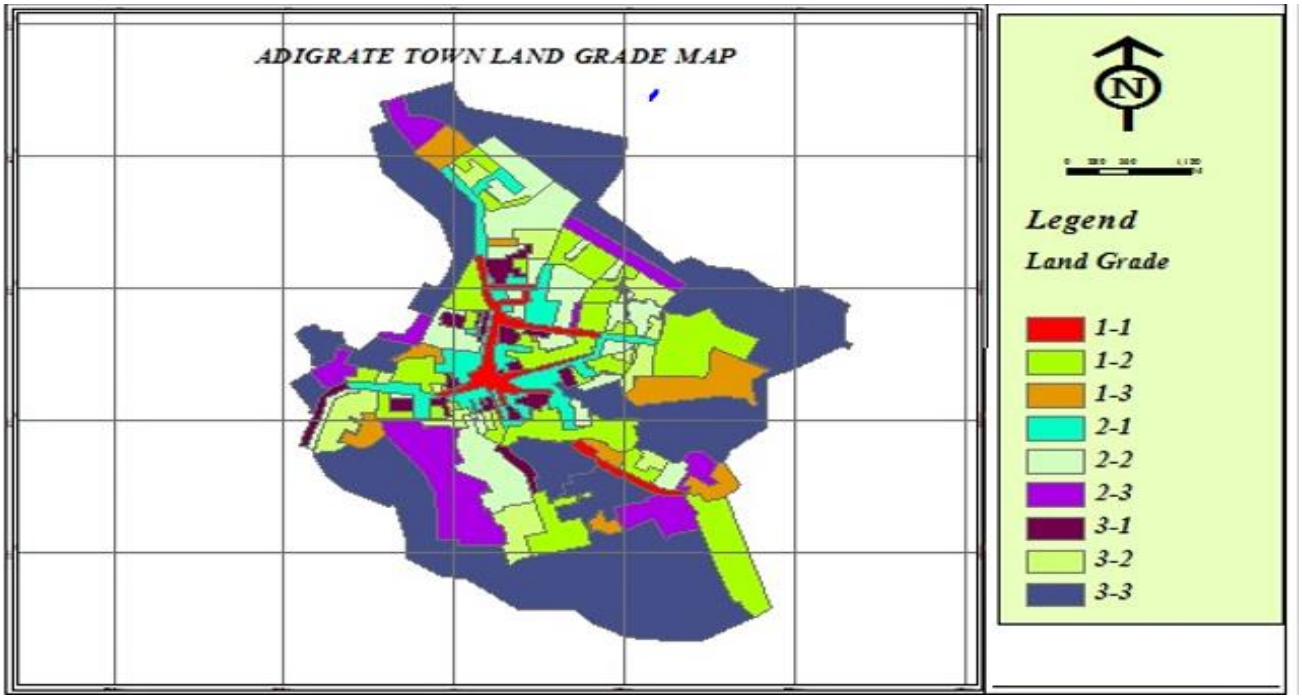

Figure 4. 10 land Grading Map

4.5.5 Formal and Informal Settlements

Informal land ownership arises from a number of reasons, among which inefficient land management by the government, illegal land holdings by speculators, and the storage of land for housing can be cited as core factors contributing to this phenomenon. As a result, such ownership lacks land registration and title deeds since it has been acquired illegally. In contrast, formal settlement refers to a type of land holding where ownership is established through a formal land delivery system by the government, and thus it includes land registration and title deeds. Based on physical observations and data gathered from the municipality, it can be said that the majority of land acquisitions in the town are formal or legal. However, there are some areas, such as around the military camp, Adigrat Hospital, along the routes to Mekele and Zalambessa, and in the direction from Adigrat to Axum, where illegal housing constructions have occurred, despite the fact that the land was originally owned by peasants before these areas were included within the town boundary.

4.5.6 Infill Area

as it is shown on fig 4.11 below, Analysis of the infill area is crucial as it enables us to determine the available land that is currently underutilized and left idle, allowing for future demand for land and promoting compact development while minimizing urban sprawl before seeking expansion areas outside the current development. Although the researcher observed a number of vacant lands within the town boundary that are underutilized, we followed specific criteria to clearly identify those that could practically serve as infill areas for future development. The criteria to be followed include: the area being within the built part of the town, having a suitable slope for urban settlement, and being accessible for infrastructure provision. Ultimately, the total infill area was calculated to be 1.004 hectares. However, there are other areas in the town that could be considered infill, but due to their legal ownership, it is difficult to redevelop them.

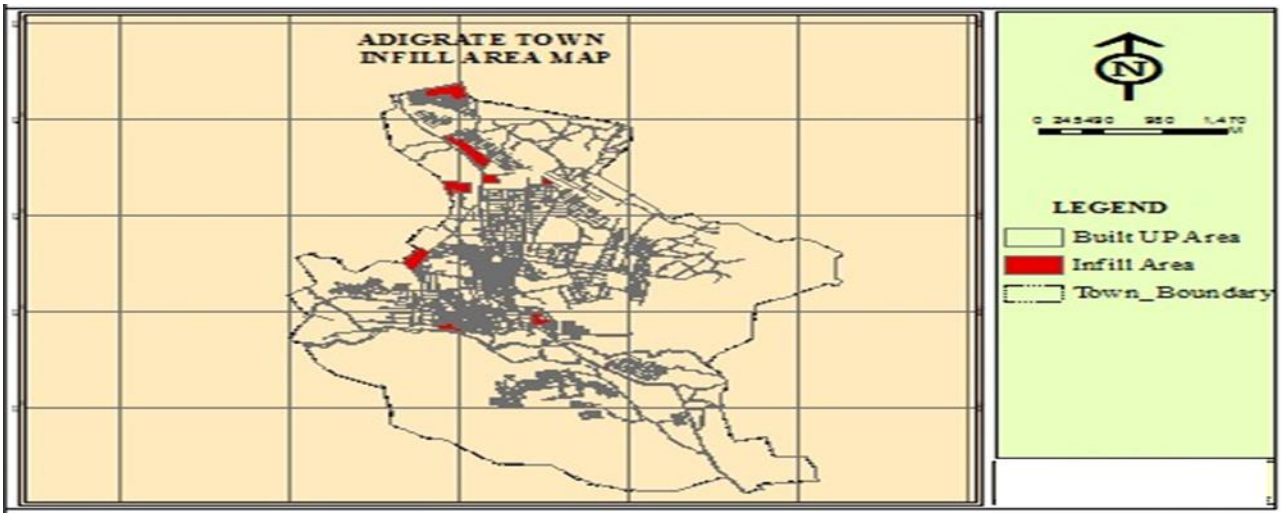

Figure 4.11 Infill Map (Source own)

Table 4. 6 Infill Area

Infill Area	Area/ m^2	Area (Ha.)
Infill Area	282302.83	28.23

The researcher found 28.23 Ha of vacant space for infill development. This reduces the demand for fertile land.

4.5.7 Future Expansion

Based on the gathered information regarding growth and expansion directions, Adigrat town is situated along the main road to Mekele, extending towards the southwest in kebeles 01, 04, and 06. We have identified specific areas that require targeted intervention, particularly around Adigrat Hospital and Adigrat TVTE College. During the socioeconomic data collection, it was noted that many areas near these sites are undergoing various investment activities. Consequently, the community in the central area feels a heightened sense of insecurity regarding their housing and land ownership.

The expansion map of the study area is clearly stated in fig 4.12 below. To the north, the boundary with Zalanbessa and the mountain ridge restrict further development expansion.

Criteria for potential future expansion of the town include slope suitability for construction, soil type, and access to roads and services.

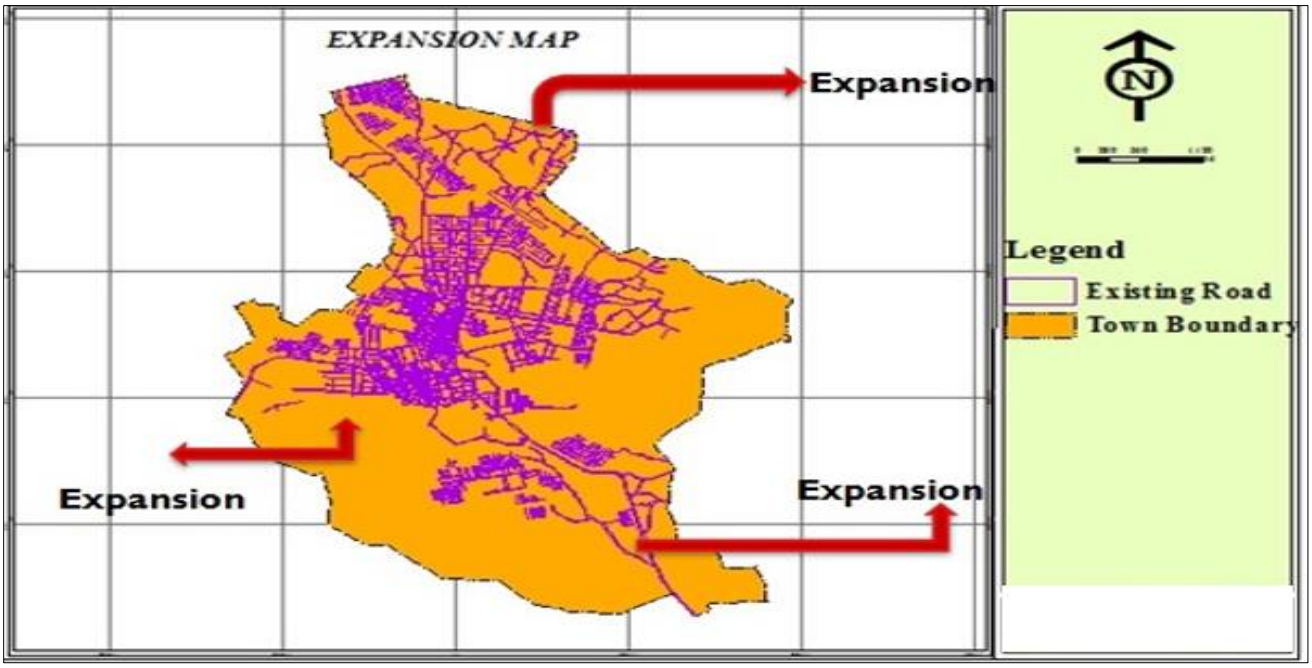

Figure 4.12 Expansion Map

4.5.8 Identification of Inner Town Redevelopment

Table 4. 7 Inner Town Redevelopment (based on our own survey)

Function	Situation	Intervention	Advantage
Slaughter house	Incompatible with residence	Relocation	Reduces environmental hygienic pollution, Reduce incompatibility, Increase the land value
Muslims cemetery	Incompatible to residences & commerce.	Relocation	Increase Permeability and safety Activate economic condition Increase land value Increase psychological comfort of dwellers Increase aesthetic value

Cattle market	Incompatible to residences & slope is flat	Relocation	Increase safety environment Increase land value
Squatter settlement	Illegal settlement Unplanned or irregular arrangement	Renewal	Standard Plan settlements is arrange Increase aesthetic value accessibility increase Land value increase
Slums areas	Deteriorated, below standard, Decrease aesthetic value	Upgrading	Maximize Environmental safety Increase economic activities Maximize the land value
Waste disposal	Incompatible with services	Relocate	

4.5.9 Squatter and Slum Settlements

In the town, there are squatter and slum settlements, making intervention very necessary for addressing these problems. The intervention occurs in accordance with the rules and regulations of the town, region, and nation. To solve these issues, we implemented the following intervention scenarios: upgrading, renewal, and relocation, based on the characteristics of the settlements and the rules and regulations of the town. Figures 4.13 and 4.14 show the squatter and slum settlement maps of the area.

Figure 4.13 Squatter and Slum Settlements

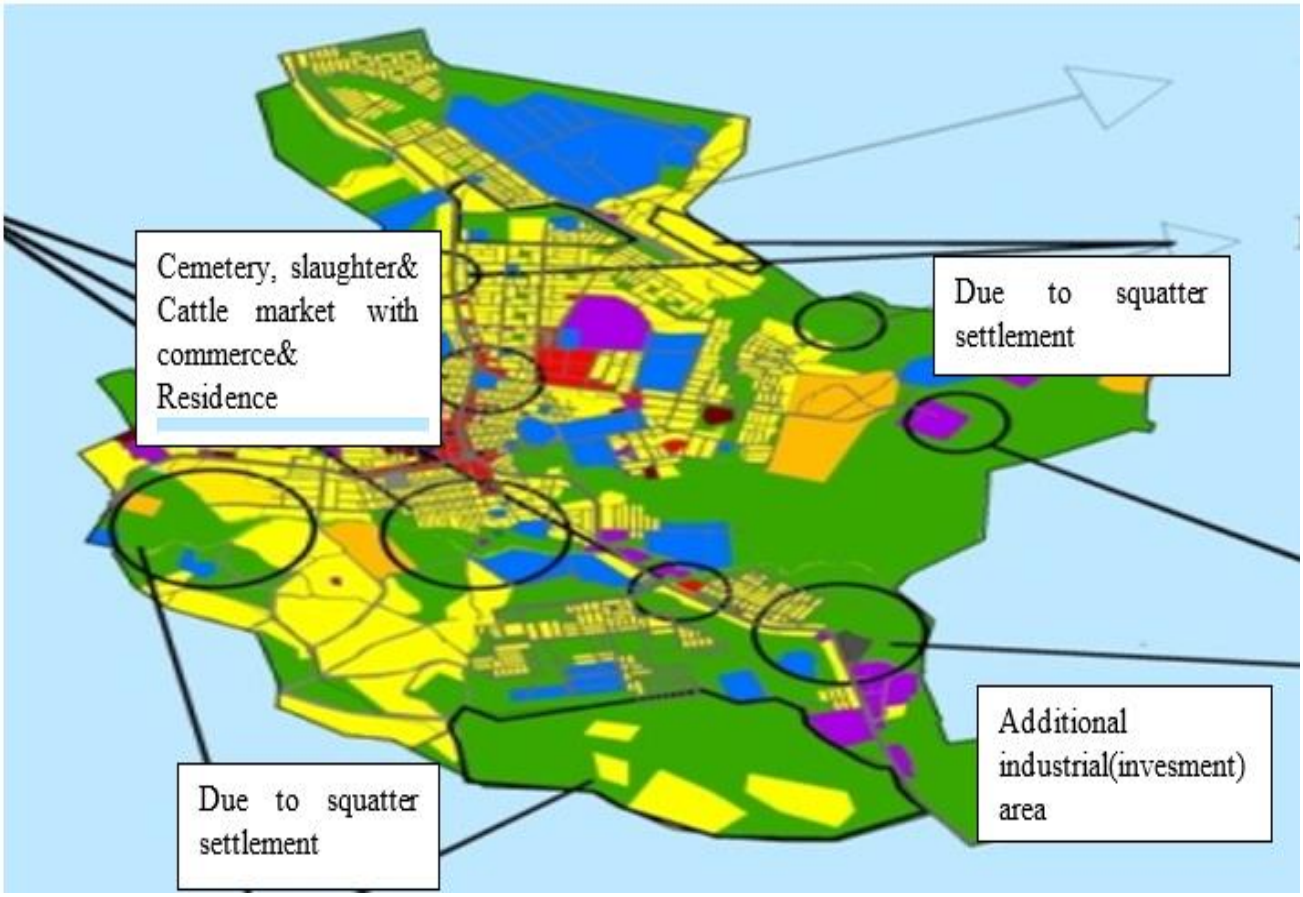

Figure 4.14 Squatter and Slum Settlements Map

4.6 Infrastructure Utilities and Transportation

4.6.1 Physical Infrastructure

A. Drainage

Provision of 1.5-meter diameter closed drainage lines for storm water and other liquid wastes should be considered along existing principal arterial and proposed sub-arterial roads. Along the remaining roads (collector and local roads), open paved ditches with a diameter range of 1.0 to 1.5 meters are proposed.

Figure 4.15 Open Ditch Drainage

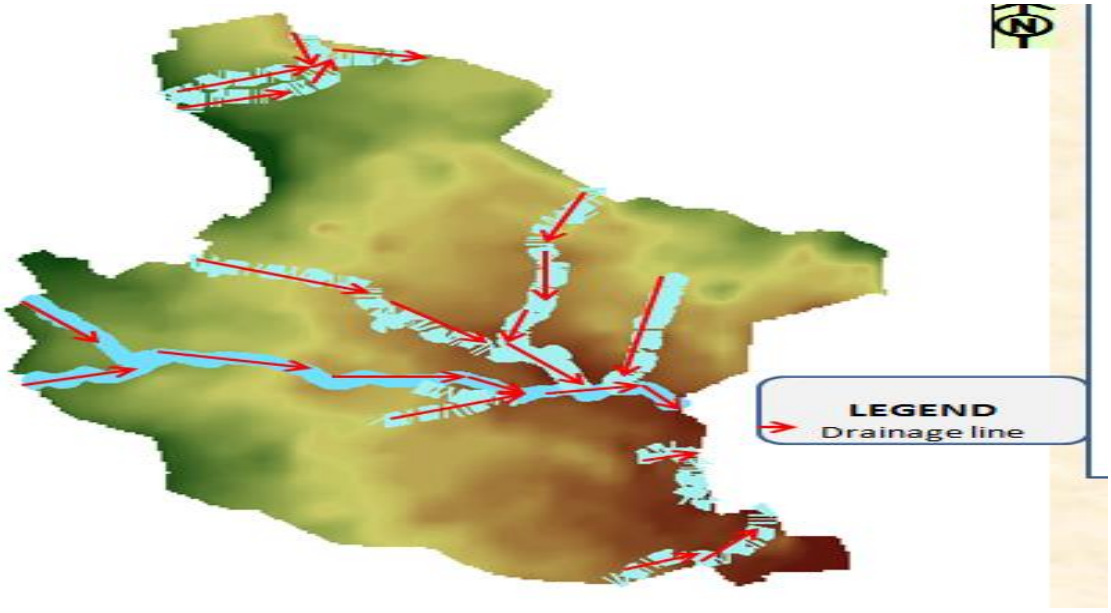

Figure 4.16 Natural flow direction of Adigrat Town

Natural flow direction of Adigrat Town is from the mountain edge to downstream. This flow creates high gully erosion in the town. figural representation of flow direction of some portion of the city is shown in figure 4.17 below.

Figure 4.17 Gully Erosion

B. Transportation and road network

In Adigrat town, out of a total area of 1904.11 hectares, the area covered by roads is only 180 hectares, which accounts for 18.4% of the built-up area. Considering the above points, alternative routes for the main road from Mekelle to Zalambesa in the eastern part, and from Mekelle to Adwa in the western part, as well as north to Zalambesa, are proposed for the next planning period. This route will be a primary arterial street with a width of 25 meters and will include branches that link the town to Adwa and Zalambessa. Figures 4.18, 4.19, and Table 4.8 depict the road surface hierarchy of the city.

I. Road Surface Analysis

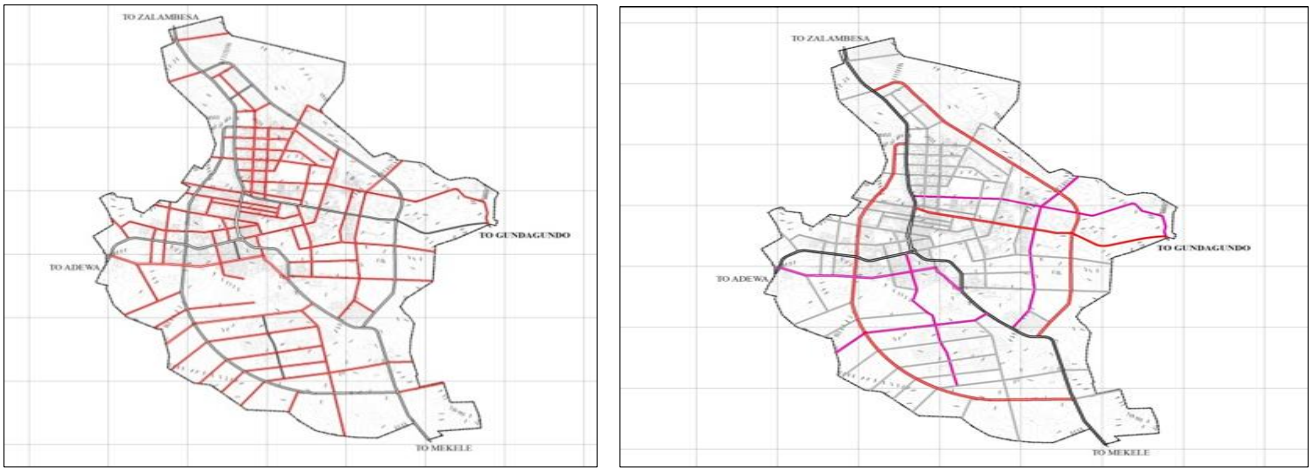

Figure 4.18 Road Surface (left) and Hierarchy (Right) Source: Own Analysis

Table 4. 8 Road Surface Type (based on our own survey)

Surface Type	Length in km	Area hectare	Area percent
Asphalt	28.03	64.88	42
Cobble Stone	57.96	87.68	58
Total	85.99	152.56	100

II. Road Hierarchy Analysis

Figure 4.19 Road Surface Type

Table 4. 9 Road network (based on our own survey)

Hierarchy	Length in km	Area in hectare	Area in percent
Major Collector Street (MCS)	13.39	22.23	16
Minor Collector Street (MICS)	47.31	69.52	44
Principal Arterial (PAS)	9.89	25.14	16
Sub Arterial Street (SAS)	15.40	35.66	24
Total	85.99	152.55	100

4.7 Secondary Structure Plan Analysis

The total area of 1904.11 hectares in the town is divided into the following categories: residential, administration and commercial, service, green area, urban agriculture, manufacturing and storage, road and transport, and special functions. The demand for land is increasing at an alarming rate

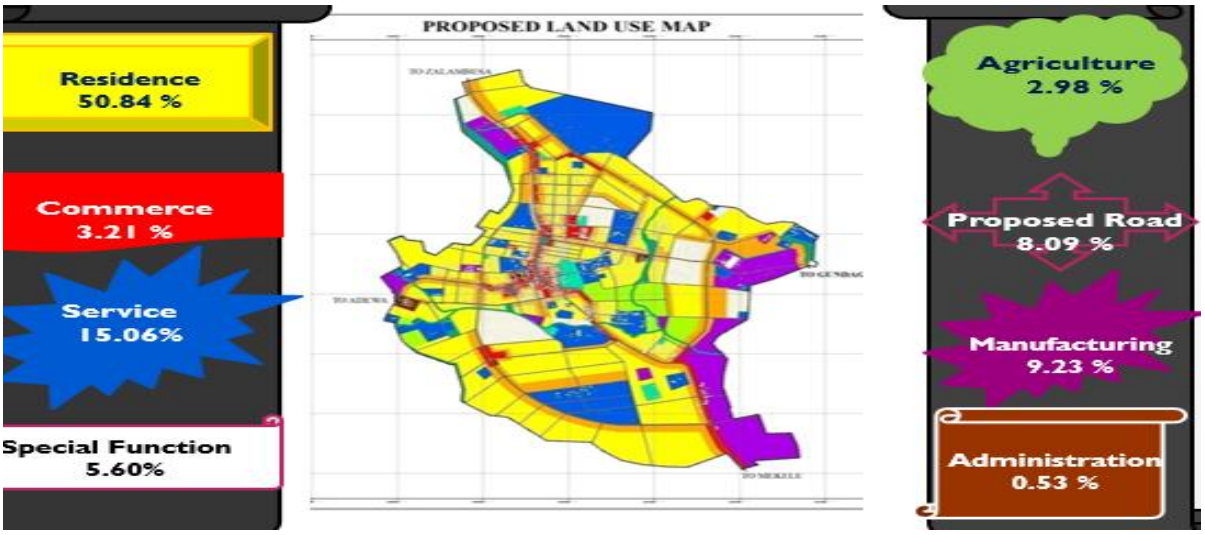

Figure 4.20 existing land use proportion of the study area in Adigrat town (Adigrat municipality)

Table 4. 10 Proposed Land Use Classification (based on our own survey)

General Land use	Area hectare	Area percent
Administration	8.82	0.46
Agriculture	32.54	1.71
Commerce & Business	61.72	3.24
Forest & Informal Green	87.03	4.57
Manufacturing	188.84	9.92
Mixed Residence	231.58	12.16
Recreation	37.49	1.97
Residence	721.55	37.89
Road & Transportation	156.47	8.22
Services	305.87	16.06
Special Functions	72.38	3.80
Total	1904.11	100.00

Table 4. 11 General Land Use Classification Percentage (based on our own survey)

Structure Plan Component	Existing Land use	Land Use	Proposed Land Use
Residence	30.29%	50 - 60%	48%
Business, Commerce	1.76%	5 - 10%	5%
Services and Special Function	12.60%	5 - 10%	20%
Manufacturing and Storage	2.79%	10 - 15%	10%
Transportation,	9.07%	15 - 25%	8%
Open Spaces and Environmentally Sensitive Area	43.50%	15 - 20%	9%

A. Housing Analysis by the Planning Period

The housing proposal is directly related to all types of residential developments, educational services (from kindergarten to secondary schools), health services (from health posts to health centers), neighborhood markets (known as 'Guilt's'), shopping areas, small and medium-scale manufacturing and warehouses, recreation and entertainment centers, administrative offices, businesses, and places of worship. Future housing needs based on new family formations in the next 10 years and the replacement of 72 houses indicate that the total housing need during the planning period will be 10,200.

Figure 4. 21 Old and Rural style Housing

B. The Gap between Housing Demand and Supply

I. Demand for Housing

The main determinants of the demand for housing are demographic factors. The core demographic variables include population size and population growth, which can occur due to an increase in family size and migration.

II. Supply of Housing

The supply of housing depends on land availability. The quantity of housing supply is determined by both population growth and access to land. Housing demand encompasses various housing delivery methods, including individual developments (villas), housing cooperatives, and condominiums.

III. Residence

The residential land use is intended to accommodate all income groups and consists of both pure and mixed small business and manufacturing activities that are compatible with residential living. The land budget for the newly proposed residential land use includes:

Table 4. 12 Housing Demand for the Planning Period (based on our own survey)

No	Existing house hold	Exiting house stock	Deficit	Projected house hold	New Households	Obsolete	Total housing demand within 10 years
	13181	10467	2714	20595	7414	72	7486

The development consists of a gross backlog of 2,714 houses. Future housing needs based on new family formation over the next ten years are estimated to be 7,414, along with the replacement of 72 houses. Thus, the total housing need during the planning period will be 7,486. The land uses

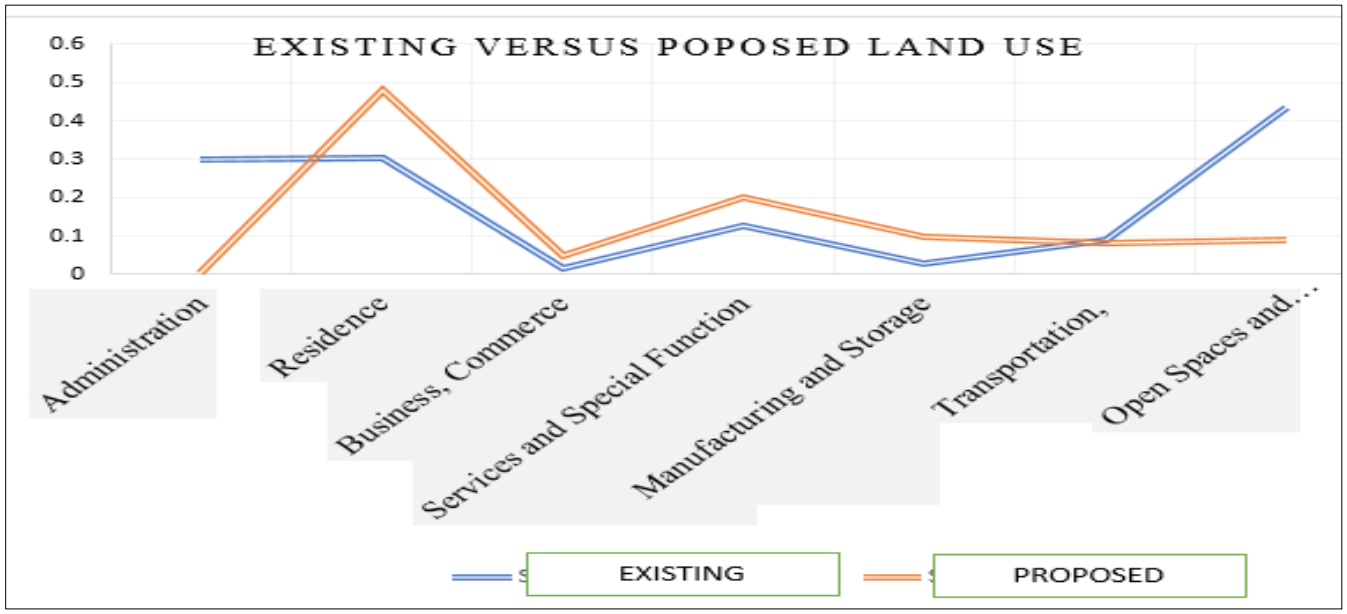

Figure 4. 22 Land Use Growth

The chart shows that there is a great demand for land at every phase of planning. The plan results in the loss of fertile land and open spaces. Figure 4.22 above shows the land use growth of the study area.

4.7.1 Building Height Regulation

A. Height zoning

The height zoning helps to prevent disparity among neighboring buildings. It establishes minimum standards in terms of light, air, and open space to create healthy living conditions. Additionally, it contributes to a harmonious aesthetic quality in the built environment.

Based on the structural plan strategy and local context, the proposed building heights on the site are G+0 to G+2. Along the main road and sub-arterial road, G+2 to G+4 is proposed, while G+4 to G+8 is also suggested. A setback of 3 meters from the sub-arterial road and 5 meters from the main arterial road is required. Parking should be accommodated on the plot, and there should be 8.22% open space from the total area.

B. Density zoning

One of the key objectives of planning is to optimize on the use of land resource. In density zoning the built-up space per unit area of land and the served population size are the two measures. Density building is measured through building area ration (BAR) and floor area ratio (FAR). BAR refers to the land coverage by building per unit plot whereas the FAR refers to the total area of floor in all story's per unit area of given plot. To set the BAR in setback, the size of individual blocks, and the size of individual buildings for each activity have been determined

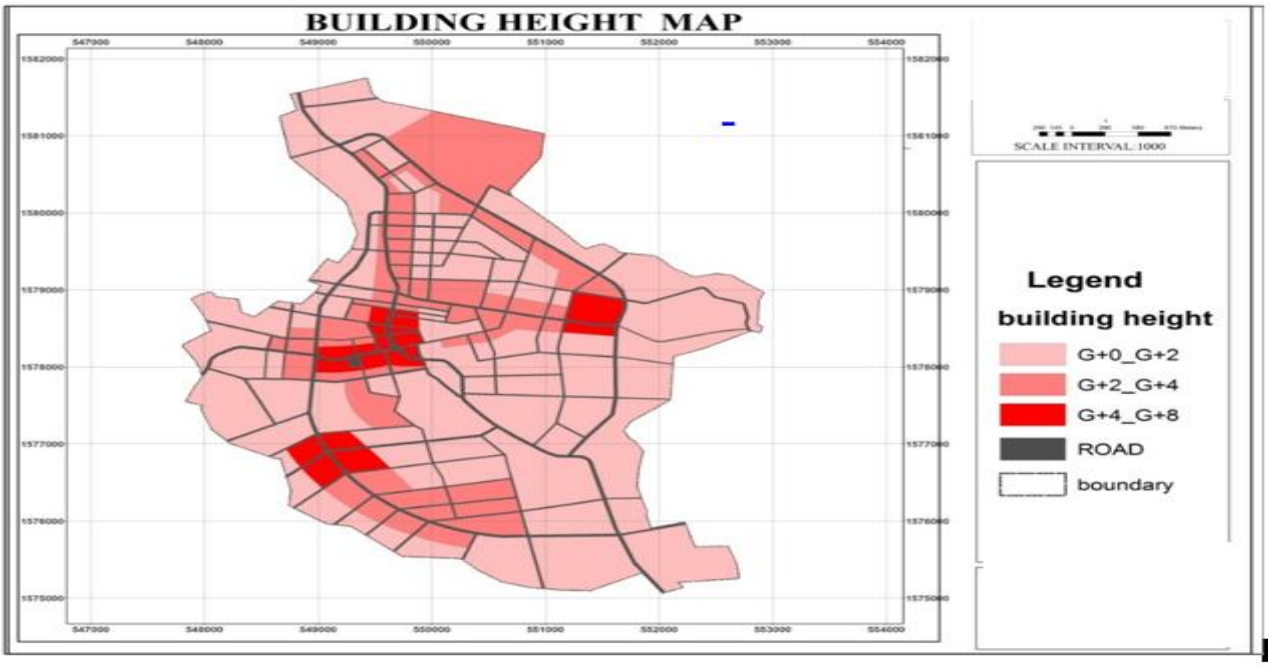

Figure 4. 23 Building Height Map

4.8 Procedures Followed of Land Expropriation

The results of the analysis show that the procedures for land expropriation are arbitrary (35%), and that compensation is inadequate (30%). The compensation provided is considered very unfair (43.3%). Methods used to assess the value of property include the current value of productivity (36.36%). Appeals can be made to zonal authorities. Those facing expropriation are informed at least six months in advance (65%). The payment of compensation is unjust and does not cover all costs associated with social, environmental, and economic changes (40%).

Table 4. 13 Procurers Expropriation Process (based on our own survey)

Procurers Expropriation Process		Male No	Female No	Total	%
Procurers Expropriation	Arbitrary Way of Land Acquisition	4	3	7	35
	Based On Detail Assessment Of Economic and Environmental Impacts	3	0	3	15
	By Giving Compensation	4	2	6	30
	Forceful Land Taking	1	1	2	10
	Other	1	1	2	10
	Total	13	7	20	100
Fairness Compensation	Very Fair	0	0	0	0
	Fair	33	13	46	13.94
	Moderate Fair	72	25	97	29.39
	Unfair	101	42	143	43.33
	Very Unfair	32	12	44	13.33
	Total	238	92	330	100
Methods to Assess the Value of Property		1	2	3	0.9
	Productivity of Crop Per Hectare, and Productivity Per Hectare/Price.	10	4	14	4.2
	Fruit Production Per Number of Plantations	52	26	78	23.63
	Asset The Current Value of The Productivity	90	30	120	36.36

	All the Valuation Method	74	29	103	31.21
	Other	11	4	15	4.54
	Total	237	93	330	100
Public Input or		0	1	1	0.3
Appeals	Local Authorities	62	4	66	20
	Zonal Authorities	148	65	213	64.54
	External Lawyers	28	22	50	15.15
	Other	0	0	0	0
	Total	238	92	330	100
Time for Property					
Owners	Before 1 Month	1	0	1	5
Information	Before 3month	1	1	2	10
	Before 6 Months	9	4	13	65
	Before 1year	1	3	4	20
	Specify Other	0	0	0	0
	Total	12	8	20	100
Awareness About	Yes	80	28	108	34.83
Land	No	145	57	202	6.61
Expropriation?					
	Total	225	85	310	100
Payment	The Government Has Lack of	19	12	31	10
Adequate	Financial Capacity to Pay				
Compensation	Satisfactory Compensation.				
	The estimation method set out in land regulation does not allow to pay adequate compensation	78	15	93	30

	The compensation standard does not match with current monetary value or inflation?	77	47	124	40
	Due to technical incompetency of government experts who estimate the compensation?	51	11	62	20
	Total	225	85	310	100

4.9 The Effect of Land Expropriation

According to the survey, the effects of land expropriation are significant in terms of the following: loss of available rural farmland (63.63%), loss and decline of agricultural production (61.81%), unsustainable growth (61.81%), unemployment for farmers (61.8%), and the breaking of social bonds (61.5%). The details can be seen in the table below.

Table 4. 14 Effects of Land Expropriation (based on our own survey)

Effect of Land Expropriation	Measure	Male No	Female No	Total	%
In Loss of available rural farmland	. low	0	0	0	0
	Very low	20	10	30	9
	Medium	68	22	90	27
	. high	150	60	210	63.63
	Total	238	92	330	
Loss and decline of agricultural products /not Secure Food Availability	low	0	2	2	0.6
	Very low	20	10	30	9.09
	Medium	71	23	94	28.48
	. high	147	57	204	61.81
	Total	238	92	330	100

Unsustainable Growth	. low	2	1	3	0.9
	Very low	22	9	31	9.39
	Medium	68	24	92	27.87
	. high	146	58	204	61.81
	Total	238	92	330	100
Unemployment for Farmers	. low	1	1	2	0.6
	Very low	20	10	30	9
	Medium	69	23	92	27.87
	. high	148	58	206	62.42
	Total	238	92	330	100
Break Social Bonds	. low	5	3	8	2.42
	Very low	18	11	29	8.8
	Medium	66	23	89	26.96
	. high	149	55	204	61.81
Total		238	92	330	100

After the expropriation, the dwellers become unemployed (28.48%), and self-employed (12.2%). The expropriated resettle in the area 49.39% and 25.15% of them are relocated in other parts of the town. Initial Reaction to Expropriation is very frustrated 32.12% and frustrated 30%. The jobs for expropriated is no job (71.81%).

Figure 4. 24 Fertile Lands Expropriated

Table 4. 15 Post Expropriation Face of Expropriated Effects of Land Expropriation (based on our own survey)

Post Expropriation		Male	Female		
		Count	Count	Total	%
Job of Expropriated	Trade	15	7	22	6.66
	Government employed	0	0	0	0
	Private employed	17	5	22	6.66
	Ngo employed	0	0	0	0
	Unemployed	74	20	94	28.48
	Self-employed	26	16	42	12.2
	Housewife	32	12	44	13.33
	Pension	0	0	0	0
	R Priest	0	0	0	0
	Washing holly-water	17	5	22	6.66
	Total	181	65	330	100
Initial Reaction to	Very frustrated	68	38	106	32.12
Expropriation	Frustrated	75	24	99	30

	Feel nothing	32	0	32	9.69
	Feel happy	0	0	0	0
Jobs of Farmers Post	Total	222	108	330	100
Expropriation	Housing rent	30	1	31	9.39
	Farm on rented land	0	0	0	0
	Guarding	51	11	62	18.78
	No job	210	27	237	71.81
	Total	291	39	330	100
Mobility During the	Moved to nearby rural areas	64	20	84	25.45
Exportation or	Moved within town	61	22	83	25.15
Relocation	Resettling in that area	113	50	163	49.39
	Total	238	92	330	100

4.10 Findings and Discussion

4.10.1 Root Causes of Land Expropriation

The primary reason for land expropriation is infrastructure development, accounting for 45.45% of cases. Other causes include the establishment of schools, health centers, and administrative areas. The legal authority for the expropriation process is derived from the land regulation system, which holds a significance of 60.38%. Generally, land is expropriated for various purposes, including commerce, business, administration, industry, manufacturing, warehouses, depots, workshops, open spaces, residential areas, transportation, utilities, infrastructure services, and special functions.

4.10.2 Procedures in Land Expropriation

The analysis indicates that the procedures for land expropriation are often arbitrary (35%) and that compensation is provided in 30% of cases. However, this compensation is perceived as very unfair by 43.3% of respondents. The primary method for assessing property value is based on current productivity (36.36%). Appeals can be made to zonal authorities. Individuals facing expropriation are typically informed six months in advance (65%). Furthermore, the compensation payments are

considered unjust and do not adequately cover the social, environmental, and economic impacts (40%).

4.10.3 Effects of Land Expropriation

The survey reveals several significant effects of land expropriation. A high percentage of respondents reported loss of available rural farmland (63.63%), decline in agricultural production (61.81%), unsustainable growth (61.81%), increased unemployment among farmers (61.8%), and disruption of social bonds (61.5%). Post-expropriation, 28.48% of dwellers became unemployed while 12.2% became self-employed. Additionally, 49.39% of the expropriated individuals resettled in the area, while 25.15% were relocated to other parts of town. Initial reactions to expropriation were predominantly frustrated (32.12%) or very frustrated (30%). A significant majority (71.81%) reported having no job following expropriation.

The findings illustrate a heightened flood risk during summer seasons due to the presence of mountains and inadequate vegetation coverage in the town and surrounding areas. Additional issues include insufficient infrastructure, facilities, and services; rising unemployment; an imbalance between housing demand and supply; a lack of private investment and cooperative involvement in the housing sector; flood risks from mountainous areas; poor title deed certification; and inadequate recording capacity within the municipality. Infrastructure and services, the presence of incompatible land uses, two side of the town bounded by mountains it restricts the expansion, no urban agriculture practice.

Poor land management and administration system, Inadequate infrastructure provision and distribution created by fertile land expropriation shows the structure for poor development.

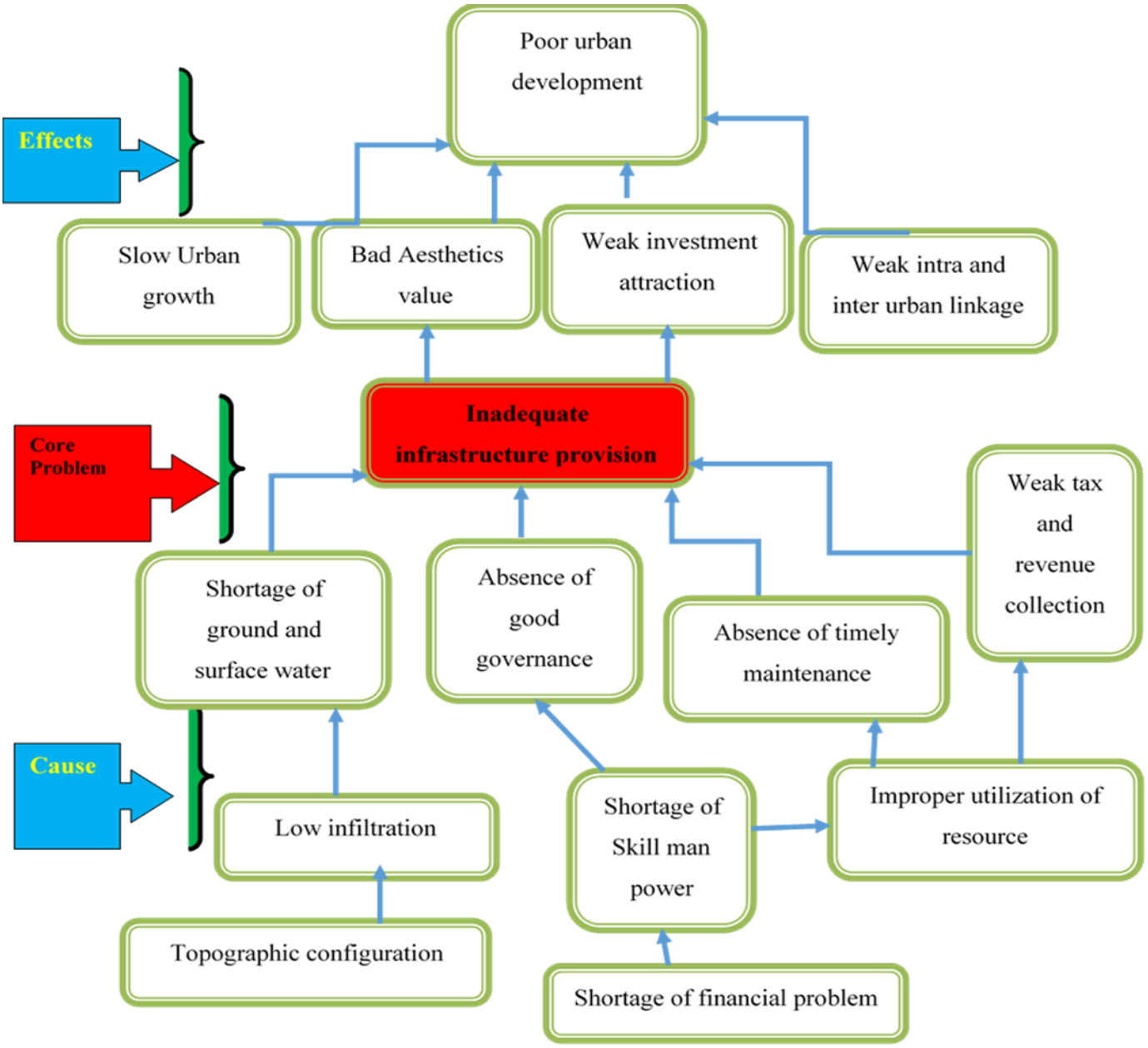

Figure 4. 25 Poor Land Management and Administration System

CHAPTER FIVE

5. Conclusion and Recommendations

5.1 Conclusion

The expropriation of fertile land in Adigrat Town presents a significant threat to agricultural productivity, food security, and the livelihoods of local communities. Current legal frameworks and land use policies inadequately protect against unjust expropriation, necessitating urgent reforms to safeguard these vital resources and promote sustainable land management practices.

A physical analysis indicates a substantial demand for land to accommodate urban growth. Findings highlight an increased flood risk during summer months, exacerbated by geographic constraints, insufficient vegetation cover, inadequate infrastructure, and a lack of essential services. High unemployment rates, an imbalance between housing demand and supply, and minimal private investment further complicate the situation.

Infrastructure development is the primary driver of land expropriation (45.45%), followed by the establishment of schools and health centers. The legal authority for these expropriations stems from the land regulation system (60.38%). Land is typically taken for commerce, administration, and infrastructure services. However, the expropriation process is often arbitrary (35%), with compensation provided in only 30% of cases, and 43.3% of respondents deeming it unfair. Property value assessments primarily consider current productivity (36.36%), and while individuals are informed six months in advance (65%), compensation frequently falls short of covering the associated social, environmental, and economic costs (40%).

The impacts of land expropriation are profound. Survey results indicate significant consequences, including loss of rural farmland (63.63%), decline in agricultural production (61.81%), unsustainable growth (61.81%), and high unemployment among farmers (61.8%). Post-expropriation, 71.81% of affected individuals find themselves unemployed, with only 12.2% becoming self-employed. While 49.39% relocate within the area, 25.15% move elsewhere in the town. Initial reactions to expropriation are predominantly negative, with 32.12% feeling very frustrated.

5.2 Recommendation

To achieve its urban development goals while preserving vital agricultural resources, Adigrat Town should adopt a strategic approach focused on efficient land use and structured urban expansion. The primary strategy involves prioritizing the development of vacant and underutilized spaces within the existing urban fabric. This "infill-first" policy minimizes the consumption of fertile agricultural land and promotes sustainable growth. Complementing this, urban development should be directed vertically through high-rise cooperative housing and public services, which accommodates population growth without sprawling onto valuable farmland.

Spatial planning must strategically direct new expansion towards non-fertile lands, such as mountainous areas suitable for resorts, to shield productive agricultural zones. This should be paired with initiatives to regularize informal settlements, providing residents with secure land tenure and access to essential services, thereby fostering an inclusive urban environment.

To underpin these spatial strategies, robust policy and institutional frameworks are essential. This includes strengthening legal protections to ensure expropriation is based on due process and fair compensation, and implementing zoning regulations that formally designate high-value agricultural areas as protected zones, supported by economic incentives for farmers.

The success of these measures' hinges on enhanced governance. This involves capacity-building programs to equip local stakeholders with skills in sustainable land management and participatory planning, alongside establishing strong monitoring and enforcement mechanisms to ensure regulation compliance.

Finally, sustained public awareness campaigns are crucial to educate the community on the value of fertile land and foster a collective culture of stewardship. This integrated strategy of strategic land use, supportive policies, and active community engagement will enable Adigrat Town to build a sustainable and resilient urban future while safeguarding its agricultural heritage.

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Appendix Question for Experts or Expropriators

Personal background

1 sex

A. Male B. Female

2.Age

A .18-25 years old C. 30 – 45 years old

E. > 64 years old

B. 25-30 years old D. 45 – 64 years old

3. Educational background

A. ≤ 12 grade C. diploma

B. certificate D. degree and above

4. work experience?

A. < 5 years C. 15 – 20 years E. > 25 years

B. 5-10 years D. 20 -25 years

5. What is your profession or field of study?

A. urban planning B. architecture

C. civil engineering D. surveying

E. Land administration F. if other specify

6. have you ever participated in land expropriation process?

A. Yes B. No

7. if your answer for question number 6 is yes what procurers did you followed?

A. arbitrary way of land acquisition

B. based on detail assessment of economic and environmental impacts

C.by giving compensation

D. forceful land taking

E. specify if other

8. what challenges had you ever faced during land takeover from the land holders?

A. unwillingness to give their lands for public purpose

B. complain of about the amount of compensation

C. difficulty due to pay high amount of compensation for cactus plants

D. if other specify

9. For what purpose did you use the expropriated land?

A. For infrastructure
B. For school
C. For parks
D. Specify other

10. what legal authority does the government have to expropriate the land?

A. Eminent domain
B. Land regulation system
C. Negotiation
D. Specify if other

11, How fair is the market value determined for compensation?

A. Very fair
B. Fair
C. Moderate fair
D. Unfair
E. Very unfair

12. What methods are used to asses the value of property being expropriated?

A. productivity of crop per hectare, and productivity per hectare/price.
B. Fruit production per number of plantations
C. Asset the current value of the productivity
D. All the valuation method
E. Specify of any

13, what rights do property owners have during the expropriation process?

Are there any opportunities for public input or appeals?

A. local authorities
B. zonal authorities
C. external lawyers
D. or other

13. what is the process for notifying property owners about expropriation?

How and when will property owners be informed of the expropriation?

A. Before 1 month
B. Before 3month
C. Before 6 months
D. Before 1year
E. Specify other

14. how property owner notified during land expropriation

A. via public discussion

B. through public media

C. through focused group discussion

D. home to home distribution of broachers.

E. specify if any?

15, what options do property owners have if they disagree with expropriation?

_____

_____

_____

_____

_____

16, how will the expropriation affect the surrounding community?

17. What are the potential impacts on local residents and businesses?

18 are there any provisions for relocation assistance?

If property owner must move, what support will be provided?

9, what will happen if the land is not used for the intended public purpose?

Are there restrictions on how the land can be used after expropriation?

10, how long does the entire expropriation process typically take?

A. 6 months
B. 1 year
C. One and half year
D. Two years
E. > two years

11, what are the environmental considerations associated with expropriation?

12 what roles do local governments play in the expropriation process?

How do state and local laws interact regarding land expropriation?

APPENDIX QUESTION FOR THE RESIDENT'S RESPONDENTS /EXPROPRIATEES/

Questioner for individual respondents

Background information

Personal background

1 sex

B. Male B. Female

2.Age

A. < 15 years old C. 30 – 45 years' old

E. > 64 years' old

B. 15-30 years old D. 45 – 64 years' old

3. Educational background

A. Illiterate C.1-5 grade B. 6-8 grade D. 9-12 grade E. >12 Grade

4. How long have you been living or working here?

A. < 5 years C. 15 – 20 years E. > 25 years B. 5-10 years D. 20 -25 years

5. What is your job currently?

A. Trade B. Government employed

C. Private employed H. Pension D. NGO employed I. Theologist or priest E. Unemployed J. Washing Holly-water F. self-employed

G. Housewife

6, do you have any awareness about land expropriation?

A. Yes B. No

7. if your answer for question number 6 is yes for what reason does the government expropriate the land?

A. for road infrastructure

B. For the construction of health center

C. For educational service

D. For religious institution purpose

E. For public recreation purpose

F. For housing purpose

G. if other specify

8.for what purpose or function did you use the land before the government expropriated it?

A. for crop production

B. for cactus plantation

C. fruit production

D. Dairy farming and poultry.

E. eucalypts plantation

F. if other specify

9. does the government pay adequate compensation when the government expropriate your land?

A. Yes B. No

10. if your answer for question number 9 is No why do you think the government does not pay adequate compensation?

A. the government has lack of financial capacity to pay satisfactory compensation.

B. the estimation method set out in land regulation does not allow to pay adequate compensation?

C. the compensation standard does not match with current monetary value or inflation?

D. due to technical incompetency of government experts who estimate the compensation?

E. if other specify

11. how much land does the government expropriate from your land holding till this day in m2.

A. from 2000E.C – 2005E.C———————————

B. from 2006E.C-2010E.C———————————

C. from 2011E.C-2015E.C———————————

D. from 2016 onwards ———————————

12. what are the major jobs of farmers post expropriation

A. daily labor

C. Farming on your land in another area
D. Housing rent
E. Farm on rented land
F. Guarding
G. No jobs

13. what was your feeling after your land is expropriated by the government?

A. satisfied

B. unsatisfied

C. very unsatisfied

14. how much is the Impacts of urban expansion and associated expropriation on agricultural livelihood.

I. In Loss of available rural farmland

A. low

B. Very low

C. Medium

D. high

II. Loss and decline of agricultural products (such as crops, livestock, and other assets)

A. low

B. Very low

C. Medium

D. high

III. Unsustainable livelihood

A. low

B. Very low

C. Medium

D. high

IV Unemployment

A. low

B. Very low

C. Medium

D. high

V. Food insecurity

A. low

B. Very low

C. Medium

D. high

VI. Conflict and weak social bonds

A. low

B. Very low

C. Medium

D. high

14.how do you mobilize during the exportation process and where did you relocate?

A. relocated to the near by rural areas

B. relocated to other parts of the town

C. resettling in that area

D. if other specify

15. What challenges do you faced after you relocated?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

16. What was your initial reaction when you hear your land will be expropriated?

A. very frustrated

B. frustrated

C. feel nothing

D. feel happy

17 final reflection

Closing thoughts

Either anything else you would like to share about your experience?

What message would you like to convey to decision makers regarding land expropriation?