



**ETHIOPIAN INSTITUTE OF ARCHITECTURE, BUILDING
CONSTRUCTION AND CITY DEVELOPMENT THE QUEST
FOR PLANNING MODELS TO ETHNICALLY ENCLAVE
GAMBELLA CITY, ETHIOPIA**

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ACRONYMS

BOFED	Bureau of Finance Economic Development
CFA-SEM	Confirmatory Factor Analysis –Structural Equation Model
CFI	Comparative Fit Index
CSA	Central Statistic Authority
DFA	Development Facilitation Act
DRC	Democratic Republic of Congo
ECSU	Ethiopian Civil Service University
EDF	Ethiopian Defense Force
EPRDF	Ethiopia People’s Revolutionary Democratic front
FGD	Focus Group Discussion
FDRE	Federal Democratic Republic of Ethiopia
GPNRS	Gambella People’s National Regional State
GPLF	Gambella People’s Liberation Front
GPLM	Gambella People’s Liberation Movement
GIS	Geographical Information System
GTP I&II	Growth Transformation Plan one and Two
HH	Household
IDP	Integrated Development Plan
KII	Key Informants Interview
MEDC	Ministry of Economic Development and Cooperation
MoFed	Ministry of Federal Affairs
MLRM	Multinomial Logistic Regression Model
MUDH& C	Minister of Urban Development Housing and Construction

MWUD	Minister of Work and Urban Development
LD/NP	Local Development Plan or Local Neighborhood Plan
LI	Land Inventory
LUI	Land Use Inventory
NUPI	National Urban Planning Institute
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
RDP	Regional Development Plan
RMSEA	Root Mean Square Error of Approximation
SEM	Structural Equation Model
SNNRS	Southern Nation and Nationality Regional State
SPLM/A	Sudan people's Liberation Movement/Army
SS	Safety and Security
TLI	Tucker Lewis Index
UDF	Urban Development Framework

ABSTRACT

The study explores planning models for the ethnic enclave of Gambella City, Ethiopia. An ethnic enclave is a residential area where a high concentration of the same ethnic group is often observed. These settlement areas may have formed voluntarily or involuntarily. In Gambella, an ethnic enclave refers to the concentration of the same ethnic group in specific areas of the city's spatial space. The factors associated with the formation of ethnic enclave and its implications on the development were unclear to many people since 1907. It never been under consideration before, even though ethnic enclave settlements are not new to other parts of the world. The study aimed to explore the factors associated with ethnic enclave settlements, their implications on development, and their segregation levels. The study also aimed to examine the policy and planning models in place since the formation of Gambella and develop a suitable protocol for the city. The study used a mixed approach for data collection, which included both qualitative and quantitative data. The population of the study was drawn from 65,091 (CSA, 2018 population projection) with a household of 16,129. To select the target population for this study, researchers used the Kothari (2004) formula, resulting in 500 households for the survey. Data collection was done using simple random sampling techniques and purposive sampling, supported by land inventory (2016). Observations, interviews, and focus group discussions were the main sources for data collection. Data analysis was carried out using RStudio (2020 and 2021) with a slight use of GIS 10.4. Descriptive from multinomial logistic regression analysis (MLRA), multi-regression analysis, and spatial visualization utilized for analysis. The data presentation was done through tables, graphics, box plots, jitter plots, descriptive visualizations, and interpretations. In simpler terms, ethnic enclave settlement in Gambella City is associated with demographic, socioeconomic, location preferences, and human actions that attract and forced residents to cluster. The consequences of ethnic enclave settlement in Gambella City include variations in sociospatial, economic, environmental, and infrastructure development. This amplifies a high level of residential segregation due to the rapid changes in social, spatial, economic, and political dimensions from ethnic enclave settlements. Moreover, the lack of clear policies and guidelines for residential settlement exacerbates the effect of enclaves in Gambella city. To ensure livability and sustainable development in Gambella City, the best approach would be to implement an inclusive multicultural city Kuajang planning model a mixed of Salad bowl and melting pot suitable for the ethnic enclave city. This model should aim to promote diversity and integration among different ethnic groups, creating a more cohesive and harmonious community. By addressing spatial and non- spatial segregation, Gambella City can work towards a more equitable and inclusive environment for all residents. This approach would involve creating mixed-use developments that cater to the needs of various ethnic groups, promoting interaction and understanding among residents. Additionally, investing in infrastructure and public spaces that are accessible to all residents as the is considered a property owned by every resident. This can help foster a sense of belonging and unity in different in the city. By embracing diversity and implementing inclusive policies, Gambella City can truly thrive as a multicultural hub where all residents can live, work, and play together harmoniously.

Keywords: Gambella city, Ethnic enclave, Development spectrums, Segregation, inclusive multicultural planning model

CHAPTER ONE

1. Introduction

1.1 Background of the study

An ethnic enclave is a location within a city where residents with similar ethnic backgrounds tend to cluster (Sen. A., 2013; Harris, C.T., 2013). It is an area where people from the same ethnic groups interact with the broader city system (Kim,A.H, & White M.J., 2010). These areas offer resources and social networks that can help new immigrants integrate into the economy (Maani S., 2016). They are communities within a city with densely packed homes and a high level of ethnic concentration (Kim J., 2018). Such communities can be found throughout the world, and factors that bring people together include the ability to benefit from payments by family businesses, security concerns, specialized markets for ethnic goods, and access to loans to start new businesses.

The creation of these settlements can be voluntary or involuntary, and they are influenced by various factors. The depth of ethnic concentrations and dynamic cultures in cities has led to several effects, such as segregation, discrimination, crime, and inter-ethnic conflict among residents. The varied and complicated histories of people in the city present a challenge to the population residing in the city. Furthermore, the fear of locals who perceive outsiders as a danger to their way of life, health, career opportunities, and religious beliefs also forced enclave settlement (Bakri et al., 2014). Other cultural and racial groupings are seen as the dominant residents in the localized communities and ethnic businesses established by immigration groups in new cities. These magnified an ethnic enclave settlement formed by an interest in local culture and economic and political growth. This also has a lot of implications that can be either positive or negative.

Ethiopia is one African country where ethnic enclaves are believed to exist, but there is little scholarly work on the subject. Although the country's rapid urbanization, ethnic diversity, and ethnic federalism can be counted as calling for the emergence of ethnic enclaves, few scholars have focused solely on their studies.

In Ethiopia, cities like Dire Dawa, Hawassa, Gondar, and Bahir Dar, as well as Addis Ababa, have become hubs that house people from diverse ethnic backgrounds. In these significant cities, studies on peri-urban development, rapid urbanization, squat and informality, and urban poverty were among the focus of researchers (Geneye, 2016; Megento, T., 2013; Kassahun and Tiwari, 2012; Assefa, B., 2020).

These studies have largely overlooked the existence of ethnic enclave settlements in Ethiopia. The concentration of the same ethnic groups in the city spatial space has been given weak attention, despite it being a problem to Gambella city development spatially and not spatially.

Historically, Gambella was formed as an enclave for commerce that exchanged various goods between Ethiopia and Sudan (Bell St., 1988). However, the city changed from being a commerce enclave to an ethnic enclave, but the cause and factors behind this change were unclear to many who resided in the city. The move from a trade enclave to an ethnic enclave destabilized the city's growth and diminished its potential, causing the best city trade practices to fade away.

Despite numerous studies that focused on urbanization, migration, inter-ethnic conflicts, urban sprawl, and informal settlement patterns in Gambella (Pal K.M, 2019, Jal G.R, 2014, & Feyessa, 2011), the concentration of the same ethnic group in spatial space and the effects of the expansion of ethnic enclaves were not given much consideration in Gambella. This lack of recognition for enclave settlement impacted settlement patterns with a lot of consequences for Gambella city development. Moreover, the absence of a policy on diversity, dispersal and regulation on settlement positioning in urban spatial space increased the ethnic enclave problems.

To fully understand the ethnic enclave of Gambella, to answer important questions such as why an ethnic enclave is the only practical kind of habitation in Gambella City, what gave rise to this specific ethnic settlement, whether the emergence of an ethnic enclave is a threat to Gambella City's growth or an opportunity, and what impact ethnic enclaves have on the standard of living of residents and other stakeholders residing in the city. Therefore, to regulate ethnic enclave settlement, planning can play a tremendous role, as planning has the potential to connect, coordinate, and articulate several sectors responsible for the management, application, and control of various resources in the city (Garret M. and Taylor B., 1999).

However, poor planning that did not recognize ethnic enclave settlements for Gambella still questions the planning model that has been in use since 1907. In this regard, to maximize the implications of an ethnic enclave and make Gambella City a sustainable form of human settlement and growth, this dissertation explores a more general aspect of ethnic enclave settlement and includes opinions from several academic fields such as economics, politics, topography, urban planning, sociology, and environmental science. It explores the associated factors, and implications of the ethnic enclave on the development of Gambella City, level of ethnic segregation and proposes a favorable planning model. The paper is organized in five chapters, including an introduction, a review of relevant literature, a methodology section, results, and discussions that includes concludes and recommendations. Moreover, it also suggests for further research and future perspectives on issues that still need to be explored.

1.2 Statement of the Problem

There are numerous delineations for ethnical enclaves. Frequently, ethnical enclaves used to describe the attention of ethnical groups in a particular region. An ethnical enclave is a neighborhood's geographic attention of emigrants and co-ethnic people, as well as a position with distinct social and profitable structures from the girding area and an attention of profitable exertion (Espinoza- Kulick et al., 2021). In the strictest sense, ethnical enclaves are areas where a significant portion of the population is members of one ethnical group, generally business possessors.

The conformation of metropolises in Ethiopia has been underway for numerous times, with different planning alignments being considered grounded on the government structure at that time (Appelhans, 2017). In recent times, Ethiopia has espoused federalism, which is nearly aligned with a strong sense of race, leading to counter policy accusations nationwide. Rapid urbanization with high speed influenced the current concentration of residents that are shaped by ethnocentric politics and a sense of identity devastated the Ethiopia urban settlement policy.

Unfortunately, the majority of these residents found to live below the poverty line, in an unplanned cities settlement zone. For them to manage with civic life in cities, clustering of residents is prompt and suitable, they form enclave. Still, these enclaves aren't well known to a city administration in numerous corridors of Ethiopia, displayed by Gambella city.

No matter how Gambella City is an old city from its inception that was developed numerous times ago; with a lot of resources that declined through time as the city saturated. The city attracts numerous individualities from numerous corridors of the country. It's being convenience to the Gambella National Park, its support for cross-border trade, its provision of social services, and its capability to host investors from colorful corridor of the country marked the rapid urbanization. Also, being a border city with Ethiopia's only uninhabited River conveyance system has handed several impulses for people to settle in Gambella. Since the establishment of the trade enclave, different ethnical groups, as well as public confederations, have made Gambella their home (Nur, T.H, 1971, Bell St. 1988). Moreover, the EPRDF- led government development strategies makes Gambellians more urbane. Access to social structure infrastructures (academy and health services) and work in the business sector attract many residents to come to Gambella. From then, the attention and competition of the same ethnical group started in the city and a serious demand for development activities displayed with a lot of consequences.

Since the establishment of the trade post, the shift from a trade enclave to an ethnical enclave has not been honored by policymakers and civic programs. Ethnical enclave settlement clear-cut to live in numerous Ethiopian metropolises never receive more focus from the previous studies. Not only its formation isn't only unclear by its cause, its effect on a city development is yet indistinguishable. Also, its position on residents' segregation so far haven't been identified. Consequently, the attention of one race in spatial space made residents more narrow- inclined attitude, withdrawn, and more conservative, and less likely to work towards the common good of the city. This lack of knowledge about the actuality of clustered residents on an ethnical base increase in a significant level the socio- spatial inequalities, which have weakened social cohesion, profitable growth, and reduced infrastructure development. added, it increases a high position on denial on access to city services among major and minor residents residing in the city.

In this regard, the normal process of development in Gambella is hypothesis as it is affected by the ethnical enclave agreement that makes Gambella way of live harsh as weak development magnified. To make Gambella embraces diversity in its development, programs, and designs; the planning models that fits ethnic enclave city like Gambella are demanded to regulate the being domestic agreement patterns and address the undesirable goods of enclave agreements. The

study aims to probe the counter accusations of ethnical enclave settlement on the socio- spatial, economy, environmental, and infrastructure development inequality of Gambella. It's also identified the segregation level and challenges faced by residents on the elastic of change from the economic, sociospatial and political form of ethnic enclave settlement and propose strategies for peaceful concurrence and communal development, both spatially and non-spatially.

1.3 Objectives of the study

1.3.1. Main objective

To explore the implication of ethnic enclave settlement in the development of Gambella city and the planning model that fit the phenomenon.

1.3.2. Specific Objectives

1. To explore factors associated with the formation of ethnic enclave settlement in Gambella city.
2. To examine in-depth the implications of ethnic enclave settlement on the sociospatial, economic, environmental and infrastructure development.
3. What is the level of ethnic segregation among residents spatially, socially, politically, and economically?
4. To investigate the residential settlement policy and planning model for Gambella since 1907.

1.4 Hypothesis

The hypotheses presented offer a comprehensive framework for understanding the dynamics within ethnic enclaves. Hypothesis-1 suggests a relationship where increased economic interactions could lead to a more integrated community, potentially reducing spatial segregation.

This could be due to shared economic interests fostering greater social interaction and understanding. Hypothesis-2 indicates that environmental factors may impact enclaves differently, possibly due to variations in geographical location and resource accessibility. Hypothesis-3 posits that strong sociospatial ties within an enclave could enhance social cohesion and mitigate conflict, highlighting the importance of community bonds. Hypothesis-4 implies that the state of infrastructure within enclaves is not only a reflection of economic conditions but

also of the degree of isolation from broader societal systems. Finally, Hypothesis-5 acknowledges the multifaceted nature of growth within enclaves, recognizing both the internal cultural dynamics and the influence of external socio-economic forces. Together, these hypotheses underscore the intricate interplay between economic, environmental, social, and infrastructural factors in shaping the life within ethnic enclaves.

These hypotheses and predictions provide a theoretical framework for developing planning models for Gambella City. They would need to be tested and refined based on empirical data and local context. The equations presented are simplified representations and would likely need to be adjusted to accurately reflect the complex realities of urban planning in an ethnically enclaved city.

Variables

Dependent Variable = ethnic enclave settlement

Independent Variables = economic, environment, sociospatial and infrastructure factors

Predicted hypothesis equation

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + e$$

Y = dependent factor

X₁, x₂, x₃, x₄ = all independent variables

B₁, B₂, B₃, B₄ = the scale or probability that factors influence or affects the dependent variable.

E = error

1.5 Scope of the study

1.5.1. Thematic scope

The city of Gambella, located 776km away from Addis Ababa, Ethiopia. It is the Gambella regional state capital recognized as the spatial for this study. The city has a population of approximately 65,091 people and an average household size of 16,129 (CSA, 2018 projection cited GCSP, 2018). The community is diverse, with residents hailing from several ethnic groups, including Anywaa, Nuer, Majang, Komo, and Opo, among others. The study focused on various aspects of life in Gambella City, including socioeconomic, physical, cultural, and environmental

factors. The study explores the impact of social contact and racial networks, as well as conflicts, environmental concerns, and cultural features, that happened from residents' daily lives. The study was centered around the effects of ethnic enclave settlements on four growth axes and the need for a planning strategy to address the negative trend. Ethnic enclaves resulted in change on economic, social, political, and spatial segregation in city. These problems happen from urban land and planning problems, crime, and resistance to structural plan execution. The study highlighted both positive and negative effects of ethnic enclaves on the socio-spatial, economic, environmental, and infrastructure development of the city. These elements were all considered as part of the analysis of the impact of residential ethnic enclave growth in Gambella City.

1.5.2. Spatial scope

The study focuses on Gambella City, which covers an area of 1727.6 hectares and is mainly elongated through the main roads from Itang and Dembedolo roads extended to Mettu and Addis Ababa highways North to Southeast of the city. The city is divided into three parts: the first part is the old enclave of Gambella, where a seasonal stream that historically divided the city into two parts, with Kebele 03 and 04 located is the old enclave for Sudan. This part was under the British colony now a day counted as Kebele 03 and 04. On other hand, Kebele 01 and 02 under the Italian colony was one counted as Ethiopian enclave. The JabJabe Bridge connects the two parts of the old enclave, while the Baro Bridge, or "Openo Bridge," connects the third part which is still as an emerging settlement area with rapid development. All residents living in these areas were considered for this study. particularly, all plots and residents included in 2016 Land inventory, mark the inclusion.

1.6 Significance of the study

This research has great value in addressing the weak development of Gambella City caused by existing ethnic enclave settlements. The study defines ethnic enclaves and their impact on the development of the city, including the relationship between ethnic enclave and changes in spatial, social, economic, and political factors that defined the segregation. This dissertation discusses the formation of ethnic enclaves and their role in city development. It also evaluates the efficacy of urban development and planning policies in the enclave city of Ethiopia. The findings contribute to the literature on the ethnic enclave theory by magnifying the existence of ethnic enclave settlements in Ethiopia and its effect to Gambella city.

Examined the relationship between development spectrums and ethnic enclave settlements using the CFA-SEM analytical framework, analyzed the disadvantages and advantage of ethnic enclave on development spectrums of Gambella. The study also considered Ethiopia's urban development policy for its recognition to ethnic enclave settled city like Gambella. The mismatch between ethnic enclave settlement and urban planning practices and guidelines was examined so that a new policy framework could be developed to respond to the devastation caused by ethnic enclave settlement.

The study suggested the need for new methods of handling ethnic enclave settlements. The research explored the complex nature of ethnic enclave settlement in the development spectrum, by considered factors associated with its formation, its implications (positive or negative), the segregation in the city from the enclave settlement, and planning and policy mismatches that exist in the enclave city. Moreover, the study also discussed ethnic enclave settlement views around the world, with a focus on sub-Saharan Africa. It augmented the previous theoretical work on ethnic enclave and furthered the development of the research. The study established some empirical evidence about the area under study, which has the potential to enrich future research on ethnic enclave settlement and planning. In this manner, the research developed a new focus area with research questions and magnified the area of future concern, which shows the direction for future research.

The study developed a CFA-SEM framework to analyze how ethnic enclave settlements affect development spectrums. However, it did not use a regular numbering system of measurement that define ethnic enclave settlements that was traditionally used by many researchers. Survey, interview and observed on current city spatial space mark the existence of ethnic enclave settlement. This was supported by the land inventory (2016) data. GIS 10.4 and RStudio (2020 and 2021) was used as an analytical tool for policymakers and urban professionals to understand the ethnic enclave settlement situation. This make them to design an integrated and mixed response which is comprehensive and realistic.

A multinomial logistic regression and multiple linear regression analysis were the analytical techniques to measure the associated factors that magnified the origin of ethnic enclave settlement and the implication of ethnic enclave of the development of Gambella City. This research contributes significantly to the body of scientific knowledge by exploring the

uniqueness of ethnic enclave settlement in Gambella, one small urban center in Ethiopia.

The study also helps developers who wish to analyze spatial settings based on RStudio (2020 and 2021) by utilizing multiple linear regression analysis and multinomial logistic regression analysis. It will serve as a resource for future scholars and policymakers in the development and management of integrated urban planning strategies that will improve city development and management through diverse citizen participation planning that is inclusive of all inhabited ethnic groups. Furthermore, this study will inspire other professionals to conduct similar research in other Ethiopian cities where ethnic enclaves are prevalent and practiced.

1.7 Research limitations

The study conducted in Gambella City analyzed only four specific development spectrums and did not consider the overall implications of ethnic enclave settlements on Ethiopian cities. The study did not examine the relationship between ethnic enclave settlements and poverty, as well as slum and squatter settlements. The municipal and related institutions had inadequate secondary source records due to the lack of a well-organized system that maintains records and up to date information on spatial spaces. There is also a shortage of specialized manpower in the field of land information systems like those with good skills in GIS and other software development. Moreover, data on residential records, city morphological growth measurements, and spatial segregation were recorded poorly.

There is no proper record of historical data on existing monuments, and the city lacks proper instruments for data collection and urban planning.

The hot weather in Gambella City also affected the study's progress, as the majority of personnel worked no more than four hours in the office during the hot season. Furthermore, the weather change and the government's declaration to work the morning and afternoon shifts from 6:30 a.m. to 11:30 a.m. and 4:00 p.m. to 6:30 p.m. were viewed as setbacks from absent of some key personnel in their respective offices. Nevertheless, suspicious resulted from safe working environment as security is a big concern in Gambella, marked the circumstance. Main challenges encountered during this research project from offices was the difficulty of scheduling meetings and ensuring punctuality among the individuals involved. In particular, it was often difficult to

find the municipality's workforce during office hours. Another limitation was the regional governor's refusal to participate in an interview, which would have been valuable in informing the proposed policies for Gambella City and understanding the impact of ethnic-based settlement. As the head of executives, his contributions were sorely missed.

Additionally, the global coronavirus pandemic posed obstacles to the research, and conducting ethnicity-related studies required sensitivity to time-limited exposure, free expression, and individual attitudes and feelings. Complicating matters further was the political situation in the country, which contributed to high levels of suspicion, mistrust, and negative perceptions among respondents. However, the study was able to overcome these limitations by providing more clarity and guidance to participants and assuring them that their participation was safe. Moreover, the interesting part; many respondents that participated were positive and interested to respond to the subject matter as they count ethnic enclave a big concern to Gambella city development. Despite the challenges, well heartened to find that many respondents felt passionate about the issue of ethnic enclave settlement in Gambella City. They were willing to share their knowledge and experiences. Data collectors played an important role in building trust with residents and collecting accurate information.

1.8 Organization of the document

The dissertation is divided into five chapters, with the first chapter containing an introduction, a statement of the problem, the objectives, research questions, scope of the study, importance, research restrictions, a description of the study area, and an explanation of how the document is arranged. The second chapter reviews the theories and ideas related to the design and settlement of ethnic enclaves. The third chapter discusses the methodology of the study, ethical issues, dependability, and validity. The fourth chapter includes the findings and discussions of the study. The conclusion and suggestions of the paper are included in the last section. Moreover, several articles that were developed from the primary objective in accordance with each particular aim and research question were also deemed to be part of this document. Based on the unique goals of each article, the theoretical frameworks, research methodology, findings, and conclusions for each have also been produced. The articles that make up this thesis each have a distinct structure and goal that stem from the overall goal of the thesis. Based on the unique goals of each article, the theoretical frameworks, research methodology, findings, and conclusions for each have also

been produced and are included in the annex of this paper.

CHAPTER TWO

2. Literature Review

The planning model and the implications of ethnic enclave settlement are discussed in this chapter, along with a survey of the relevant literature. Additionally, it evaluates the knowledge gaps regarding ethnic enclave settlement in Ethiopian metropolitan areas. Along with some archival and historical material that can elicit verification of the notion established for the aim of the study, this will be presented experimentally and conceptually.

2.1. Theoretical and Conceptual review on Ethnic enclave settlement

Place attachment theory, just theory, and multicultural theory are among the theories taken into account in connection with this study. These theories were included in this study because they have the ability to enhance and help accomplish the predetermined objective of ethnic enclave settlement and enclave city planning for development.

I. Place Attachment Theory

Cultural diversity has emerged as a significant consideration for urban planners worldwide. Place attachment theorists argue that early experiences profoundly shape an individual identity and preferences in selecting certain urban space for settlement (Morgan, 2010). Place attachment is the emotional bond between individuals, groups, and their living spaces (Tonge J. et al., 2015). According to the Tripartite Model by Scannell and Gifford (as cited by Pfeifer, M. J., 2018), the three Ps—person, process, and place—are key factors in place attachment. Thus, place attachment theory is crucial for understanding the reasons behind Gambella residents' association with enclaves. The settlement of ethnic enclaves in Gambella is shaped by personal character and location preference as attractive force to ethnic enclaves.

II. The just theory

The fundamental idea is that any distributional concept of social justice is inherently connected to the broader lifestyle in which individuals participate (Smith 1997). Despite the absence of universally recognized definitions of good and evil, there are no criteria to determine what is better or worse (Fainstein 1997). Moving away from the state-centric bureaucratic welfare state model, just city theorists advocate for an urban vision that not only encompasses material well-

being but also relies on a more pluralistic, cooperative, and decentralized approach to welfare provision (Espinoza-Kulick et al., 2021).

Radical Democrats adopt a contentious view of society and envision participation that goes beyond stakeholder engagement to include governance by civil society. They argue that progressive social change only happens when those previously marginalized by power leverage their position to wield influence. Participation is the vehicle for this power to manifest. In this light, urban planning and development theories for ethnic enclave cities—Just theories—are critical for understanding the impact of ethnic enclave settlements on the development trajectory in Gambella city. The influence of ethnic enclaves is amplified spatially, socially, economically, and environmentally in both positive and negative ways; however, just planning can reveal potential urban solutions.

III. Multicultural theory

The growth of a city, which often includes a variety of ethnic groups, shapes the form and size of an urban center. Multiculturalism theory provides a normative framework for the protection of minority rights and addresses national political ideologies regarding citizenship and ethnic identities in many Western nations (Sandercock and Brock, 2009). It also acts as an ideology that protects indigenous peoples, sub-state national groups, and immigrant communities (Kymlicka, 2010). Additionally, it is viewed as a concept of justice that highlights the rights of individuals and groups from diverse cultural backgrounds, acknowledging and combating the oppression that minorities experience due to cultural differences with dominant groups (Modood T, 2017).

Multiculturalism evolves from the "melting pot" or "salad bowl" theories. The "melting pot theory" suggests that various immigrant groups will blend together, abandoning their distinct cultures and eventually assimilating into the dominant society (Condra J., 2013).

The Melting Pot theory symbolizes the blending of individualities, encompassing traits of immigrant religion and race, like chips of brass in a melting pot within a "democratic alembic" (Coan, 1875). It encompasses the fusion of immigrant and host lifestyles, converging to form a shared way of life that perpetually evolves (Meier, 2019; Park & Burgess, 1924; Woofter, 2019).

The Melting Pot theory has been heavily criticized by alternate integration and assimilation theories such as the Salad Bowl. However, it does have its advantages. It strengthens the concept of citizenship by creating an environment that integrates different ethnicities to celebrate national pride under a single banner. As Miller (2005) stated, Citizenship provides a reference point. Our personal lives and commitments may be very different, but we are all equal citizens. It is as citizens that we advance claims in the public realm and assess the claims made by others. Expanding citizenship through the Melting Pot theory allows for the inclusion of different ethnicities and their values in the national identity (Berray M.,2019). By doing so, it breaks away from the idea of a singular homogenous identity attached to nation-states. Instead of emphasizing a singular national identity represented by one federal government, a single national flag, a defined territory, and a passport, the Melting Pot theory redefines this concept to include multiple identities fused together under a single national emblem. This approach fosters a sense of community and social solidarity, promoting a richer and more inclusive national identity.

From this ground a "salad bowl theory" that is more liberal approach to multiculturalism than the melting pot, portraying a heterogeneous society where people coexist while maintaining some unique aspects of their traditional cultures (Thomas L.,2011). The concept of the salad bowl Theory stresses the importance of preserving the unique identities of individuals, which would otherwise be diluted by assimilation (Berray, M.,2019). Preserving the unique identities and independence of ethnic groups while allowing them to thrive alongside dominant cultures alleviates the need to conform to the homogeneous identities suggested in the Melting Pot theory. It is crucial to acknowledge that such homogeneous identities fail to equally represent the diverse constituent identities. One of the key advantages of the salad bowl theory is that it validates and embraces the diverse identities and cultural distinctions present in a multicultural society.

Therefore, the rise of ethnic enclave settlements in Gambella has highlighted the need for a planning approach that keep the texture of diversity of residents residing for proper urban development. A mix of inclusive multicultural urban planning from Melting pot and salad bowl theory that respect justice on the resource can lead to a new urban form as it tackles both spatial and non-spatial issues arising from ethnic enclaves. City planners, policymakers, and developers should focus on comprehensive planning to construct a city that is truly inclusive in all its prospectives.

2.2. Conceptual review

The term "ethnic" refers to a distinct group of people sharing a common nationality or culture (Espinoza-Kulick et al., 2021). However, ethnic enclaves are a significant topic among sociologists, economists, and urban planners (Sullivan, 2012). From prospectives; there is no universally accepted on the criteria that constitute an ethnic enclave from one country to another. According to Bugg (2013); an ethnic enclave is a locality where residents strive to build a community that mirrors their cultural, lifestyle, and social values. Urban ecologies view ethnic neighborhoods as communities with shared cultural practices, situated in densely populated urban areas, sometimes dominating certain sectors of the city's economy (Park, Retal, 1925).

Qadeer and Kumar (2006) define an ethnic enclave as a locality predominantly inhabited by a single ethnic group, which also serves to preserve the unique ethnic character of an area within a city. An ethnic enclave is a concentrated settlement within an urban center, where residency is limited to a specific geographic area, representing a portion of the country surrounded by another nation (Cambridge English Corpus, 2017). Residential enclaves are primarily regions that have self-segregated to protect and promote their economic, social, political, and cultural development (Kaker, S. A., 2014). An Ethnical enclave settlement is an agreement that are supported by an unstable distribution of wealth and political power (Shin J. 2017). They are also counted as religious communities with strong social links more likely to be ethnically homogeneous (Yi and Graziul, 2016). These definitions make it clear that some studies prioritize the examination of people and urban structure, while others concentrate on socioeconomic elements, trends, and demographic roles. Given the varied forms and interpretations of ethnic enclaves across different countries, they must be managed with care.

In Ethiopia, the delineation of residential neighborhoods into ethnic enclaves is not much prevailed. Studies on ethnic enclaves seem to be rare in Ethiopia, but in this context, an "ethnic enclave settlement" is typically counted as an area within a city where an ethnic majority or minority lives in a separate close proximity to one another that created a unified community. These homogeneous communities in certain spatial space, whether through force or choice of individual to location. They are influenced by local fears, segregation, distrust, cultural ties, and economic advantages in the area. Nonetheless, the development of Gambella as a trade enclave has been documented (Bell St., 1988).

These communities often operate businesses that employ individuals from the same ethnicity and those speaks the same language. Therefore, both favorable and unfavorable effects of ethnic enclaves on a country's development, brought variation in the concept and understandings of ethnic enclaves in many countries.

2.3. Factors associated with the formation of ethnic enclave settlement

An ethnic enclave is a community where individuals share the same cultural background or ethnicity. Defined by various factors, including physical and cultural attributes, it provides its members with identity and a sense of belonging. The formation of ethnic enclaves is influenced by multiple factors, such as socioeconomic status, labor market availability, barriers to interaction, and political conditions (Peters C., 2013). Ethnic enclaves are often associated with migrant settlements and the colonization phase in cities worldwide, both in established and emerging nations. In Africa, enclave settlements are distinguished by multifunctional features, including status, personal factors, and concerns for safety and security. The establishment of residential, commercial, and speculative development centers, which combined knowledge, technology, and environmental innovation during the colonial era, significantly impacted the development of enclave cities (Murray, 2015a). Factors such as residential location preferences, gender, income level, and political involvement also contribute to the clustering of like-minded individuals within a specific area (Tarrant and Cordell, 1999). These factors will be detailed in the following section of this study.

2.3.1. Personal factors

Researchers have observed that age, sex, and education level are individual factors that affect the formation of personal networks, which in turn contribute to the development of ethnic enclave settlements. According to Portes and Rumbaut (2014), when immigrant groups are statistically large, ethnic enclaves may form. In this study, personal factors such as age and sex can shape ethnic networks to form enclaves.

2.3.2. Education and occupation factor

Education and job opportunities are significant personal factors that contribute to the formation of ethnic enclaves in many cities. Moretti (2012) notes that the distribution of educational attainment and jobs is unequal across any city's labor markets.

Consequently, for residents to survive in the city, clustering together in certain areas plays a crucial role in an individual's ability to survive and compete. Newcomers often encounter challenges such as limited local language proficiency, social networks, and familiarity with customs and job opportunities. These challenges may compel them to settle in ethnic enclaves (Maani, 2016). Limited access to schools and tenant rights (Teixeira, 2009) are also key factors that promote enclave settlements. Additionally, successful and established members of ethnic communities can serve as role models for new immigrants, inspiring them to invest in their children's education or skill development (Åslund, O., et al., 2011; Chakraborty, T., S. Schüller, 2022; K. F. Zimmermann, 2019).

2.3.3. Location preference and economic-related factors

The formation of enclaves is often attributed to household preferences for location, affordability, and housing type. The choice of location to reside and work and the resulting employment outcomes for new residents are critical factors that influence social integration and economic success. It is widely accepted that the location choices and employment outcomes are significant factors that influence social integration and economic success upon settling in an enclave (Chakraborty, T., S. Schüller, 2022). This is because enclave residents have easier and less expensive access to information on local markets, employment options, security, and specialization in the markets for their products. Immigrants from one ethnic group take over a certain industry, like restaurant jobs, that form "ethnic niches" (Portes and Alejandro, 1998). Businesses owned and operated by ethnic groups in enclaves have access to capital and manpower, offering co-ethnics with opportunities for economic progress are among other advantages that increase the size of enclave as they attract (Port et al., 1986).

Furthermore, a significant excess of migrant labor and a concentration of capital mark the ethnic enclaves (Portes and Rumbaut, 2014). Co-ethnics lend a hand to one another in the workplace, give recommendations, and impart skills as they settle into an enclave. Moreover, they have access to and availability of startup capital for self-employed people and can gradually transition into the mainstream economy by serving the needs of new residents. The establishment of Gambella city since 1902 as business center draws many nationalities from different parts of the country to settle in Gambella city for doing business; they invited their co-ethnic to come and work. They start businesses and accommodate capital slowly, eventually becoming self-reliant.

Friends and relatives have the potential to help newcomers easily access where to find work, the amount of income, and the types of occupations and places to work in and to avoid.

Location wide, immigrants may voluntarily sort spaces according to preference for places with a high concentration of peers from the same ethnic background, speaking the same language (Borjas, 2000). In Gambella city, the concentration of the same ethnicities in each Kebele has a various indicator mostly influenced by family-related functions that bond residents together, furthered by security and safety concerns.

2.3.4. Cultural and traditional factors

Residents settle in ethnic enclaves tend to gain benefits from the group culture and festivities that differentiate them from others. Immigrants with similar linguistic and cultural backgrounds settle together and form ethnic enclaves (Maani, 2016). They enjoy the city by residing in localities where their local language is spoken. These enclaves are important for maintaining traditions and culture, and they attract tourism when the city recognizes and celebrates their cultural and festivals. Ethnic enclaves are created by the everyday interactions, sights, and sounds that occur in public areas and indicate the ethnic enclave's cultural identity (Castañeda et al., 2015).

In a community, physical and visual indicators concerning ethnicity may exaggerate the true proportion of inhabitants. Living in an enclave has advantages that can be viewed as a "buffer," lowering the price of assimilating culturally or linguistically (Chakraborty T. & Schüller S., 2022). According to Portes (1998), social capital is the entrenched connections, trust, and support systems that enable ethnic firms to function effectively and sustainably. Furthermore, the cultural festivals drew tourists and other to ethnic neighborhoods.

2.3.5. Segregation, safety, and security concerns

In every urban center, a variety of factors influence the formation of ethnic enclave settlements. Among these, forces such as segregation, security, and safety concerns, which are highly recommended by many residents and widely practiced in the city of Gambella counted most. In cities that are much more enclaved, the economic crisis, rising poverty, terrorism, and an increase in criminals in many countries increased the demand for safe enclaves that could protect residents from a dangerous social environment. According to Kaker, S. A. (2014); insecurity and

violence are related to a developing geography that divides the city into distinct areas for business, recreation, and housing. Ineffective public security in the face of increased urban violence and insecurity multiplied enclave's settlement in any city. In another argument, Hwang (2016) stated that the neighborhoods are more susceptible to gentrification because of the isolation that developed from the demand for affordable housing. Best example is framed by the enclaves in Karachi formed in order to cope with daily violence and insecurity, the sociopolitical conditions that result from enclavization processes create an environment that breeds violence on a continuum.

In another hand, the desire of human beings to live in a quiet and safe environment with a sense of belonging is one of the push factors that have pressed residents to settle in enclaves in many cities. Racism is barrier that minority groups usually face in their new cities that forced for enclave (Flipped, 2001; Teixeira, 2009, 2011). Qadeer and Kumar (2006) identify ethnic discrimination in that the market and undervaluing of foreign credentials as factors that contribute to the formation of enclave settlements. It is a well-known and largely consistent pattern that different ethnic groups tend to be geographically divided into distinct locations, in addition to immigrants being residentially separated as a group in many countries (Borjas, 2000). Therefore, more security and safety concerns in Gambella city, which is dealing with a triple compared to all acts through the status of inhuman act; uniquely forced for enclave settlements. The crimes committed in Gambella magnified mostly those found in metropolitan cities. High murders, inhuman and housing burning looting, robbery, municipal systemic service denied to certain ethnicities, and the use of drugs are all deemed criminal acts that instable the Gambella City as ethnic enclave range. Moreover, the city is heavily enslaved by a group of residents who do not trust one another.

2.4. The Relationship between ethnic enclaves and sociospatial, economic, environmental, and infrastructure development

The establishment of an ethnic enclave's settlement presents a possibility that, when compared to a group living without any enclaved residents. An enclave resident may exceed in both social and economic benefits. However, the existing theories and opinions on enclave settlement has drawback and benefits that were unable to reach an agreement, as conceptually discussed. These gaps pushed and investigated the connections between sociospatial, economic, environmental,

and infrastructure development factors and the growth of ethnic enclave settlements. The ethnic enclave settlement produced city's illness that is both physical and non-physical.

Conceptually, there are positive and negative implications of ethnic enclave settlement, which justifies the phenomenon even though much literature has not reached a consensus on the matter. Residing in an ethnic enclave in a growing nation like Ethiopia is accompanied by inter-ethnic tensions, inferior urban settings, the influence of inadequate sources of income, and a backward form of the physical environment. With an emphasis on Ethiopia's current developmental situation, this study considers how ethnic enclave settlement might advance or hinder city development that can added to ethnic enclave theory. A weak consensus amongst writers that enclaves' settlements have both positive and negative consequences pronounced in terms of economic, social, spatial, environmental, and infrastructure development. Using Structural Equation Model framework for this study, all the details and the relationships for each category were designed, digested, and elaborated accordingly.

2.4.1. Ethnic Enclave Settlement and Economic Development

Early studies on ethnic enclave economics have highlighted both the advantages and disadvantages of living in an ethnic enclave area and their impact on the economic growth of a city or country. According to Maani (2016) an ethnic enclave settlement has the potential to facilitate the economic integration of new immigrants, which can be beneficial. Asian Americans have benefited from capital exchanges on the economic front (Walton, 2012). Workers in enclave economies are shielded from potential discrimination in the labor market from employers outside of their enclave (Chakraborty T. & Schüller S., 2022).

According to Valenzuela-García et al. (2014), certain people may be able to find work and increase their social mobility in ethnic enclaves. Employer-employee interactions are founded on social capital as well as contracts; enclaves can offer co-ethnics chances for economic mobility (Portes et al., 2014). They show how workers often experience the negative effects of enclave economies, while entrepreneurs' profit from them. Living in an ethnic enclave can also have a negative impact on the well-being of residents, as it can limit their employment opportunities. In some cases, ethnic enclaves can create financial barriers that make it difficult for ethnic firms to compete in the city's main market sector. This can be due to reasons such as a lack of advertising, business models, poor managerial skills, and experience (He, S., 2013).

Ethnic concentration and resources can attract immigrants to protected markets, they can also impede social integration. Lower-skilled immigrants who do not gain language proficiency may be at risk of being trapped in low-paid jobs (Maani, 2016). Given that ethnic business owners are likely to hire other ethnic workers, it is also plausible that enclaves actively contribute to the so-called "enclave economy" by creating jobs (Portes, A., 1987). Overall, ethnic enclave settlements can have both positive and negative effects on a city's economy.

The concentration of economic power to promote social, cultural, and political growth for residents dedicated to maintaining community life within the nation where an enclave is formed. This is largely responsible for the protective benefits of enclaves. According to this perspective, the data available demonstrates that residing in an enclave has varying consequences depending on the context, features of the enclave under study, and relative outcomes of interest. An enclave settlement in Gambella increase protected market and monopoly as more conservatism among resident in the enclave favored the practices.

2.4.2. Ethnic enclave settlement and sociospatial trajectory

Anglophone geographers are concerned about the diverse urban forms present in Africa, Asia, and Latin America, as well as the increasing importance of these cities to the global urban system. The sociospatial analysis that deals with social behavior and daily activities within the community shapes and models space (Wibawa, 2014). Social network theories indicate that neighborhood-based social networks and contacts may connect immigrants to jobs where co-ethnics concentrate, making them less spatially constrained to the local labor market. Social networks in enclave communities can give immigrants motivation to pursue further education, useful information about employment prospects, and protection from prejudice (Chakraborty T. and Schüller S., 2022).

The geographical concentration of ethnic groups may facilitate employment and entrepreneurship for immigrants through social network effects, but it can also create enclaves. These enclaves benefit the state's political system by developing voter blocs that compel governments to pay attention. However, they also have negative implications for others. Socio-spatial change appears to have occurred mainly in the direction of the division, specialization, and fragmentation of functions and uses in cities, with growing disparities between wealthier and poorer areas reflecting labor market polarization and, consequently, income inequality (UN

habitat, 2009).

Ethnic enclaves serve as a focal point for gradual or fragmented socioeconomic and cultural integration. They have advantages when it comes to civic participation that promotes group cohesion and democratic action. Ethnic enclaves can also provide mutual support networks and community organizations, but they can be a disorder to networking and engagement in more mainstream contexts like business. The isolation that comes with living in small communities may prevent people from interacting with the rest of society, impacting their language skills and ability to interact with locals. Sociospatial differences can present invasion and succession among residents, creating social control when the social difference is urbanized. Land speculation, exclusion, and relocation seem to be important obstacles in cities when residents come from different socioeconomic backgrounds. The concentration of people from the same ethnic group can contribute favorably to the growth of their neighborhood's residential area. However, if this concentration fails to address social and spatial problems, the opposite would be true as the sociospatial trajectory increase.

2.4.3. Ethnic enclave settlement and environmental damage

Environmental contamination is a significant issue in many Sub-Saharan African communities. This is especially true in enclaves and unplanned settlement zones where many people live (Dos Santos et al., 2017). These communities often lack access to basic services like clean water, sanitary facilities, and landfills, which has resulted in an increase in environmental degradation. Ethnic enclaves can also introduce new forms of invasion and succession in cities, which can lead to social control and the urbanization of social injustice. In developing countries where informality is widespread, the health implications of residing in unplanned settlement areas are considerable. Enclaves, however, though considered as can function as stepping stones rather than barriers to integration (Qadeer & Kumar, 2006). Settlement areas with high populations divided based on ethnicity can harm the ecosystem of cities as the city expands. High concentrations lead to an increase in health risks, unhygienic activities, and a lack of space and resources to create bathrooms for every inhabitant (Penrose, De Castro, Werema, & Ryan, 2010). Many experts in developing countries have recognized the significant environmental risks faced by urban residents living below the poverty line in areas with inadequate infrastructure (Bolay, 2020; Long & Ziervogel, 2020). While ethnic enclave settlements and environmental activities

can enhance a city's aesthetics when properly managed, neglect by residents can lead to a polluted environment that hinders economic, social, and political development. In Gambella, household waste is often disposed of in the streets with weak city authority collection. In the same manner, liquid and solid wastes are dumped in open fields irresponsibly, polluting the city environment. Many residents in Gambella rely on the city municipality to care for the environment instead of recognizing their role as citizens who can take ownership of their city environment. This magnified the view that poor hygiene and sanitation are concerns in neighborhoods where poverty and inadequate waste management are prevalent (Simiyu, 2016).

2.3.4. Ethnic enclave settlement and infrastructure development

Urbanization in Sub-Saharan Africa has occurred at an unexpected rate, presenting numerous challenges to cities. Access to infrastructure such as recreational areas, potable water, electricity, a road network, and sewerage and drainage are crucial concerns for any country. In developing countries, many cities are settlement areas developed outside of planning laws and regulations and are characterized by the absence of necessary infrastructure and services, which affects the quality of life of residents. According to Sahiledengle et al. (2018), access to potable water, road networks, power sources, and sanitation is below standard in developing countries. The concern for infrastructure development is common to many developing nations, although the intensity varies from city to city.

According to UN Resolution 64/292, among important infrastructures, potable water and a healthy environment are fundamental human rights. When residents live in a locality that has improved sanitation, it reduces health risks and environmental-related problems. In every city, water concerns are acute and critical when supply and provision are inadequate. In developing countries, nearly 1 in 10 people face shortages of potable water in every urban space (Sahiledengle et al., 2018). In East Africa, the provision of adequate physical infrastructure has a lot to contribute to students' performances. Students' enthusiasm for studying can diminish in schools that lack water supplies, play areas, libraries, and teaching tools (Beyene and Dessie, 2014).

In Ethiopia, weak infrastructures development is very high. Access to water for residents living Gambella, potable water access, road network, sewerage and drainage and electricity availability, and affordability are highly lagging which maybe still applicable to other Ethiopian cities as well. In Gambella, weak infrastructure in schools is much magnified. Many schools have no recreational area, toilets, or potable water supply. Furthermore, a lot of limitations in access to advanced roads, electricity connections, and networks were observed in some enclaves.

2.5. An ethnic enclave and urban planning models

Urban planning is a framework that assists leaders in turning a vision into reality by leveraging space as a vital resource for development and involving stakeholders along this process; it is not about visuals but rather a strategy to make a difference (UN-Habitats, 2014). Due to a lack of awareness of citizens' social needs, Ethiopian planners neglected to place special emphasis on social diversity that comprised of different ethnicities. They design for cities populated by several ethnic groups, each with its own culture and customs, but placed planning on a particular focus on the physical form of city expansion with a small emphasis on how to integrate, mix, and regulate human settlement. According to Gilbert's (2018); many planner judgments are based on the views of practitioners, who would never acknowledge being oblivious to social diversity. In Gambella, the role of the planner in executing the structural plan of Gambella City is mostly determined by the ethnic enclave settlements that define the Gambella City settlement pattern which challenged proper growth of the city.

Urban planning has undergone various stages of development. Since the Chicago School, different city models in planning have tried to analyze social behavior through the modeling of city structures (Dear and Soja, 2000). Developing a model that can reduce the complexity of urban life is very demanding for urban settlements (Borsdorf et al., 2002). However, planning for an ethnic enclave Gambella city receives weak focus among writers in Ethiopia. It is crucial to prioritize planning engagement in all circumstances so that residents can live successfully in cities with ethnic and radicalized residential communities despite their differences (Fincher et al., 2014). Adopting models that fit the Gambella enclave in line with those countries that faced the same trends is crucial to this study. Countries like South Africa and Rwanda used different planning models to reverse ethnic base settlement for their city's prosperity. These planning models were among the most recognized in this study as their experience in city planning mark

certain outcomes that shape ethnic enclave city. Both countries faced a melting pot of ethnicities. For example, South African cities and towns were apartheid urban planning models and developments legacy.

The urban planners, managers, and politicians in charge of urban development confronted apartheid cities with the reconstruction of South Africa's highly fragmented and dispersed urban society. In this regard, restructuring, transforming, and integrating separate and divided cities pose the most pertinent spatial planning issue and the most challenging issue for many urban stakeholders.

These planning experiences for Gambella ethnic enclave city facing complex enclave settlement challenges; can reverse the ethnic enclave city unfavorable condition and their complexity. As the urban planning response designed to deal with policy interventions that are intended to prevent, compensate, avoid, or minimize the urban consequences (Gari et al., 2015). New policies for ethnic enclave settlement include a change to the existing policy, legislation, practices, and strategies; enforcement; behavioral change; institutional change; and new pricing as a means for regularization (Leweson et al., 2016). Furthermore, re-adjustment, includes motivational, prohibition, compensation or remuneration, mitigation, adopting and managing the settlement, and programs adopted to make the regularization more effective and efficient within the city.

Talen (2008) considered some important planning models by considering spatial space diversity. They considered the diversity of a place to be the phenomenon whereby a mix of income levels, races, ethnicities, ages, and family types share the same neighborhood in the city. The realm of everyday life is where diversity exists, such as attending school, the hospital, football games, the Olympic Games, the cinema, and shopping for groceries. Planning is concerned with the developing design strategies for neighborhoods, public places, and housing that can provide cross-cutting identities that enable sustainability and manage diversity. Therefore, far from a systemic or comprehensive approach, these strategies are the point of departure for elaborating a more explicit connection in cities (Talen, 2006).

In the context of an ethnic enclave settlement in Ethiopia, multiple perspectives are needed to find effective solutions to adverse effect of enclave ethnic settlement. Adopting trends and practices from diverse world cities can help address the challenges presented by the settlements

in enclave within the city resided in diversity, rapid urbanization, weak planning tools and technology, and poor data records. Unfortunately, Ethiopia's planning model has failed to regulate ethnic enclave settlements in city like Gambella. Despite other countries adopting various planning solutions to manage multicultural residents and population growth, Ethiopia weak policy, regulation and guiding principles on diversity, residential settlement dispersal, integrated and mixed policy, exacerbating the problem in Gambella. To make Gambella more livable and address its challenges, Ethiopia can benefit from adopting planning models and experiences from countries that have faced similar issues.

2.6. Experience in the planning of ethnic enclave cities around the world

Many countries have developed new policies to move away from general urban planning and adopt development planning principles for ethnic enclave settlements. The aim is to address the challenges in their cities and come up with effective planning models. In this paper, we will explore the planning models used in South Africa, the Rwanda neighborhood, and the Ethiopian Local Development Plan (LDP). These countries' planning practices have a close relationship with what is observed in Gambella City, Ethiopia.

2.6.1. Multicultural city planning for apartheid South African cities

South African scholars developed a model to mitigate the negative impact of Apartheid policies on their cities. They used the multicultural planning model, which involved five key strategies to address the mismatch between different city functions. These strategies included 1) overhauling the planning system; 2) implementing market mechanisms; 3) engaging in process-based dialogue; 4) educating planners on how to work effectively in multicultural contexts; and 5) implementing design-based diversity (Sandercock, 2000; Talen, 2005). The scholars also recommended developing new policies that explicitly move away from general policies that perpetuate inequality.

i). Overhaul of the Planning System

The revamp of the planning system involves the restructuring of the system through legislation in order to address grievances in accordance with the country's multicultural policies and anti-discrimination laws (Sandercock, 2000). This approach to planning is more commonly practiced in Canada and Australia than in the United States, where it seems to be the least developed

policy form (Thompson, 2003). However, some drawbacks are still present in this planning system, as the proposed overhaul of the system has not yet been developed, and the legislative overhaul is a discouraging task that usually only occurs after at least a generation of powerful lobbying (Sandercock, 2000). In this regard, it is crucial to implement this planning practice in the Gambella city enclave, as the existing laws related to enclave settlement have failed to meet the demands of ethnic enclave settlement areas and city development. New laws that can shape are required to manage ethnic enclave settlements in Gambella City.

ii). Market Mechanisms

Market mechanisms are often implemented when small business groups provide culturally specific goods and services. They may request changes in regulations concerning retail practices to allow street vendors or street displays. Similarly, businesses engaged in immigrant housing construction may face controversy over nonconforming uses and designs. This is a common practice in enclave cities. However, this practice should also be adopted in Gambella City due to the high disparity between business owners and residents. To handle this situation, it is necessary to create an environment that harmonizes and facilitates a favorable space for newcomers to join the system and contribute to the city's economy. This will help them adopt new business practices and modernize their businesses since local indigenous resource were underutilize.

iii). Process-based dialogue

According to Sandercock (2000), the process-based response provides the most promising form of managing intercultural coexistence in shared space in the city. A dialogical approach takes place in psychoanalysis, which brings antagonistic parties together to talk through their concerns (Sandercock, 2000). This approach is distinguished from that of communicative planning by noting two critical differences. First, the communicative planning approach is a model that accepts rational discourse among stakeholders as both appropriate and achievable (Sandercock, 2000).

However, Rahder & Milgrom (2004) rejected communicative planning as it fails to account for conflicting rationalities in that it contains universal assumptions about the nature of reason and rationality that do not hold in settings where there are fundamental differences among participants. It neglects the differences in institutional power taking place within the framework of a culturally defined set of social and power relations. In these respects, communicative

planning theory advances in opening up the participatory process but has inadequately addressed the issues of multicultural relations.

The second difference is that outcomes from the communicative planning approach are not necessarily intended to be transformative beyond a merely workable compromise (Sandercock, 2000). According to a case study in Sydney, Australia, and borrowing from Sherry Arnstein's ladder of citizen participation, Sandercock has called on planners to create a political space that allows for a healing approach to urban conflicts. This approach focuses on a language and emotional involvement process that has the potential to bring about social transformation through a process of public learning that results in permanent shifts in values and institutions, rather than just a compromise (Sandercock, 2003). The study suggests process-based solutions to guide planners in dealing with multicultural issues, but some limitations remain (Sandercock, 2000). Moreover, these processes and practices are beneficial; they are largely designed to address multicultural problems only after they arise. This is the reactive approach that may solve ad hoc problems; therefore, the need to redesign the planning system for managing diversity without the planner's efforts will only produce limited short-term gains (Burayidi, 2003). As Gambella City is much influenced by high distrust, inter-ethnic conflicts, and malpractices, process-based dialogue is important to handle the grievances that usually occur that lead to city fragmentations.

iv). Planning education

Numerous scholars calling for changes in planning education have tried to bring the attention of planners to the diversity of the urban public realm and the need to embrace planning processes that include all groups and address the concerns of a multicultural constituency (Sandercock, Burayidi, 2003; Bollens, 2002).

The group has called for a change in planning culture because it recognizes plurality as a point of departure in planning practice. Cultural sensitivity enhances the communication skills of planners so that they can interact with a multicultural public, and it gives planners a better understanding of the beliefs, values, and customs of different cultural groups (Burayidi, 2003). Planners need to have cultural sensitivity training courses in their formal planning education and cultural workshops for practitioners. In the same vein, Thompson (2003) has called for the development of a culturally inclusive planner. Cultural sensitivity is an important component of multicultural planning. Sandercock (2003) has made the well-taken point that awareness alone is

not enough; action is needed on many fronts.

Cultural sensitivity is not the only aspect of planning education that needs revision. Planners need to learn methods of research and analysis that develop more sophisticated understandings of the dynamics of enclaves, their diversity, and their relationship to planning policies and practices. As noted by Talen (2005), planners need to develop tools that provide a clearer understanding of the relationship between regulatory tools like zoning and human diversity. One best practice for planning education is observed by Ahmed O. (2018); in many Arab countries, planning education is still limited to the realm of education, where it is restricted to city form, land use, and design requirements, while little attention is paid to the social, political, institutional, and economic realities of cities that serve as driving forces behind these changes. This also aligned with the Gambella practices, where much focus is on physical, land use, economic, and infrastructure development. To plan for residential social and physical being in diversity received a weak interest in Ethiopia's urban planning practice. Education planning also received a weak part in the curriculum as the field is mostly found at the graduate school level.

v). Design-Based Diversity

Vernez (1997) stated many urban planners believe that designing cities with diversity in mind can promote inclusivity in enclave communities. This approach, known as morphology, examines the structure of human settlements and their evolution over time. According to Anne Vernez 1997, cited in Ismail, M. N., et al. (2017), morphology focuses on the physical changes that occur in a city and how different cities compare to one another. By analyzing the spatial structure and character of a city, including its components and growth patterns, morphology can provide insights into how to create diverse and inclusive spaces.

The Gambella region could benefit from this approach by revisiting its existing city morphology and considering the importance of diversity in its spatial planning. As the city design morphologically yet still under develop from the conservativity of enclave residents, for them to recognize their role and function in the city, the design base approach will enrich Gambella city.

The lesson from multicultural city planning in South Africa: an effective planning requires rules that can control the system. The efficacy, efficiency, and inclusivity of current laws were evaluated based on their impact on both geographic and non-spatial systems. It is clear that previous planning models did not adequately consider the needs of the people living in the city.

Therefore, there is a need to reconsider the planning process to create more inclusive and equitable communities. Local indigenous businesses engage in trade that emphasizes material specialization in specific locations and a market-based approach focused on developing access to catering.

This encourages entrepreneurs to enter the new marketing system and supports the local economy. Similarly, we evaluate process-based discourse by considering the psychological perspectives of various groups interacting in the city, with a growing focus on how they engage with each other. The education industry can significantly impact enclave city planning by equipping new graduates to work with inhabitants from diverse backgrounds. Capacity building should include both long- and short-term training, with an emphasis on culture and inclusivity that reflect the varied origins of the city's citizens. To account for the borderless world of globalization, education curricula in all nations should be reviewed. Design-based approaches for multicultural cities look at the physical aspects of the city and the behavior observed over time. Multicultural planning models and strategies, such as those developed by Sandercock et al. (2003), can be effective in devastated cities resulting from ethnic enclave settlement, as they cover all possibilities in spatial space. Proper planning for ethnic enclave settlement is essential for city development.

2.6.2. Rwandan Neighborhood Planning Model

Planning is a crucial method of coordinating and controlling the design and structure of cities. It involves developing suitable rules and models that match the shape of the city so that all citizens can live there in a fair and equitable manner, without any obstructions or hurdles. In Rwanda, the devastating 1994 genocide led to the creation of a human settlement strategy that was intended to be applicable to the enclave settlement in Ethiopia.

In 2019, Rwanda developed national urban development policies that aimed to promote competition in urban areas and address the pressures of increasing urbanization. The goal was to convert its cities into innovation hubs while promoting social inclusion. However, the history of community planning techniques in Rwanda revealed that although the primary goal of building homes for settlers was achieved, the approach led to social exclusion and segregation, which contributed significantly to crime, protest, ethnic conflict, and poverty.

The development of such a neighborhood and its planning strategies for Rwanda resulted in a well-serviced mixed-settlement residential area with the right composition and a strong sense of belonging. The Rwanda community planning models should be used for ethnic enclave settlement in Gambella city, Ethiopia, as they take into account all factors that lead to inhabitants being divided and polarized depending on their ethnicity. They regulate the issue in accordance with Rwanda's city settlement management rules, using the three neighborhood planning models for Rwanda: the planned neighborhood, the unplanned or informal enclave, and the mixed kind of residential area (Baffoe et al., 2020). For Gambella City, laws that can regulate the settlement are crucial, both spatially and non-spatially. As the Gambella demand the three forms of planning the Rwanda city model can also enrich Gambella enclave city.

2.6.3. The Ethiopian urban planning practice

Ethiopia has over 86 different ethnic groups and uses an ethnic federalist form of administration as a system of government in the country. Pressure from this population and ethnic focus state introduced the Gambella city with a lot of implication that makes the urban development policy overlook the ethnic enclave settlement in Gambella. Historically, the majority of Ethiopian towns were constructed and organized on account of the violent history of their age, which no longer enjoys freedom. The influential clique (government) in the urban center was in charge of all the policies that were in place for development. However, as Ethiopia evolved over time, urban development initiatives that benefited everyone in the city were put into action in 2005. The objective of the policy was to move the majority of citizens out of poverty and into a condition of well-being by greatly addressing fundamental human needs in urban and rural regions. In this sense, all Ethiopian urban centers are experiencing high rates of fast urbanization that pressure the urban environment through horizontal expansions impacted by numerous unlawful activities in the cities. The government has been creating policies to manage the pressure and practices on an up-and-down basis during the past ten years, in particular the Minister of Urban Development and Construction (2005).

More than ten policy texts that help Ethiopian cities develop and be competitive internationally were designed and put into practice. But there are still a lot of difficulties, as the ethnic base form of settlement concern was not clearly viewed. Especially on major city territory in Ethiopia, a high degree of illegal and unofficial behavior in urban suburbs is often observed. The malpractice on urban land that failed to recognize the planning laws is highly prevalent. Urban

land regulation was necessary, and a high demand to curb these malpractices was observed in Ethiopian cities. This pressure compels or forces the Ethiopian government to implement a regularization program for cities facing miserable practices in order to regulate and control land use and development in Ethiopia's metropolitan areas.

The regularization program, according to FDRE (2012 and 2013), was operationalized in Ethiopia to formally sanction the growth of the new settlement area that had infiltrated the rural areas of neighboring towns as well as the urban suburb. Regularization in Ethiopia includes certification, registration, and planning for certain urban spaces. The urbanization of farmland and land-based resources that have been included in the city structural plan and ordered to take action on a legal basis by July 8, 2015 in any Ethiopian urban center, as well as the legalization of informal and illegal landholdings, was vested in the city authority and regional bodies. With the responsibility of carrying out the legalization process, Ethiopian cities were regarded as administrative hubs with decentralized urban local government.

Sub-cities and Kebele administrations were also granted jurisdiction over additional settlement expansion inside metropolitan boundaries. The city government was in charge of registering land, granting land titles, and creating the Local/Neighborhood Development Plan (L/NDP) for this illegally occupied territory (FDRE, 2011). Additionally, it strictly evaluated the long-term destruction of settlements that had been erroneously built in urban springs. Thus, up to July 8, 2015, the nine regional governments of Ethiopia were given the authority to put up a mechanism to control and regularize informal settlement in their urban areas. They were given complete authority to regulate future settlement area growth (FDRE, 2011).

Cities like Hawassa, Bahir Dar, Mekele, and Adama implemented the strategy as required (Southern Nation and Nationalities, 2016). However, even though the regularization processes succeed in many Ethiopian big cities, the Gambella regional state failed to create such practices until the conclusion of the regularization timeframe. Despite the fact that several regional governments have created guidelines and directives that might pave the way for the implementation of regularization, due to the limited duration for which the program was created, the regularization program in Gambella did not succeed because of many concerns that were underway, including ethnic enclave and municipal weak capacity. No matter how the Ethiopian towns have undergone regularization, the issue of informality and illegality in the newly

developed enclave settlement areas has not received a comprehensive response. As a result of regularization, Ethiopia failed to measure the intensity of ethnic enclave settlement. Ethiopian regularization seems to incorrectly spell the ethnic city settlement as an urban sprawl, informal or illegal settlement. While the real practice of informality in some cities, like Gambella, happened from the ethnic enclave settlements as they claim the land in the city suburb as their ancestral land. They hold the land in their major residential area and suburb as farmer land; they sell the land to rich members of the same ethnicity or make a deliberate attempt to start their own construction projects.

Despite the fact that the local development plan (LDP) was launched as a planning model for regularization in Ethiopia for the city's neighborhoods, the LDP focuses on land use functions and, more specifically, on the city's morphological shape. In Ethiopia, the law on diversity, the absence of local laws that can regulate city settlers and residential settlement in the neighborhood make it harder to achieve socioeconomic stability and put urban plans into action in cities like Gambella. This raises the demand to revisit the existing planning model previously utilized in Ethiopia and look for a new planning model for ethnic enclave cities like Gambella. The ethnic enclave settlement in Gambella has signs and appears to look like what happened to apartheid towns in South Africa. Adopting a planning model that fits this country can revisit the observed implications of the ethnic enclave in Gambella City.

Lesson from Ethiopia: In Ethiopian cities, the L/NDP is used as a thorough planning model for local space. In addition to pronouncing and translating the produced structural plan for a specific city, it provides guidance on numerous local development difficulties (FDRE, 2008; MUDH&C, 2012). The LDP also specifies the role and requirements, the urban design and upgrading methods, the institutional framework, and the resources needed to carry out the plan (FDRE, 2008). In a geographical framework, LDP also aims to identify issues and establish development priorities (MUDH & C, 2012). In addition to other locally pertinent planning issues, it assists local governments in the development of zoning for use type, building height and density, local streets and layout of basic infrastructure, housing typologies, neighborhood organization, green spaces, open spaces, water bodies, and localities for mutual benefit (FDRE, 2008). Last but not least, the Ethiopian LDP is a legal plan that must go through the planning and approval steps (MUDH & C, 2012). The greatest degree of public engagement is required in its development, and it must have the approval of all relevant dignitaries and powerful entities.

However, the LDP expanded the scope of land use fraud in this context, especially unashamed corruption. The LDP gave the job to a local government agency with little funding and people with weak knowledge, technology, and resources. From this perspective, the LDP is believed to increase the amount of corruption and malpractice during the execution of the plan. The finest examples are the 2016 and 2020 Gambella City LDPs. The majority of the engineers and responsible authorities who participated in the program in Gambella used this as an opportunity. They got first-class urban land and had access to it illegally, leaving the displaced residents. Additionally, they utilized their being on the team as a means of getting two additional acres of property and providing their immediate family access to free urban land in a planned urban area. We may draw a lesson from this: Ethiopia's regularization program was implemented, but both excellent practices and disadvantages followed the implementation of LDP from one state to another.

2.7. Methodological review

Measuring ethnic enclave agreements has been an area of interest for scholars around the world since the Chicago School. The model by Peach (1996, 1998, and 1999; Evgeny, 2007) in Chicago seminars divides ethnical enclaves in any megacity into minor, major, and medium enclaves depending on their viscosity (Evgeny, 2007). With reference to this model, the number of people living in a clustered domestic area under each kebele was considered to define the enclave position. This is in line with the chart pattern indicators, one of the two styles that were employed to establish ethnic domestic zones by simply mapping the population share of a region. Others identify ethnical enclave zones using a threshold (Paulsen, M. et al, 2001). The threshold was used to dissect the family structure of a domestic area. In many cases, the most colorful styles for ethnic enclave settlement identification use quintile and dichotomous measures to identify the type of enclave (Evgeny, 2007). A quintile measure is used to identify domestic areas that are enclaved with many ethnically distinct neighborhoods separated from further ethnically distinct neighborhoods. The dichotomous dimension, on the other hand, classifies tale tracts as ethnical enclaves or none-enclaves in any neighborhood grounded on a threshold.

Ethnical insulation in communal life is a problem for municipal routes, fabrics, and social scientists. As stated by Tammaru et al. (2016) and Van Ham et al. (2016), the socioeconomic difference among residents is seen as a sign of inequality that segregates residents in all

cosmopolites. The degree of ethical attention allows newcomers to enter the requested system, allowing them to check and reflect the form of insulation in their new agreement area (Anderson et al., 2017). In Malaysia, ethnic enclave segregation was also measured by using language barrier, according to Ramli and Jamaluddin (2012). Others also use ethnographic approaches to correct the traditional emphasis on structural, classic, and essentialist explanations of civic polarization as methodological approaches (Till, K.E., 2012). Lack of common interest in defining ethnical enclave's measures by the same dimension and the circumstances that contribute to their establishment remain a source of care that marked the study.

No matter how bundle is the ethnic enclave and segregation measurement is around the world, All the measurement models weren't employed during the Gambella enclave settlement search. The weak census trace and database of spatial space, residential sorting, and ethnic records as the Ethiopian Census never use census trace for neighborhoods, and poor urban planning implementation marked the hardship on measuring ethnic enclave in Gambella city. The differences in measures and exploration approaches are what produce the empirical literature on ethnic enclaves and isolation that lack an agreement and demand a new approach for Gambella city planning. The research employed a survey, all ethnic group information's available in the hands of municipality (Gambella land inventory data; 2016), and contemporary observation on the spatial area city morphology and day to day operation mark the clustering of residents from the same ethnic group as ethnic enclave settlement area. Mapping enclaves with the help of land-use force data from 2016–2017, magnified ethnical clustering that clarify Gambella municipality a concentrated settlement area by people from the same ethnic background.

Measuring the existence of ethnic enclave in Gambella and all its implications was understood by exercising land use inventory, multinomial logistic regression, and multiple regression estimation models. Since the context, and the data in hand differ and they failed to meet the standard employed ahead, and the former data failed to consider unplanned metropolises with irregular block shapes that recognize traditional forms of settlement. The end of using this new form of estimation was to find out if new findings should be displayed without using the tale trace or block-grounded data previously used for measuring ethnic enclaves and isolation. The range of unity and diversity for each ethnic domestic region in terms of internal population composition in each kebele was determined by the land force. Thus, all these approaches were

employed to magnify the counter accusations of the ethnic enclave agreement on development and propose a possible planning model for Gambella City. The clear picture of enclave megacity difference and weak megacity development from all angles is good, quantified, and compared based on each kebele settlement form.

2.8. Research-related gaps

Researchers have been assessing ethnic enclaves, exploring their origins, causes, impacts, and varieties globally. In many developed countries, ethnic enclaves are often associated with immigrants who seek connection with their own community due to push and pull factors (Agrawal, S., 2010; Li, E., & Li, P., 2016). He, S. (2013) suggests that while ethnic concentration and resources draw immigrants to protected markets, they also hinder social integration. Lower-skilled immigrants often find themselves confined to low-paying jobs due to language barriers in their new country (Maani, 2016). To integrate into city life, newcomers often located where their relatives live or tend to stay close to family first saved in their new state.

The emergence of ethnic enclaves is attributed to various factors: security, fear, culture, economics, religion, and politics (Aguilera, M. B., 2009; Elizabeth Ch., 2010; Bohon, S., 2001).

However, personal related factors and location preference received a little attention before when studying ethnic enclave formation associated factors. Despite extensive research on ethnic enclave, there is significant debate regarding the effects of residential segregation and ethnic concentration on urban development (Klaesson, J., & Öner, â., 2021). The outcomes are varied, suggested by several complementary and competing theories. Most previous studies focused on the importance of ethnic segregation and enclaves at specific geographic aggregation levels.

The methods used by various countries, especially between affluent and less affluent ones, to identify enclave formation differ widely. Many developing countries feature ethnic enclaves that are geographically concentrated urban neighborhoods dating back to the colonial period (Nnoli, 2003). These enclaves are often tied to that era, regardless of Ethiopia's non-colonial status. Contemporary urban planners and policymakers favor city designs that conserve heritage (Wesely, J.; Allen, A., 2019). Such practices have led to divisions within communities, influenced by a diverse demographic composition, which in turn fosters enclave formation (Pu

H., 2015). Moreover, academic efforts have yet to uncover universal insights that enhance the global understanding of ethnic enclaves.

A significant methodological concern is the absence of agreement in empirical studies on the effects of ethnic enclaves and segregation, stemming from variations in measurement and research design (Klaesson, J., & Öner, Ö., 2021). The distribution of residents in many spatially segregated cities and the quantitative methods used to assess the evenness and unevenness of residents have highlighted this issue of weak potential (Peach, 1999; Pu Hao, 2015; Reardon and O'Sullivan, 2004).

In cities like Gambella, which have experienced low growth, unplanned, and possess traditional settlement centers, measurements common in the developed world have proven ineffective. The development of ethnic enclaves has been obscured by non-spatial and quantitative challenges. Consequently, city residents, planners, stakeholders, and administrators are faced with the task of understanding ethnic enclave settlement in contemporary cities, a task made difficult by global discrepancies among experts. This gap in academic understanding of ethnic enclave settlement remains relevant to Ethiopian cities, which are undergoing rapid urbanization and migration, influenced by an ethnocentric ideology that drives population movements from rural to urban areas and between cities.

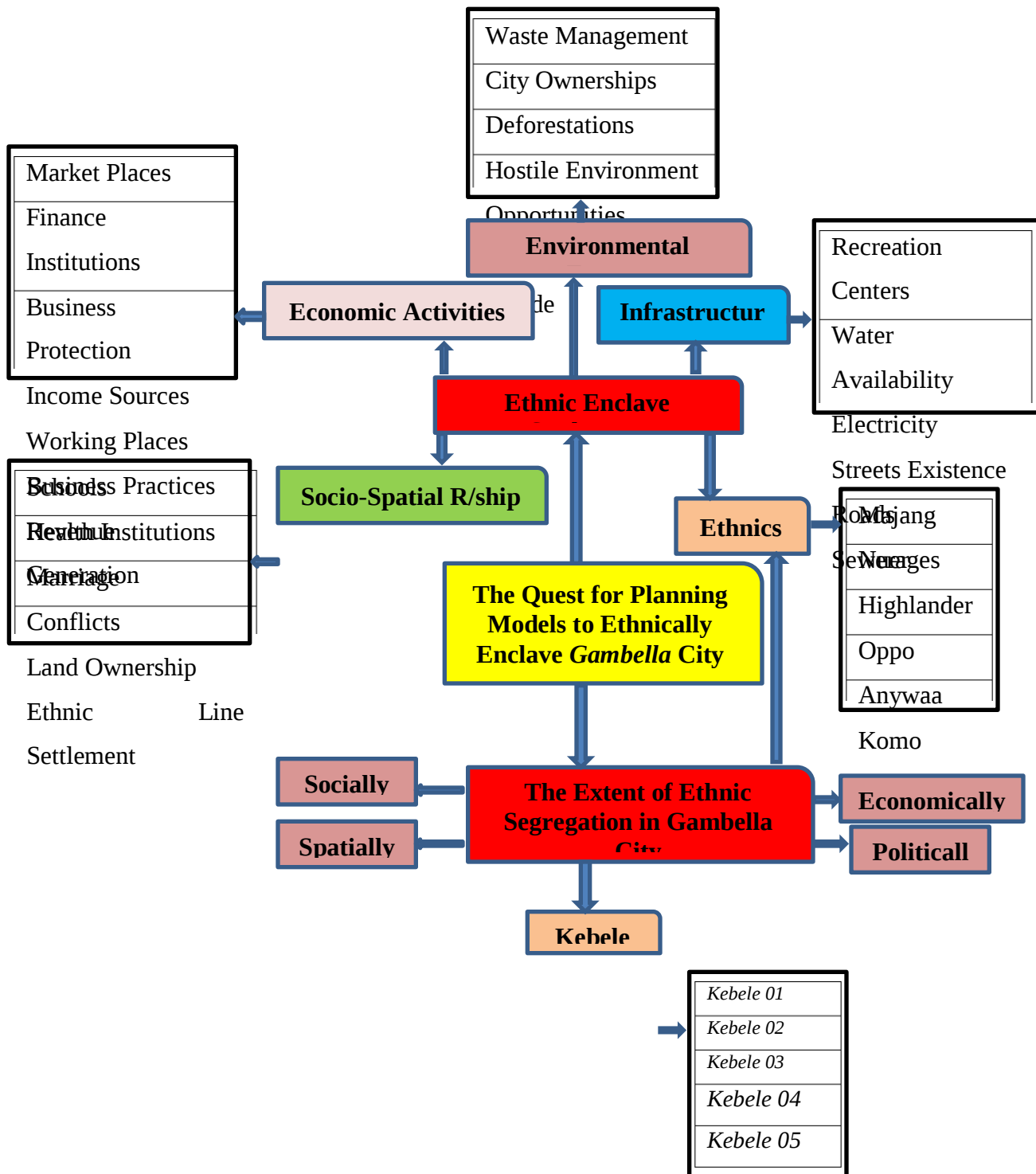
In Gambella, numerous studies have been conducted on conflicts, ethnic federalism, land grabs, cultural issues, and access to education and health, as well as informal settlements (Yohaness G., 2017; Pal K.M, 2019; Gizachew, 2019). However, the ethnic enclave settlement has received scant attention despite its long-term detrimental impact on the city's development. The ethnic enclave settlements in Gambella City pose a challenge to urban development. It affects economic, social, environmental, and infrastructural progress from the conservative actions of enclave residents.

This marked the current situation in Gambella's enclaves appears to corroborate Young's (1990) findings that cities are centers for newcomers and places where they assert dominance over their minority neighbors. From the initial designs to the current city structure plan (2018), the effects of enclave settlements on urban development have been overlooked. Research on the socio-spatial, economic, environmental, and infrastructural aspects in relation to ethnic enclave settlements is highly warranted. To date, no studies have been conducted on the impact of ethnic

enclave settlements in Gambella, Ethiopia. Therefore, it is crucial to explore design strategies that can address segregation and the undesirable expansion of ethnic enclave settlements in Gambella City.

While Appelhans (2017) briefly touched on ethnic enclave settlements in Bahir Dar, Ethiopia, the omission of a detailed focus on the Gambella ethnic enclave has had significant repercussions on urban development. This raises several pertinent questions: Why is enclave settlement favored as a residential pattern in Gambella City? Are personal factors and forces driving this preference for ethnic enclave settlement? Does any other Ethiopian city exhibit a similar settlement pattern? What impact do ethnic enclave settlements have on the development of Gambella City? Is the segregation observed in Gambella City a consequence of ethnic enclave settlement? If the Gambella enclave is shaping the trajectory of urban development and housing, are there planning interventions or models available to mitigate this trend? Given the absence of academic research specifically addressing these issues in Gambella City, these questions are critical and demand comprehensive urban solutions.

Figure 2.1: Conceptual Framework the Relationships between Ethnic Enclave Settlement and the development spectrums, extent of Ethnic Segregation.



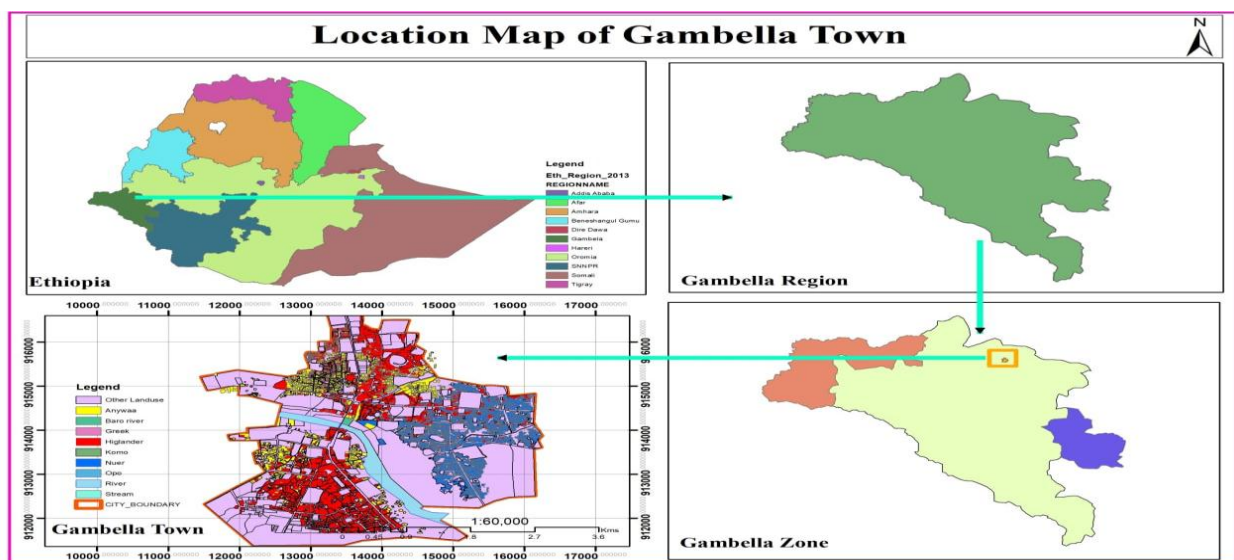
CHAPTER THREE

3. Research Methodology

3.1. Description of the study area

Gambella People's National Regional State (GPNRS) is located in the south-west part of Ethiopia between geographical coordinates 60° 28' 38" and 80° 34' North Latitude and 330° to 350° 11' 11" East Longitude, which covers an area of about 34,063 km², or 3% of the nation (GPNRS, 2011). Gambella is one of the nine regions that constitute the Federal Democratic Republic of Ethiopia. The capital city of the regional state of Gambella is situated at a distance of 766 km from Addis Ababa (GPNRS, 2011). Administratively, the GPNRS is divided into three zones (Anywaa, Nuer, and Majang), 12 woreda (of which one is a special woreda, namely Itang), and one city administration, Gambella City. Gambella is also located near the Ethiopian-South Sudan border, and the Anywaa, Opo, Komo, and Nuer tribes share cultural, linguistic, and traditional practices with the Nuer, Anywaa, Komo, and Opo in South Sudan. The region is strategically bounded in the west and southwest by South Sudan, in the south-east by the Southern Nations, Nationalities, and Peoples' Region (SNNPR), and in the north-east by the Oromia and Benishangul Gumuz regions.

Figure 3.1: Gambella Study area



Source: LUI (2016).

Ethiopia conducted three censuses: the first in 1984, the second after 10 years in 1994, and the third after thirteen years in 2007. The total population of the Gambella area in 2007 was 306,916. (CSA, 2008). 74.8 percent of them resided in rural regions in 2007, whereas 25.2 percent of them did so. Research shows that the nation's highest annual population growth rate between 1994 and 2007 was 4.1%. (CSA, 2007). The average family size was 4.6, which was a high figure (3.9 in urban areas and 5 in rural regions). Gambella is a very ethnically diverse city despite its small size, with the Nuer, Anywaa, Majang, Amhara, Oromo, Tigrian, and Keffa being the largest ethnic groups there (CSA 2007). The estimate indicates that the state of Gambella's urbanization rate would reach 31.3 percent in 2014, above the national average of less than 20 percent. This proved that several pushed and pulled factors contributed to the increased level of urbanization in the area.

3.1.1. Politics

The political history of Gambella is notably unique. Due to foreign powers' control over Ethiopia's highlands, it has seen invasions due to its placement near the country's border with South Sudan. The majority of the local people resided in the lowland areas of the Gambella region, which the British ostensibly ruled during the 17th and 18th centuries. This was a piece of the British Empire before it became the Anglo-Egyptian Condominium. The end of the 19th century saw Ethiopia seize control of the region as it started annexing territories south of its stronghold in the Ethiopian highlands (Zewde, 1976). Gambella was formally absorbed into Ethiopia in 1902 following protracted and challenging negotiations between Emperor Menelik II and the British that ended in a territorial swap between the two empires. The situation in the Gambella region was inflated by claims of the slave trade, social discontent, political upheaval, and violence (Feyisa, 2011). Thus, until the establishment of the Dergi dictatorship, Gambella once again acquired its place as a neglected region within the context of Ethiopian politics. On the other hand, the chains were still practicing certain parts of merging Gambellians to comprehend their role as Ethiopians.

3.1.2. Economic situation

The bulk of the local population relies mostly on fishing, crop cultivation, and/or animal husbandry for income (Alemu, 1978). This traditional form dominated the local economy (Kurimoto, 1996). The hydrology of Gambella, on the other hand, significantly accounts for its

ideal position. The Baro, Akobo, and Geilo rivers, as well as others that pass through the region and are tributaries of the White Nile, are all part of the geopolitically vital Nile River Basin. The confluence of the rivers, which is located at the westernmost point of the boundary, is where the Sebat River and subsequently the White Nile River emerge. Because of its excellent navigational features, the river was a great choice for a major trade route between South Sudan and Sudan. The Ethiopian government itself, as well as foreign businesses and mercenaries, had lofty ambitions to turn the Baro-Sobat-White Nile into an important trade route and hub in the Horn of Africa beginning in the early 1900s (Bauru, 1987).

3.1.3. Topographic of the city

In terms of drainage, it's noticeable that there is some drainage, such as JabJabe Lake, that bisects the town into two halves and serves as the major drainage of the town, which sheds all water sources into the Baro River. During the summer, the town has 12.5 kilometers of the open ditch system to discharge rainwater. Gambella Town has flat topography in all directions. However, it's believed that the lack of proper planning and design of major infrastructure leads to inevitable floods in the rainy season. According to the town's land use plan, the town's green space is only about 35.17 hectares, and much of the land in the town is used as a built environment due to a lack of development control as ethnic enclave settlements dominate the town. The expansion of illegal housing in the town engulfs the nearby Gambella Zuria Kebeles land; it was believed that about 15 hectares of agricultural land are taken due to ethnic enclave settlement expansion in Gambella town annually (GTCS, 2018).

3.1.4. Climate

The climate of the Gambella Region is unique. According to the country's thermal zone categorization, the town has a temperature of at least 250 °C, is situated in a semi-desert region, and has an elevation of less than 500 m above sea level. The temperature varies throughout the year according to the month. with February and March being the hottest months, followed by a decline in temperatures in April and cold temperatures from June through August (GTCS, 2018).

3.1.1. Rainfall

Concerning rainfall, the town gets most of its rain between May and October, while the rest of the months show less intensification. These are the months of water transport for the Baro River

and flooding months in Gambella, a regional state (GTCS, 2018).

3.1.2. Vegetation

Gambella Town is considered a green desert city that is covered by different types of trees. These trees occupied its hinterland. Along the bank of the Baro River, mongo trees are very common in Gambella town. The majority of the trees are deciduous, which shed their leaves during the dry season, and during the summer, all of the different types of trees with different colored leaves add to the beauty of Gambella's surroundings. They still have the potential for medication, but it is underutilized. The figure above shows the location map of the Gambella region and the study area location map that represent Gambella city (GTCS, 2018).

3.2. The Gambella City

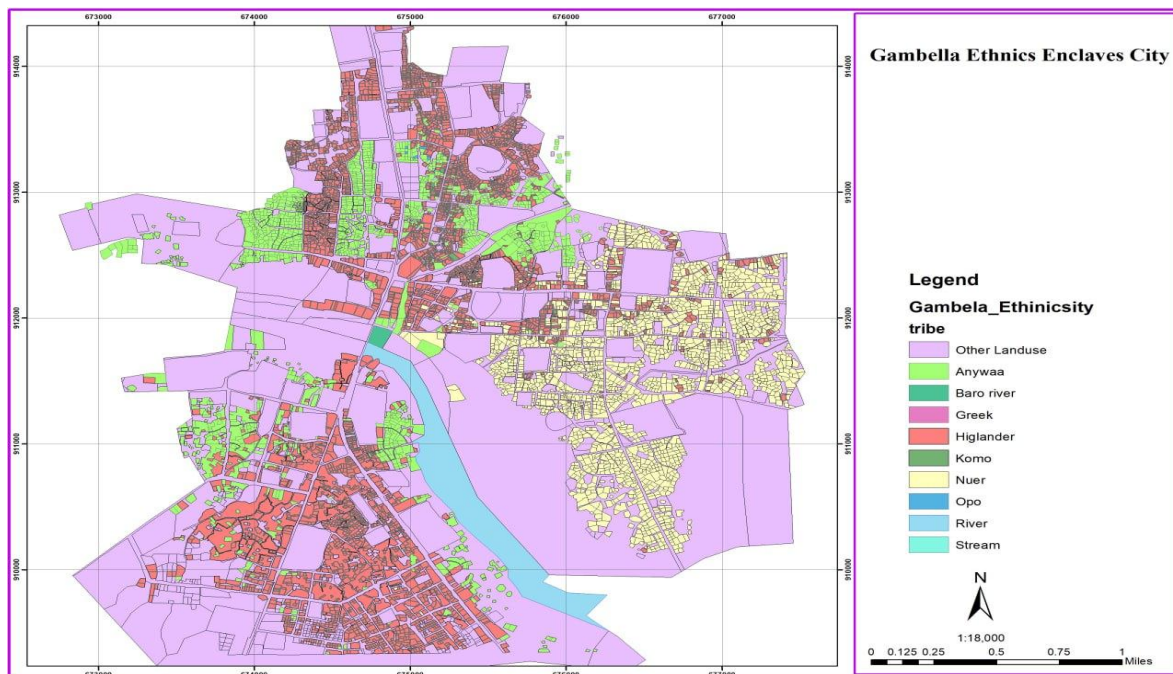
The city of Gambella, in particular, is situated at the meeting point of the Baro River and its main tributary, the JabJabe Stream. Its latitude and longitude are 80 15' N and 340 35' E, respectively. It is located at 8015' N and 34035' E in geographic coordinates, and it is 526 meters above sea level. "Gambella Zuria" is an Amharic word that means "surrounding woreda" and is administered by the Anywaa zone. From the current occupant of the Gambella Regional State Presidency House to the Gambella Airport, this limit places the city 3 kilometers south. To reach Pinykewu Kebele of the Gambella Zuria Woreda, travelers must go 5 km north of the Don Bosco Catholic School Complex to Itang Special Woreda and 3 km west toward Komo Local Village and the Anglican Church Cathedral. The final direction for Gambella City is 3 km east of Dipo (proclamation number 18/2018 for the Gambella City Development Plan).

Its distinctive feature is the location of two bridges, one each over the Baro and the JabJabe streams, which serve as links to all city activities. Highlanders, Anywaa, and the majority of the population of Nuer lived in a distinct area with their market. Due to its stormy past, the city has historical, strategic, and commercial significance. The Baro River was mostly utilized by raiding slave groups to carry abducted men before the 19th century. Menelik II later dreamed of building a White Nile bridge connecting Ethiopia with Egypt and Sudan at the end of the 19th century.

The emperor consented to give the British, who already controlled Sudan, an enclave on the Baro River to aid in the development of the major inland maritime service.

Gambella was formally established as a port and customs station in 1907 after the location was selected. Soon, steamers carrying valuable shipping goods like cotton and coffee were steaming up and down the broad river. Gambella had a surge in commerce and commercial activity, serving as a dynamic geographic area for international trade. However, as time passed and the system along the Baro River was staged, this became obsolete. The Italians, who temporarily took control of Gambella in 1936 and occupied it for years like the British, are also responsible for the city's current state; remnants of their fort and buildings can still be seen in the city. However, following World War II, the British took control of the river port again in 1941 and annexed it to Sudan ten years later. The protectorate was returned to Ethiopia in 1956, the year Sudan attained independence. Around this time, the previous shipping service was formally discontinued, and Gambella started to slowly sink back into the muck from which it had emerged before the election of the EPRDF-led government. This caused the city's development to stall and not advance into colonial times.

Figure 3.2: Gambella ethnic enclave settlement patterns



Source: land inventory (2021)

3.3. Research design

3.3.1. Research philosophy

The research's philosophical ontology and epistemology are grounded in a pragmatic viewpoint (Creswell, 2014). Finding the implications of ethnic enclave settlement on the development of Gambella and acceptable planning models for the ethnic enclave settlement were the study's main objectives, both of which were successfully attained through the use of a pragmatic approach. It allowed for the flexible application of many philosophical notions and real-life concepts. This pragmatic viewpoint provided a philosophical foundation for the adoption of mixed-method approaches that drew on both qualitative and quantitative strategies. Additionally, it encouraged mixed-method data collection and analysis by allowing researchers to choose the techniques, tactics, and procedures that best fit the goals of the study (Creswell, 2014). To retain a range of perspectives, the data were triangulated using several techniques. It also allowed for the establishment of geographical context and information about ethnic enclave settlements in Gambella City. It conserved sociospatial, economic, political, environmental, and infrastructure aspects. In this way, understanding how ethnic enclave settlement occurs in practice and how it influences urban growth is magnified. The mixed-method approach was chosen as the pragmatic views' ideal ally as a result. It brought attention to the research topic by resolving the problem using several strategies.

3.4. The research type: exploratory

An exploratory search for a planning model for the ethnic enclave of Gambella, Ethiopia, served as the basis for this study. Among other advantages, exploratory selection enabled us to analyze the complexity of a single case through a multi-perspective, in-depth examination with "rich descriptions and details" and "instances in action" (Cohen et al. 2018). With this method, it is possible to "define the environments that are not always manageable to numerical analysis" and "blend numerical and qualitative data, which is a typical instance of mixed-method research" (Cohen et al. 2018). To identify, explain, show, and offer insight into the ethnic enclave settlements under consideration as the study's primary emphasis, a multidisciplinary examination was carried out (Yin, 2009).

The exploratory research assisted in describing and highlighting both the advantages and disadvantages of ethnic enclave colonization (Cohen et al. 2018). Additionally, the kinds of planning models that would work well in an area and circumstance with enclaves were also considered. Furthermore, research on ethnic enclave settlement and planning aimed to "help scholars in better understanding various ethnic enclave occurrences and situations that contributed to the creation of a theory" (Cohen et al. 2018). For this research, a questionnaire was filled out between October 2020 and December 2020 as part of the first stage of this study, which acted as a pilot experiment with 100 participants to test the viability of the research topic, casual discussions with authorities, experts, and city residents, and the use of open data gathering. This was done to make sure the topic was interesting and rich enough to warrant study.

Additionally, to understand how the ethnic enclave settlement in Gambella City threatened the welfare of its residents, it was important to understand how each person thought and behaved. To fill in any gaps in the corpus of knowledge, secondary data had to be obtained, as well as enough material from earlier ethnic enclave studies in urban planning and other fields. A gradual focus stage was employed after choosing a suitable area in Gambella City to carry out this inquiry in response to feedback from the pilot test.

Surveys of households, in-depth interviews, focus groups, and observations all made up the second phase. According to the sample size, 10 data collectors were used for the household surveys based on the selected houses to ensure the success of data collection. However, the researcher used FGD, observation, and interviews to collect data in person. All of the feedback was coded and cleaned up, and a draft interpretation was completed in the third step. Household data was gathered, and preliminary analysis and interpretation were presented in a step-by-step manner to some of the key informant interviewees' (KIIs) responders, particularly those authorities in operation. Field observation was integrated into the data collection by carrying out a follow-up by the initial interpretations, earlier drafts, and the main text of this work.

3.5. Source of Data

Both primary and secondary data were gathered for this paper from different or the same sources, either primary or second-written documents that are published or unpublished.

3.5.1.Primary data

These facts were gathered directly from chosen respondents in the city of Gambella. Key informant interviews (KII1–7), focus groups, observations, internet and household survey questionnaires provided the bulk of the main data. All of the residents who took part in the focus group and interviews were familiar with Gambella City's past and had lived there for a considerable amount of time. Government employees who are involved in policy operations and have important responsibilities in the urban sector were all involved. Military personnel with tight ties to urban civil protection in daily operation, as well as experts with extensive knowledge of daily urban operations and functions, were all under cover.

3.5.2.Secondary data

All secondary material was acquired from both published and unpublished books, thesis, regional and national constitutions, Gambella city and municipality reports (2020-2022), essays, journals, and relevant newspapers.

3.6. Sampling design

To achieve the specific research aims of this study, a mixed-methods research design was employed to combine both quantitative and qualitative methods of data collection and analysis. It is best to use a mixed-methods design approach while studying a phenomenon like enclave settlement as we explored. The theoretical motivations for this investigation, which were taken from Creswell's (2014) work, were to test elements of an emergent theory and generalize different samples. On the other hand, it is utilized when the researcher does not have access to adequate tools for quantification or when the available instruments are insufficient (Creswell, 2009). A mixed-methods approach improved the research by making it simple to locate, thematized, and investigate the variable that was lacking (Creswell, 2009).

When it came to the definition of ethnic enclave settlement for Gambella city and its implications for development spectrums, the data gathered through key informant interviews, a city spatial map, and a written survey that explained the existing spatial, physical, environmental, political, and socio-economic characteristics of each kebele all manifested the form of enclave settlement. The use of field observations gathered in 2020, 2021, and 2022 was also advantageous to the study. Additionally, the land use inventory system that matched the spatial

and resident residing on the plot simplified the link between space and owner.

The confirmatory factor analysis model under the structural equation model served as the study's framework (SEM). Factors associated with the formation of ethnic enclave settlements, the impact of ethnic enclave settlements on the development spectrum, and the level of ethnic segregation in Gambella City were all defined through surveys, interviews, and focus groups with KIIs in various institutions. All of this data was triangulated quantitatively and qualitatively. They were all subjected to the same procedure of theme analysis. Furthermore, thorough data on policy and planning papers was acquired from secondary sources. The planning models in use concerning Ethiopia's urban growth and ethnic enclave settlement policies were evaluated using national and regional documents.

Interviews with decision- and policy-makers, enclave dwellers, and observational photography also yielded some significant confirmation. The use of perspectives, attitudes, behaviors, and feelings regarding the effects of ethnic enclave settlement and the sort of segregation that existed, in addition to quantitative data, was used to support the relevant elements. All of these were put into clear focus by estimating the contribution of each component based on the remarks from the household survey. The action was on a coordinated mixed-methods design in which both qualitative and quantitative data were collected. As data collection got started, field observation was also being done concurrently. The household survey began in February 29, 2021 and ran until July 30, 2021, collecting data from each kebele. Any necessary adjustments were made during the feedback phase and took effect right away. The KII interview and field observation were both taken into consideration in the same way.

3.6.1. Sampling techniques

Since a mixed-methods study design was the main recognized techniques, both probability and non-probability sampling techniques were utilized. The data sample was based on the exploratory study that was selected. Five Kebeles populations were gathered from Gambella City and nested to fit the research's objectives, which pushed for a new protocol for enclave city. The components needed to build a new ethnic enclave in Gambella were determined using research on the effects of ethnic enclave settlements on the development spectrum.

Interviews were conducted with the key informants (KIIs) listed in Table 3.3 below to collect qualitative information. All of the KIIs for this study were selected using a non-probability

method called judgmental or purposeful sampling, with a focus on the snowball. Because it made it possible to "select a sample based on knowledge of a population, experience, and duration of how an individual stayed in Gambella city" (Babbie, 2012). Additionally, the purposive sample approach was adopted because certain data demanded informants with expertise, particularly with urban planning knowledge. Based on the actual circumstances on the ground and the structure of government, the urban planning institute officials and their experts, as well as the Bureau of Gambella Urban Development and Construction, Gambella City Mayor Office, and Gambella municipality, were utilized as policymakers for interviews. The FGD and interview procedure also involved the administrative personnel, zones (sefer), school principals, students, police officers, and elderly people (Snowball) from selected school or each kebeles. The emphasis was placed on the causes of ethnic enclave settlements, how these settlements affect development activities, and the types of regulations that are in place, and the planning model had been used for Gambella City.

Based on these, the deputy heads of the urban development and construction bureau in Gambella and three experts—the deputy mayor and speaker of the city council, the municipal manager in Gambella, four experts from the municipality with “direct experience in land administration with the implementation of structural plans, and the development of infrastructure,” and two planners from the Gambella planning institute with direct experience in the plan development—were all part of this study for interview.

Six elderly citizens were also chosen, using the snowball selection technique, from the entire city by kebele. With an emphasis on people who have lived in Gambella for more than 40 years as city citizens. All of these elders were contacted to learn more about the background of the Gambella city enclave and their considerable engagement in Gambella's politics and economy practices. They were all used to contrast the many governments that oversaw Gambella, especially how each made a substantial contribution to the growth of the city. In addition to these, the regional police commission and the Gambella city police officers were used as backups, especially when it came to information of a significant increase in criminal activity as ethnic enclaves predominated. This happened in 2021 in Kebele 02 and 03. The FGD was conducted in the city prison office in Arat kilo and the deputy regional police commissioner's office. These groups were chosen as first-hand sources that could provide reliable information on the difficulties affecting the city from ethnic enclave settlement from their day-to-day operations.

A probability sampling strategy was the second method of selection used to control the subject's fruitfulness. The survey's population sampling frame comprises the 16,129 dwelling home plots identified from (CSA's, 2018 cited in ECSU Gambella city structural plan documents, 2018 projection), backed by the land inventory system conducted in 2016 (Gambella City Structure Plan, 2018), as shown in Table 3.1. Using GIS 10.4, we determined who owned each Kebele's plot and parcel, and the population of households for this study was divided into the appropriate numbers of residents. Additionally, the ethnic composition was also determined by the Land Use Inventory and survey. These data were also used to construct the map (Figure 2) that depicted the spatial separation of sites that defined the concentration of one ethnic group in one area.

The study included the entire city's population, as indicated in Table 3.2, which details the proportional distribution of the population in focus. Basic random selection procedures were employed to identify participants from each kebele equally for the household survey. According to Kothari's (2004) model, 500 families were necessary for this project survey. The household (HH) allocations were distributed proportionally, with each kebele receiving a piece of each. However, the distribution was carried out by taking into account all of the locations with the highest population and localities with minorities according to land used inventory and observations carried out in 2020 during the pilot test. This was done for the success of the research and the inclusion of concerned people in the study. These areas were notable because of their unique ethnic makeup, which might be useful in that they may be able to demonstrate both the benefits and drawbacks of clustering as a single ethnic group in the city.

3.6.2. Sampling population

Based on CSA (2018) predictions and LUI for Gambella municipality, the study considered 16,129 families, as shown in Table 3.1. The distribution of the city's population by population and household size during the three historical periods is shown in this table (1994–2016). The number of residences and typical household size during different times are also included in the same table.

Table 3.1: Population and Household Size of Gambella city

Year	Both Sexes	Male	Female	No of Households	Average Household Size
1994	18263	9852	8411	4,356	4.2
2007	39022	20790	18232	10,152	3.8
2016	65091	30044	35047	16,129	4.0

Source: CSA (1995; 2008; and 2018 cited in ECSU 2018 Gambella city structural plan)

3.6.3. Sampling size

Based on CSA (2018) predictions and LUI for Gambella municipality, the study considered 16,129 families, as shown in Table 3.1 (1994–2016). The study's general population, level of confidence, and significance level all have an impact on the sample design in many studies. For the household survey, the researcher picked 500 residential plots from the five kebeles. The sample size was determined using Kothari's (2004) sample technique. For the standard, simple random sampling and selective sampling techniques were used to sample the population of Gambella City. Home surveys and interviews with key informants working in the government sector were conducted through purposeful sampling. Additionally, competent and experienced elders were chosen, as were business-focused private sector groups. For this study, the Kebeles administration and the regional officials in charge of each zone were taken into account.

Table 3.2 below displays the distribution of respondents from the research's specifically selected sample of worried. The use of all five of the city's kebeles illustrates the genuine phenomenon of enclave settlement in Gambella City. To locate enclaves, the five kebele were employed as a spatial reference point. It was possible to ensure proper representation for all the kebeles by using the sample's 95 percent confidence level based on the proportional length of the population in each kebele. Kothari's (2004) proportionate population measuring approach was used to acquire the sample for home selection (16,129), which was then distributed to each kebele in compliance with the survey's requirements because the total population of all these chosen kebele and zones is finite. The number of residences and typical household size during different times are also included in the same table. Equation 1 determines how the sample population was

drawn from the total population.

$$n = \frac{z^2 pqN}{e^2(N-1) + z^2 pq} \text{ (Kothari, 2004) -----Equation 1}$$

$$n = \frac{(1.96)^2 * (0.5) * (0.5) * (16129)}{(0.05)^2(16129 - 1) + (1.96)^2 * (0.5) * (0.5)}$$

$$n = \frac{3.8416 * 0.25 * 0.25 * 16129}{(0.05)^2(16129 - 1) + (1.96)^2 * (0.5) * (0.5)}$$

$$n = 500 = 3872.5729 / 806.4 + 0.9604 = 3872.5729 / 807.3604$$

$$n = 4.796585143388256 * 100 = 479.65 = 480 \text{ or if 4.7 rounded to } 5 * 100$$

n=500 sample size

Where:

n: is the sample size for a finite population

N: size of population, which is the number of household's

p: population reliability (or frequency estimated for a sample of size n), where p is 0.5 and q= 0.5 and e: margin of error will be considered is 5% for this study.

Z α /2: normal reduced variable at 0.05 level of significance z is 1.96

The sample size for this study will be 500, according to the calculation above. In this fashion, a survey of 500 households in Gambella City is carried out. Simple random selection was used to choose this sample of 500 households from five kebele, and the method from Bhanu (1989), which was cited in Berhane (2010) and Mazol (2020) was used to compute the proportion of households that replied based on the proportionality of household size in each kebele. The model sample size for the target population was cost-effective in terms of both the amount of time needed for analysis and the complexity of the subject under study. It was also large enough to serve as an adequate representative of the population.

So, $S = n * th / TH$

Where; S=sample from each kebele

n=Total sample size

th=Total households of each kebele

Th=Total households of City

Table 3.2: Procedures of Selecting Households Respondents at each Kebele

Kebele	Total Household	Calculation for number of households	Sample proportion	Absolute sample	Sampling technique
01	4,028	$500 \times 4,028 / 16,129$	124.8	125	Simple random sampling
02	2,435	$500 \times 2,436 / 16,129$	75.4	75	Simple random sampling
03	3511	$500 \times 3511 / 16,129$	108.8	109	Simple random sampling
04	3026	$500 \times 3026 / 16,129$	93.8	94	Simple random sampling
05	3129	$500 \times 3129 / 16.129$	96.9	97	Simple random sampling
Total	16,129		499.7	500	

Source: CSA 2018 projection cited in ECSU 2018 Gambella structure (2019)

Twenty key informants in all, in addition to the respondents already mentioned, were specifically picked based on their position and level of responsibility within each office and institution, as well as their proximity to the pertinent residential neighborhood. A snowball method was used to choose six elderly participants from the key informants. The administrators of Kebeles 05 and 02, as well as a representative from the President's Office and the Gambella Plan Institute, were disregarded because they did not reply and were not interested to participant on the interviews.

Table 3.3: Procedures of Selecting Officials and Experts Respondents in selected office

No	Selected institution and individual	Code	Number of participants	Number of feedbacks	Sampling technique
01	GNRS Urban Dev't and Construction Bureau Deputy Head	KII1	1	1	Purposive sampling
02	Gambella City Mayor office, Deputy Mayor	KII2	1	1	Purposive sampling
03	Gambella Municipality Manager	KII4	1	1	Purposive sampling
04	Gambella City speaker	KII3	1	1	Purposive sampling
05	Kebeles administrators	KII5	5	3	Purposive sampling
06	Urban Dev't and construction bureau and Gambella municipality experts	KII6	5	5	Purposive sampling
07	Gambella urban planning Institute	KII6	3	2	Purposive sampling
08	Elderly peoples and well-known Business peoples	KII7	6	6	Purposive sampling(snowball)
09	President office	KII1	1	0	Purposive sampling
Total				20	

Source: Own compilation (2022)

Table 3.4 below displays the total number of respondents designed for the focus group discussion (FGD). The main subjects of debate include the effects of ethnic enclave settlement in Gambella City, the nature of ethnic segregation, and problems related to it. The people mentioned below are all city residents who are directly involved in day-to-day neighborhood activity. Three focus group discussion was conducted in Gambella.

Table 3.4: Procedures of Selecting Respondents for Focus Group Discussion

No	Selected institution and individual	Code	Number of participants	Sampling technique
01	Gambella Regional police	FGD1	8	Purposive sampling
02	Gambella City police	FGD1	6	Purposive sampling
03	Kebele local administrators	FGD2	10	Purposive sampling
Total			24	

Source: Own survey (2021)

3.7. Method of data collection

According to the research philosophy, the type of study chosen, and the fishpond of appropriate and relevant data in line with the goals set for an ethnic enclave city, the study used both qualitative and quantitative data collection approaches.

3.7.1. Key Informants Interview (KII)

Due to their methodological benefits and alignment with the objectives of the study, KIIs were selected for deep understanding of the subject. KIIs information's were used to analyze the discourses of decision- and policy-makers regarding how enclave settlement affects the city development. The goal of the interviews was to identify the causes of the enclave settlement in Gambella City, its problems, and the factors that either encouraged or discouraged residents from

going there. KIIs provided support for the quantitative data obtained through a household survey. The planning and settlement policies for urban growth in Ethiopia were therefore greatly clarified as a result of the information received from the expertise. The KIIs have the capacity to offer accurate data that is challenging to find via surveys (Cohen et al., 2018). The KIIs were designed to look into the issues, precepts, reasons, and discourses that can influence ethnic enclave settlement and its implications, as well as what kind of planning and policy solutions ought to be in place or have been for Ethiopian enclave cities.

The interview questions in this respect were both organized in respect to the CFA-SEM framework that served as the foundation for grouping them thematically. Facts from the KIIs was gathered through face-to-face progressive interviews from (2020-2022). The interviews took place in Amharic, the official working language of the state, as well as in the native tongues of the Nuer and Anywaa peoples. The interviewer was able to speak the regional and national languages with ease. The responses were recorded in both voice and written notes for individuals who consented to have their input recorded. The data from the KIIs were guided by the research's objectives. The information gathered using the interview approaches, meant to corroborate the results of a household survey in Gambella City, addressed all four objectives.

3.7.2. Field Observations

The primary data collection process was conducted by field observations between October 2020 and August 2022, which also improved the first interpretations. The reason why field observation is used, per Cohen et al. (2018), is that it develops the subject. Additionally, it forces us to take a step back and let the results do the talking. In order to build what fits, the study is helped by observation and a thorough account. Close follow-up was carried out until August 2022, primarily through interviews and consultations with the pertinent KIIs. In addition to interviews, all of the figures in this report were taken using a personal Samsung Smart phone and an Amazon tablet. The research was well-versed in city morphology and favored walking around the city. When it was appropriate, all of these figures were carefully observed both during the day and at night. However, due to the fact that the majority of the city is not particularly safe, additional consideration was being given by taking into account the security measures in place. The observation was broad and thorough, but particular areas with a high concentration of homes with similar ideologies received special attention. The observation of the scales was on the street,

in irregular blocks, and across city neighborhoods, particularly in those with a high concentration of the same ethnicities.

Across the city's neighborhoods, the valuable pictures and field notes were taken. In order to map the actual practices in use, observations were focused more on the physical and spatial structures, with attention also paid to people on the streets, transportation routes, trade, and their seating arrangements in schools, hotel use in relation to customer concentrations based on ethnicity, and daily co-workers employed in hotels and small businesses. Some in-depth observations were made in the commercial district, particularly in Kebele-03, where business activities are common and the majority of the population frequently congregates and interacts. Regarding the types of business strategies employed in each enclave settlement market and small business centers, the subject of exposure received a lot of attention. Police stations and their operations in the Gambella municipal setting were also observed and taken into consideration to magnified how enclave pattern affect day to day operations.

The observations for this research sought current data and live information from each enclave in order to discover the genuine practice physically or spatially on each kebele. As evidenced by the field observations made in Gambella City, the prospective realistic assessment of the influence of ethnic enclaves on urban development brought ethnic enclave settlement abuse to Ethiopia's urban land management system. The field study gave the opportunity to interact with locals and verify worries about how difficult the ethnic type of settlement is in the city. Consideration was given to places where contrabands, robberies, murders, smugglers, and other violent crimes are buffered and difficult for locals to live in. The observations also provided an opportunity for casual discussions with land brokers about locations in the city that were more advantageous in terms of land prices. It also gives us the chance to interact with those who live in remote areas because of terror and violence. It aided in the precise identification of all problematic hotspots and pockets that pose a risk to city dwellers, as mentioned in the findings section of this study. There were certain issues with the CFA-SEM themes that needed more attention; they were all qualified through observations. Uncertain interpretations were created and given for small-group discussions with informal groups, knowledgeable colleagues in Gambella City, and interested policy and decision-makers in order to cross-check how the data attempted to achieve the key targeted objectives.

3.7.3. Household Survey

According to Cohen et al. (2018), the survey complemented the study's objective and provided a framework for scanning a wider range of worries about populations, policies, and programs, as well as about particular people. The purpose of the household survey was to gather data for this dissertation on the factors that influenced the development of ethnic enclave settlements, the impacts of those settlements on the growth of Gambella City, and the types of segregation that resulted from those residential settlements in Gambella City. The survey method was chosen as a method of data collection due to its strengths in methodology and the benefits it offers to get information based on individual privacy. The household survey, according to Cohen et al. (2018), describes the nature of the current conditions and related specific occurrences.

The current state of ethnic enclave communities, as determined by frequency counts, was also made possible. Examples of how ethnic enclave colonization has an effect on city growth include counting the factors that went into the creation of an ethnic enclave. It also took into account how it impacts politics, culture, socioeconomics, and the built environment. The advantages of household surveys include the fact that they provide both descriptive and elucidatory data, generate empirical evidence, and modify key variables and factors to determine frequencies and measures of central tendency. An exploratory, and descriptive study was conducted using the household survey.

The household survey was exploratory to propose new theory and the proposed models that was utilized to explain how the variables interacted. These were used to create a theory about the recurring patterns, roles, and relationships. As was previously mentioned in the design section of this research, 500 households were selected for the survey. An organized house survey was developed based on the goals and study questions that had been specified. Based on the research goals, the theoretical and analytical framework, the interviews, and the document survey, a collection of open-ended and closed-ended questions was developed. During doctoral seminars I and II, Ph.D. supervisors and colleagues reviewed the document; comments on the draft's content, language, and metrics. All these were taken into consideration for the topic's advancement in quality. Additionally, the final survey draft was provided to friends who were interested in the topic, and their comments were taken into consideration and incorporated into the pilot test.

Ten enumerators were employed to go door to door and distribute and help fill out questionnaires for each occupant of the households that were the subject of the survey. Three supervisors from major ethnicities (Anywaa, Nuer and Highlander) were selected to keep an eye on the data-gathering operations closely.

The responsible body was picked based on its aptitude for the position and social connections to the appropriate kebele residents, taking into account the main ethnic composition of the city's residents and its topography. With a predominance of Nuer and Highlanders, the ratio of the 10 enumerators for the kebeles -01 and 02 was 2:1:1, with Nuer taking two and Highlander, Anywaa, and each taking one. This work was entrusted to the group manager.

For Kebeles 03 and 04, four enumerators were assigned, with a supervisor from Anywaa and a split of 2:2 between Highlanders and Anywaa. In the third phase of data collection for Kebele 05, which only had Anywaa, Highlanders, and Majang people, another survey was carried out by three enumerators—one Anywaa and two Highlanders. The payment was given to each as soon as the weekly feedback for the data collected is received and verified. The enumerators were bachelor's degree-holding college graduates who were unemployed, but they understood the local language, and had socio-cultural linkages to the community of interest. The enumerators conducted the pilot test after receiving training on the survey sheet and the right approach to reach each resident. These group were also the one utilized to reach out every registered plot owner in 2016 during land inventory for filling the data from each plot in their junction.

The household survey focused on personal, economic, political, cultural, and environmental functions in Gambella city. However, it also took into account how easily residents could access infrastructure and other important development-related factors. Three objectives of concern for this study received all of these first-hand information stories. They were combined to give a description of the customs and cultural, economic, geographical, political, and institutional aspects that were intended as the main barriers to the construction of the ethnic enclave and its effects on Gambella's development. This allowed us to understand the intricate relationships between the several variables taken into account for the study. In conclusion, the results of the household survey appear to have satisfied all three dissertation's objectives.

3.7.4. Secondary data collection

The theme classification method developed by Maxwell and Chmiel (2014) was used to examine a number of national and regional policies and legislative documents relating to ethnic settlement composition, land use, urban planning, and urban development. The regional and city reports relevant to city development and conflict-related papers were investigated to establish secondary qualitative and quantitative data. The review clarified the policy, institutional, and implementation challenges based on each category under thematic context in relation to ethnic enclave settlements and the policy solutions. The resources looked at validated qualitative data pertaining to the policy's guiding principles, urban planning guidelines, goals and objectives, techniques, and relationships. The effectiveness of the settlement program in Gambella City was evaluated using the identified policy-borne drivers of ethnic enclave settlement. The materials have been added, and they serve as inputs that advance the field observation and household survey that were utilized to accomplish the study's objectives. The Land Use Inventory (2016) linked with survey data determine the extent of racial segregation that mark the degree of spatial space ethnic segregation in Gambella city.

3.8. Methods of data presentation and analysis

When adopting data presentation and analytic methodologies to define, examine, and explain the ethnic enclave settlement system as well as to gauge the efficacy of planning and policy responses for any city, the fit-for-purpose principle was frequently upheld. Because the research was a mixed-methods study and the data collected contained both qualitative and quantitative information, the following presentation and analysis techniques were used.

3.8.1. Data analysis

The dissertation used descriptions to understand different aspects (frequencies, patterns, and norms), find and develop patterns and themes, explain relationships, and analyze fundamental logics and concepts as part of the qualitative data analysis in order to establish detailed descriptions of the study qualitatively. The qualitative description, comprehension of the meaning, justification, interpretation, and conclusion were all regarded as parts of the body of knowledge, according to Cohen et al. (2018). Because the data in this dissertation was largely self-reported, the analysis was organized using a "progressive focusing" strategy in accordance with the exploratory consideration method. It was also influenced by the emic analysis approach,

which focuses on the respondents' and key informants' unique interpretations and perceptions. Applying a narrative analytic method to several topics; key issues and significant themes were described, understood, and further supported by information from household surveys and observations.

The method of direct content analysis was employed to analyze the qualitative data, in which the coding was guided by previously established theoretical and analytical frameworks (Cohen et al., 2018). The attempts, codes, and described patterns and trends that the quantitative data further explains can all be identified using this approach. It also made it possible to reduce words and integrate them with the summary under the categories, as well as to categorize raw data systematically into theoretically stated groups. The primary goal of this research was advanced through the application of systematic, repeatable, observable, and rule-governed approaches to analysis in theory-dependent systems (Cohen et al., 2018).

Using a multi-stage coding method, the whole collection of quantitative and qualitative data was condensed, presented, and analyzed (Cohen et. al., 2018). In the beginning, an open-coding technique was used to create the categories of interests. Analytical coding was then used to interpret and characterize the categories and their structures. An axial coding method, in which the linkages between the categories were formed using cause-and-effect diagrams, was used to generate the graphic data that defined the complex link among the variables.

Selective coding was used to understand the latent and identify the primary category using the CFA-SEM framework. Finally, theoretical coding was carried out using a process method to examine the underlying ideas, causes, and relationships of the categories and to determine whether Ethiopia's settlement strategy is compatible to ethnic enclave city.

Analytical induction was employed as a methodological approach for the analysis of the qualitative data. Comparing the replies given during interviews and document surveys with the information from the household survey and field observations. The relationships between the categories within each subject were built based on the theoretical framework. The synopses of the relationships were narrated. The various analyses (qualitative and quantitative) were changed to improve the summary, and conclusions were drawn and presented using a variety of figures. Extrapolation techniques were used to analyze the coded data, allowing for the exploration of trends, patterns, and differences. Utilizing the CFA-SEM framework, the analysis was reduced to

the selection of the core category with the greatest capacity for an explanation. The relationships between the tales were clarified and addressed in the descriptive language that accompanied the analysis of the narratives in order to offer extensive descriptions. Thematic analysis techniques were used to carry out and organize the analysis.

The quantitative data analysis was utilized using multinomial logistic regression analysis that doesn't use weighting and multiple regression analysis. Regression analysis is one of the most commonly used tools in market research, and in its most basic form, it allows researcher to examine the effects of the independent variables on dependent variable (Wagschal, 2016). One of the main reasons behind the use of all these is because the outcome variable that was used in this study has more than two categories that form ethnic enclave settlements (Anywaa, Nuer, and Highlander), which is nominal. For multiple regression analysis, it assesses the strength of the relationships between latent variables (socio-spatial, economic, and infrastructure) and also consider their relationship with the outcome variable (ethnic enclaves).

The researcher chooses this type of data analysis technique for the following reasons: Regression analysis can provide insights that few other techniques can, such as indicating whether independent variables have a significant relationship with a dependent variable, showing the relative strength of different independent variables' effects on a dependent variable, and allowing predictions to be made. In moreover, regression analysis was used to perform inferential data analysis. The relationships between the independent and dependent variables were established using regression analysis. This model was employed since it is a process that predicts a dependent variable by combining two or more independent variables. The multiple regression models in this study use the following equation with six independent variables:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \sum_{i,j=1}^7 \beta_{5j} X_{5i} + \sum_{i,j=1}^5 \beta_{6j} X_{6i} + \varepsilon \quad (2)$$

Where: -

Y = Degree of Ethnic Segregation

β_0 =constant, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_{5j}$ and β_{6j} = regression coefficients

X_1 = Socially

X_2 = Spatially

X_3 = Economically

X_4 = Politically

X_{5i} = Ethnic (Where, i =Anuak, Highlander, Komo, Majang, Nuer, Open-Space, and Opo)

X_{6i} = Kebele (Where, i = 01, 02, 03, 04, and 05)

ε = Error Term

The data was properly handled, and the cornerstone for managing missing data was the deletion method (Cohen et. al., 2018). Cohen et al. (2018) claim that situations that were missing only the relevant variables for a particular statistical computation were removed. Using the excluding case pair-wise procedure, the missing cases were excluded. This was possible since it was believed that the missing data would be distributed randomly and would not materially affect the overall findings. Descriptive statistics, principally frequencies and percentages, were used for the study of the quantitative data. RStudio (2020–2021) software tool was used to generate, present, and analyze the determinants for the purposes of this study.

3.8.2. Data presentation

The data summary for this dissertation was built on the theoretical underpinnings of the CFA-SEM analysis model. According to the analytical models based on the four components of development spectrums, all of the data was coded, classified, and finally thematized. The concurrency exploratory approach, the type of research methodology employed for this study, had an impact on the way the results were presented. The information from the interviews, FGD, and document survey was thematically synthesized, indexed, tagged, and categorized, and it is recorded in both hard copy and digital form.

The qualitative data was therefore needed to explain the themes identified, to triangulate with the quantitative data, and to substantiate some claims. Some crucial aspects of this research were organized, extracted, and inserted where necessary, rather than the summary of the data being analyzed from the recordings. As a consequence, the data was thematically grouped and presented according to the dissertation format in each theme area. During the first interpretations, analysis of the interviews, and document survey, the thematic categories and sub-categories

under each topic established by the theoretical and analytical framework.

The framework of the five topics—sociospatial, economic, environmental, infrastructural, and ethnic enclave—was utilized to collect all the necessary data, which was then used to create the nodes. After the questions were further qualified by integration with the study themes, pertinent data from various data sources was gathered to address the questions. The degree of systematization was maintained by placing "the numerical data first and followed by the qualitative, and sometimes vice versa" (Cohen et al. 2018). Descriptive statistics were utilized in the study because they best suited its goals and purposes. RStudio (2020 and 2021) was used to estimate, organize, present, and analyze the data. As the complexity of the subject multiplies its usage, it combines, arranges, and illustrates the data using frequency tables, graphs, box plots, bar charts, and jitter plot distribution forms of data presentation.

3.9. Definition of key research variables

Marcuse (1997) described ethnic enclave settlement as "a spatially concentrated area in which members of a particular demographic group, self-identified by ethnicity, religion, or else, cluster as a way of advancing their economic, social, political, and/or cultural growth." Accordingly, the study defined an ethnic enclave settlement as a neighborhood where people with the same ethnic background live in close proximity to one another in an urban space. In order to improve their safety and security, economic well-being, sociocultural identity, and ability to exercise political influence in an urban setting, residents of this area identified their neighborhood according to ethnic and origin-related characteristics. Ethnic enclave settlement is regarded as the dependent variable—a dummy variable—in this context. Therefore, in objective two with framework CFI_SEM:

II. The implication of ethnic enclave settlement on sociospatial, economic, environmental, and infrastructure is the subject:

Ethnicity enclave: the concentrated habitation of both indigenous people (Nuer, Anywaa, Majang, Komo, and Opo) and non-indigenous people (highlanders) in a certain area in Gambella city. Their concentration in a single area has an impact on city development spectrums in both positive and negative ways. The effect of ethnic enclaves is defined and measured in the following ways:

Economic activities are the economic functions taking place in a city's spatial space that is an enclave.

- Shared market center: availability (closeness or proximity) of a market place in a nearby locality.
- Closeness to a financial institution: access to a financial sector that receives savings and provides loans to residents based on the recognized distance to the resident.
- Business protection: level of affiliation and business operation based on group interest.
- Source of income: the place where residents received their remuneration for consumption.
- Employment of co-ethnic group by firm in the market: residents employed by their own ethnic company that relegated others.
- Unorganized and non-modernize means of doing business: poor practice of doing business in traditional form.

Sociospatial trajectory: social and spatially related functions underway in an enclave city that hindered city development.

- Access to school: proximity of resident to nearby school as distance and location matter.
- Access to health facilities: closeness to health services as per standard and utilizing access without fear.
- Inter-ethnic marriage: the possibility of conducting marriage with different ethnic group across the city that is not co-ethnic.
- Land ownership: interest to own junk of land as an individual or group in urban space.
- Flash Conflicts: conflicts that suddenly occur in the city without a proper, clear cause.
- Communalism on city land: access to land as member of a family group or freely God-gifted land.

- The intensity of conflict: an increase in the number of interethnic conflicts that danger the lives of residents in the city.

Environment: environmental functions taking place within the city that devastated the city environment and are ill to residents.

- Waste collection: the ability of the municipality to collect waste in every enclave.
- Irresponsiveness of residents: the disposal of waste everywhere in the city without a care in the city surroundings.
- Deforestation: the cutting down of the nearby greenery suburb as ethnicity occupied the suburb in number for residential area.
- Environmental problems: pollution in the city that degraded the city's main stream and river Baro.
- Compatibility of residential area: exposure to displacement of residents in a spatial space and occupation of that space by another group of residents.

Infrastructure development: is the development that happens in each enclave as access to infrastructure is underway.

- Shared recreational area: the presence of a built playing ground, cinema, and culture center in the nearby residential area of the city.
- Access to streetlights: availability of streetlights in the locality of the resident
- Home connection to electricity: connection of the individual house with power for lighting and cooking
- Access to potable water: availability of potable water sources in the nearby residential area
- Access to road connection: availability of a constructed road network in the locality of the resident
- Connection to the drainage and sewerage lines: liquid waste disposal through connected waste disposal means available in the city.

The Descriptions of the Relationships between Ethnic Enclave Settlement and Socio-Spatial, Economic, Environmental, and Infrastructure Development

Understanding the sequential cause-and-effect relationships and the relationships between the situations causing variables (which we refer to as latent variables) and the results of these effects upon the affected variables is the fundamental insight of using the Confirmatory Factors Analysis under the Structural Equation Model (which we also call the confirmatory variables). The inducement factors necessary for the occurrence of the latent variables were also involved, underlined, and we predict their influence as well in these links in order to be consistent with these interactions. Therefore, no model other than the confirmatory factor analysis under the structural equation model can explain these complex links of cause-and-effect and correlations between variables. This is also the justification for using the model, which is in charge of producing the results that perfectly match the accounts of the scenarios under inquiry. Table 4.4 in annex 2 provides a summary of this model's explanations, brief descriptions and measurement.

3.10.Ethics, Validation, and Reliability

3.10.1. Ethical Consideration

In conducting this investigation, every ethical concern and regulation relating to employing human participants were taken into account. Before beginning each stage, the interviewee was informed about the interview's autonomy, confidentiality, and relevant actions to remove any participants (Cohen et al. 2018). Informed consent was given in full context to all public and private entities that were specifically chosen to participate in the study.

Every KII was picked, given information on the topic, and asked for their opinion. If it was possible, it was asked that the interview take place without a record if it wasn't possible for them to have the record freely. In locations where records were prohibited, written notes were the dominant issue. Except in cases where the candidate displays a wish to do so, the introductory observations were performed.

The people portion of the interview is rarely given any care. The coding system was established using the interview process, which included interviews with everyone from a regional official to a local administrator. Every item of feedback was coded and stored by the researcher.

Observations were made during the data survey and interview in accordance with the financing and timetable. Each party to the neighborhood settlement gave their individual consent before anyone who wanted to know why photos and record were taken in a particular part of the city. The purpose of the observation was to evaluate how youngsters from various ethnic groups interacted with one another and how each group felt and spoke about other ethnic groups based on the language and terminology of haters in public settings (markets and schools). These people and the youth organizations, however, were unaware of this goal at various stages. To further the already obtained data, the report took into account all of these remarks. As a result, all of the feedback from the respondents was presented in broad strokes, making both the observation and the (KIIs 1–7) share the same meaning. The study's aim and goals were also explained to residents who were chosen to take part in the household survey, and their concerns were adequately addressed as the investigation uncovered several common problems among the ethnic groups in Gambella city.

When importing the data into RStudio and encoding it, all problems with a person's identity or photos were avoided. Only those responses were acceptable and meaningfully related to each survey question imported. All survey responses were confidentially recorded based on each anonymous response from each Kebele. To protect their privacy, the data were kept in a safe place till this dissertation is submitted to university.

3.10.2. Validity

Pilot testing was conducted for 100 respondents found in three kebeles to confirm that the data instruments prepared for data collection were free from biased and errors. During this study both internal and external validity measurements were considered for credibility of the research.

3.10.3. Reliability

The reliability of this study was largely attributed to the techniques utilized to collect, analyze, and assess the data. To eliminate prejudice, peer reviewers, Ph.D. colleagues, and friends who were keen to participate in the study, offered their reflections, and provided suggestions. The data findings were made available to all interested parties that wished to do so. My supervisors' help and unique support were a passionate family that enriched each chapter and published piece. They oversaw every step of this study's method, from the beginning of the proposal stage to the conclusion stage of the paper. The researcher instantly started taking notes; the notes were

promptly analyzed temporarily; and the construct indicators were fully, consistently, and securely secured.

Statistically, the model utilized in this paper is recognized by considering the following measurements of fitness: For values of results higher than 0.90, although conservatively 0.95 implies a good fit, The Tucker-Lewis Index (TLI), which ranges from 0 to 1, should have well-fit values that are better than 0.90 to indicate a solid match. When both the CFI and the TLI are less than 1, the CFI always wins. The RMSEA (root mean square error of approximation) should be less than 0.05 for the p-value to be considered tight in the model fit estimation. A model's rejection indicates that it is an inadequate fit.

Model Test User Model:

Test statistic	2680.927
Degrees of freedom	355
P-value (Chi-square)	0.000

The P-value (Chi-square) test results for the model user are significant at the 1% level for the degree of freedom of 355, which is a favorable sign for the model's suitability in this situation.

Model Test Baseline Model:

Test statistic	7643.872
Degrees of freedom	406
P-value	0.000

The P-value of the SEM estimation output, which is less than 1%, achieved a significant level when tested against the baseline model. This shows that the baseline estimate used in this research is the best one available.

User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.679
Tucker-Lewis Index (TLI)	0.632

The CFI and TLI model test results scored below 0.9 when comparing the user model with the baseline model, indicating the presence of well-fitting values for a satisfactory match.

Root Mean Square Error of Approximation:

RMSEA	0.115
90 Percent confidence interval - lower	0.111
90 Percent confidence interval - upper	0.119
P-value RMSEA $\leq$ 0.05	0.000

The RSMSEA example displays the model's good fit when all values are greater than 0.09 but the RMSEA p-value is 0.000 or less than 0.05. This illustrated the comparability of all the latent variables used in the effect evaluation. By creating and employing an objective question, the validity of the interview questions was preserved. In this situation, in-person interviews are more effective and frequently steer clear of open-ended questions. In this paper, 496 comments were accumulated. However, the external validity of the data was upheld because the theoretical framework of the study identified the actual phenomenon, theory, case of interest, and focus. Additionally, cross-referencing strategies and data sources allowed us to assess the validity from a variety of angles. The validity produced was created using widely recognized notions and definitions. Data collectors are taught how to approach each resident in a way that makes them feel at ease and enables them to give honest feedback both before and after the pilot test during a special day of training. The researcher took on the task and obligation of ensuring that each objective's context and design were clear for KIIs and FGD. Due to the face-to-face nature of the dialogue, any linguistic misunderstandings and associated confused notions were swiftly cleared up. A random observation was undertaken, giving special attention to places and crossroads where there are blatant indications of ethnic enclave intensity. Field notes, pictures, and a first, fast examination of the issue that was noticed. The results of the field research were also utilized to generate ideas for how ethnic enclave settlements in Gambella City might be affected. Then, using a variety of techniques, including interviews, secondary data surveys, and household surveys, all the data were gathered to fit the research.

CHAPTER FOUR

4. RESULTS

This chapter expanded and explained the situation of ethnic enclave settlement in Gambella City using the four subsections according to the questionnaire that was gathered. The subsections discuss all the aspects involved in the establishment of an ethnic enclave settlement, including personal and spatial functions as well as the respondents' ancestry and demographic characteristics. Additionally, it took into account how several elements came together to create Gambella City's current settlement pattern. The impact of residential ethnic enclave development on sociospatial, economic, environmental, and infrastructure development was also taken into account. The final section discussed the degree of segregation in Gambella City as a result of enclave settlement and appropriate policies. The outcomes all include conclusions and analyses based on primary and secondary data matching.

4.1. Response rate

For the study, 500 questionnaires were distributed to all respondents entirely into city by considering each enclave and settlement situation in spatial space guided by LUI 2016. Accordingly, each ethnicity received its share by chance according to place of resident based on each kebele (Kebele 01-05) ethnicity concentration. From the table below, 99 percent of questionnaires were well returned and filled correctly. Almost, all the feedback for this study were all represented as intended. Only 0.4 percent failed to return the feedback. Moreover, Key informants who working in Urban development sector, Mayor and speaker offices and Municipality, Police officers, school's principles and Elderly residents were all interviewed. The results of response are presented in qualitative analysis of this study.

Table 4.1: Response rate

Ethnic	No of participants	Incorrect filled	Percentage
Anywaa	149		30
Highlanders	235		47
Komo	8		2
Nuer	101		20
Opo	3		0.6
Majang		2	0.4
Total	496	2	100

Source: Own survey (2021)

Remark: Majang enclave was excluded in this analysis because its spatial location was out of the coverage of study area.

4.2. Descriptive results

4.2.1. Demographic characteristics of respondents

From the sample structure as indicated in Table 4.2, male respondents accounted for (386 or 78%) more than female respondents. The distribution of respondents by age group mainly concentrated on those residents aged 38–42 years (124, or 25.0%); in terms of education level, respondents with diplomas counted (127, or 26%). This implied that respondents with diplomas and above contributed to a significant portion of the survey sample. Furthermore, the data suggests that there may be a higher representation of males with diplomas or above compared to females in the survey. Access to the labor force was demonstrated by the fact that respondents working in public institutions played a major role in responding (205 or 41%). This indicates that individuals with higher education levels and employment in public institutions were more likely

to participate in the survey. It is important to consider this potential bias when interpreting the results, as it may not fully represent the entire population. In terms of marital status, we found that (387, or 78%), of respondents have partners. In the same perspective, we considered the residents with a family number of more than five and above, counting for (117, or 24%). This finding suggests that a significant portion of the respondents have larger families, which could potentially impact their perspectives and experiences compared to those with smaller families. It is worth noting that this demographic characteristic may also introduce some bias into the survey results, as individuals with larger families might have different priorities and concerns about certain spaces than those with smaller families. These findings suggest that there may be a correlation between higher education levels and access to the labor force, as evidenced by the higher representation of males with diplomas or above. Additionally, the high percentage of respondents with partners and larger family sizes indicates the presence of stable familial support systems among the participants.

Table 4.2: frequency distribution of participants

No	Category	Count	Total %
Sex			
1	Female	110	22%
2	Male	386	78%
Age			
1	Aged 18-22years	18	3%
2	Aged 23-27years	36	7%
3	Aged 28-32years	59	12%
4	Aged 33-37years	114	23%
5	Aged 38-42years	124	25%
6	Aged 43-47years	117	24%
7	Aged 48years above	28	6%
Education status			

1	Bechara/Master/PhD	110	22%
2	Diploma	127	26%
3	Preparatory class (11-12)	70	14%
4	Fist secondary cycle (9-10)	14	3%
5	Second primary cycle (Grade 5-8)	85	17%
6	First primary cycle (grade1-4)	19	4%
7	No read and write	71	14%
Occupations			
1	Housekeeper	43	9%
2	Private sector employed	88	18%
3	Public sector employed	205	41%
4	Retired resident	18	4%
5	Unemployed resident	98	20%
6	Urban farmer	44	9%
Marital Status			
1	Divorce	28	6%
2	Marriage	387	78%
3	Single	34	7%
4	Widow	47	9%
Household Size			
1	Five family and above	117	24%

2	Four family	105	21%
3	Three Family	97	20%
4	Two family	99	20%
5	One family	78	16%

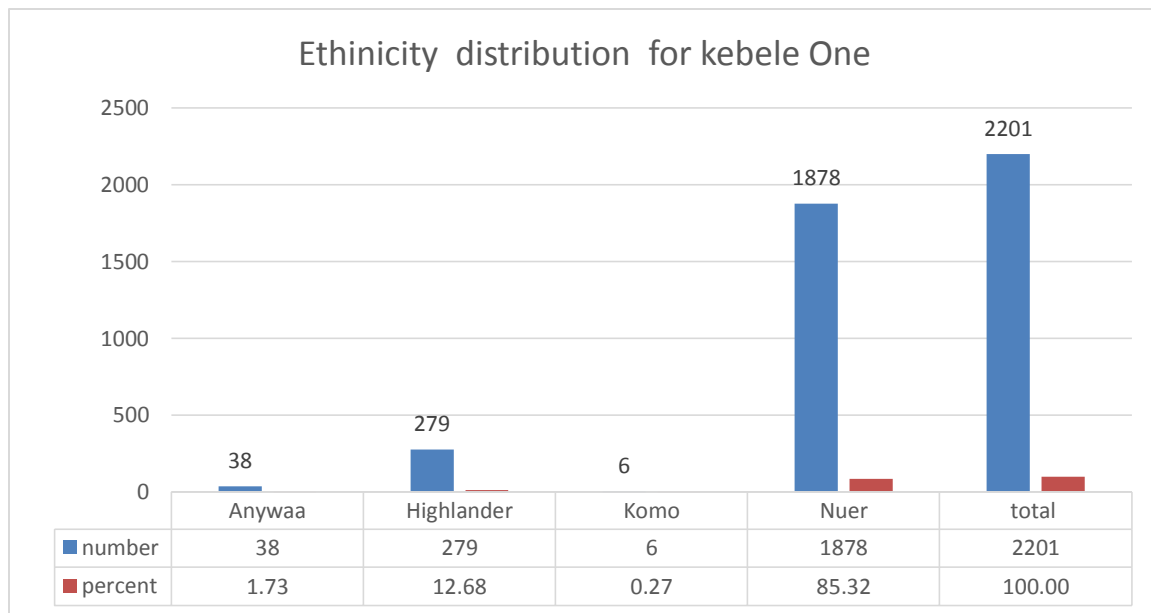
Source: Own survey (2021)

4.3. The Gambella City settlement pattern by ethnicity and Kebele

4.3.1. The distribution of population in Kebele 01

Kebele 01 is a settlement located in the eastern part of the city. Often referred to as "New Land," it is home to a diverse population and a vibrant community. The area comprises residential, commercial, and industrial zones like Gambella University, with the majority of the residents being Nuer (85%), highlanders (13%), and the Anywaa, Komo ethnic group (2%). The rich cultural tapestry of the area includes various languages and traditions. The Baro River's proximity offers recreational activities and scenic beauty for the residents. The Nuer, highlanders, and Anywaa ethnic groups have their own distinct neighborhoods within the locality, which helps preserve their unique cultural identities. Despite living in separate areas, residents rarely come together for cultural event, which fosters disunity and misunderstanding among the diverse population. Their spatial spaces fragmentation makes them different from one another as enclave ranges.

Figure 4.1: Kebele 01 ethnic group distributions



Source: Own survey (2021)

4.3.2. Kebele 02 spatial space population distributions

Kebele 02 is formally known as “Arat kilo” a lively and bustling neighborhood located in the heart of the city. The area is well known for its diverse population and unique sense of community. It is also home to the Ethiopian Customs Administration since 1902, making it an important part of the city since its establishment. The neighborhood is a popular destination for both locals and visitors interested in experiencing cultural diversity and a lively atmosphere. The majority of residents are Highlanders, followed by Anywaa and Nuer. The ethnic diversity of the neighborhood is further enriched by the presence of various other ethnic groups. The residents take great pride in their heritage and actively work to preserve and promote their respective cultures. The neighborhood has a total of 465 households, with 72% Highlanders, 19% Anywaa, and 8% Nuer residents. The strong sense of community is evident through various cultural events (Idir and Ekob) and religious festivals (celebration) that showcase the vibrant tapestry of traditions within the neighborhood. However, their concentrations in the enclave are different.

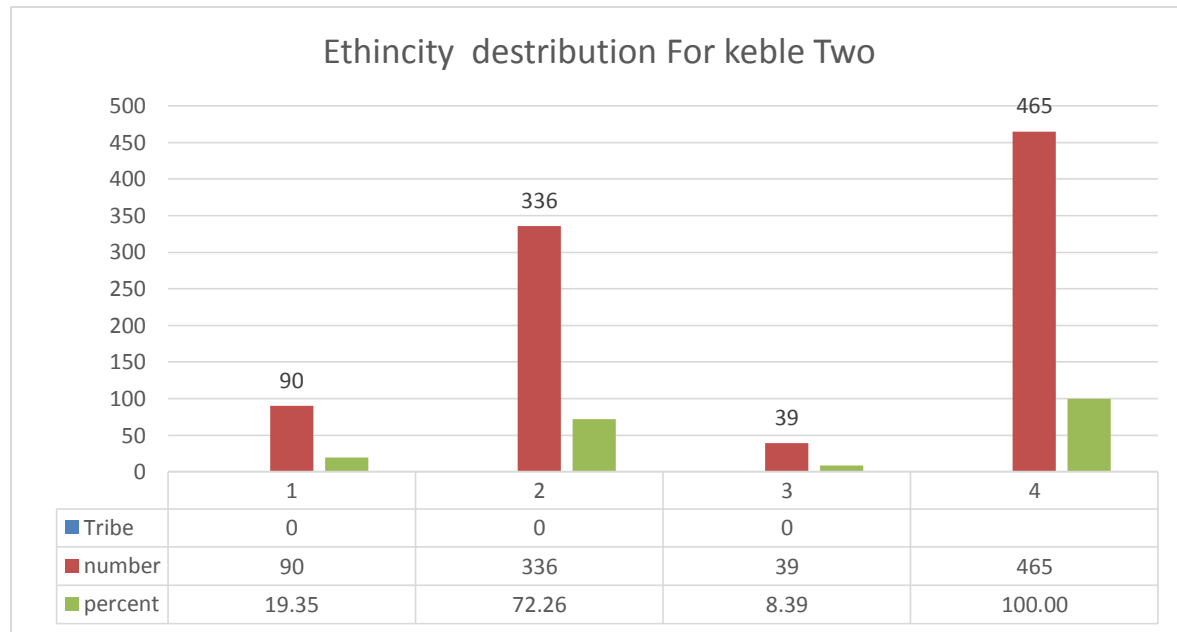


Figure 4. 2: Kebele 02 ethnic group distributions

Source: Own survey (2021)

4.3.3. Kebele 03 spatial space population distributions

Kebele 03, also known as "Gebeya Sefer," is an active market area that serves as a hub for economic activities and a cultural melting pot. The kebele is located in the northeastern part of the city, making it easily accessible for both locals and tourists. It is a popular marketplace due to its strategic location. The area is inhabited by 1,441 residents, with 75% being highlanders and 25% from the Anywaa ethnic group. Highlanders are known for their strong work ethic and close-knit community bonds. On the other hand, Anywaa residents bring a unique cultural perspective, making the community more diverse but not inclusive. Together, these ethnicities create a dynamic atmosphere in the kebele that is welcoming to all. Except for the Nuer ethnicity, the majority of the Gambella ethnic group is found in this kebele but resided in cluster.

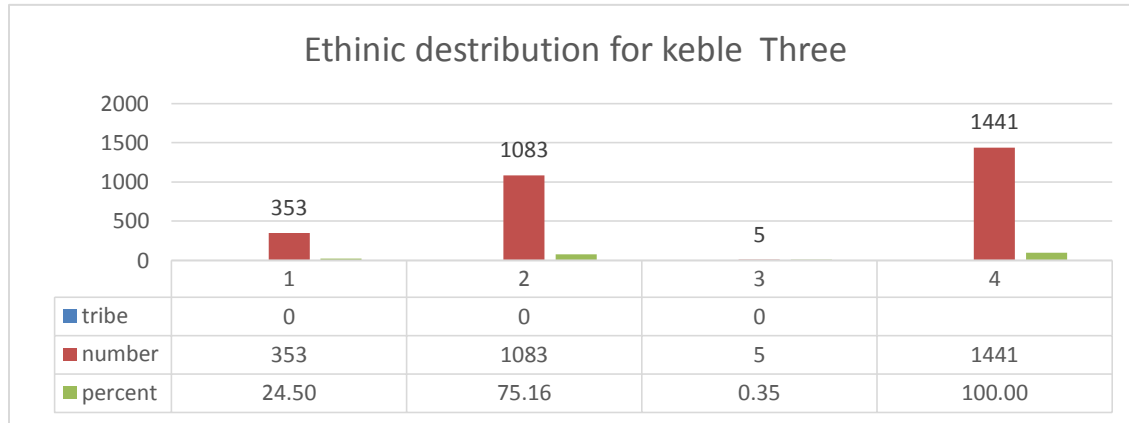


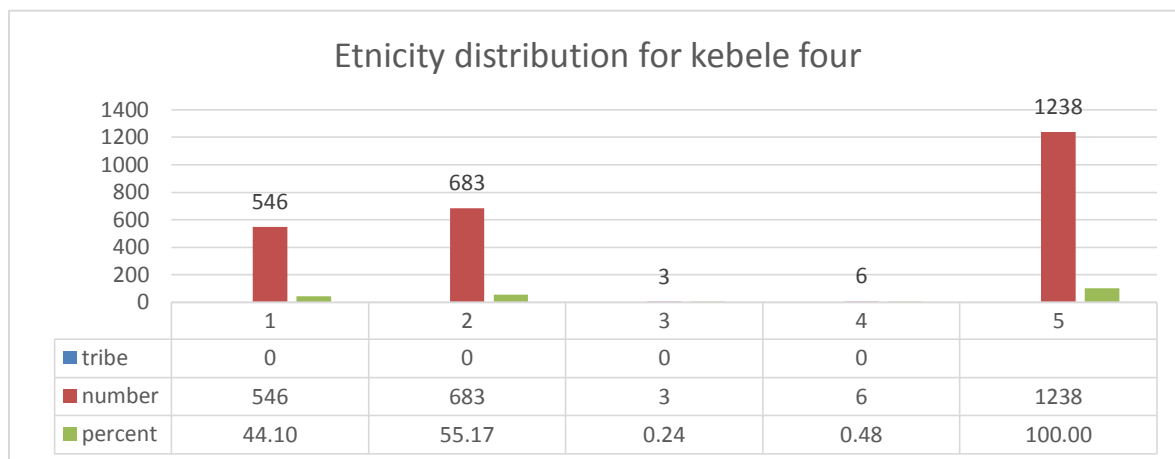
Figure 4.3: Kebele 03 ethnic group distributions

Source: Own survey (2021)

4.3.4. Kebele 04 spatial space population distributions

Kebele 04 is a settlement located in the western part of the city. It is known for its vibrant community and diverse population found in separation, consisting of Highlanders (55%), Anywaa (44%), and other ethnicities (1%). The community is a melting pot of traditions and beliefs, with various cultural and religious institutions. The Kebele's proximity to the river Baro offers scenic views and recreational opportunities. The Highlanders bring their rich cultural heritage and traditions, while the Anywaa community contributes to the diversity of beliefs and practices. However, their concentration makes the impartiality of the same ethnic group found in certain spatial spaces have a lot of consequences for other residents.

Figure 4.4: Kebele 04 ethnic group distributions

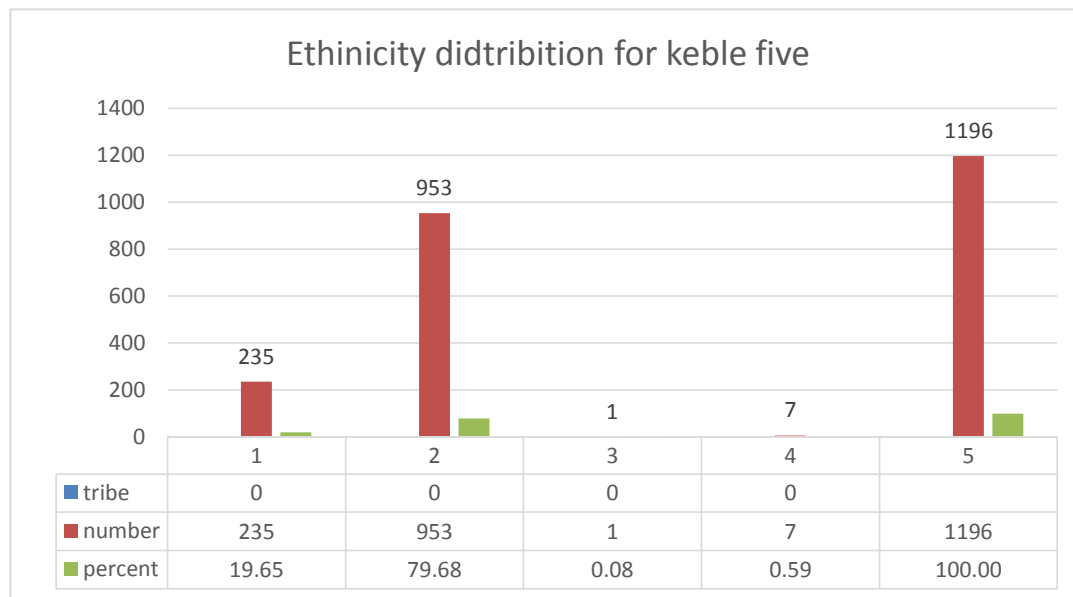


Source: Own survey (2021)

4.3.5. Kebele 05 spatial space population distributions

Kebele 05, also known as "Baro Mado," is a bustling and developing neighborhood in Gambella. It is home to a diverse mix of ethnic groups, including Highlanders, Anywaa, and Majang, which contributes to the area's rich cultural fabric. However, residents in this kebele fragment in space as each group found concentration in the city. The highlanders comprised 80% of the population, followed by Anywaa, and others comprised 20% of the Kebele population.

Figure 4.5: Kebele 05 ethnic group distributions



Source: Own survey (2021)

From the figures above, we develop an enclave map that displays the level of ethnic concentration in Gambella City. From Table 4.3, Land Inventory Data (2016–2017), we summarized all the details in each kebele and mapped each ethnic concentration in every kebele.

Table 4.3: settlement pattern distribution by Kebele and ethnicity in Gambella city

kebele	Tribe	number	percent
01	Anywaa	38	1.73
	Highlander	279	12.68
	Komo	6	0.27
	Nuer	1878	85.32
	total	2201	100.00
Kebele	Tribe	Number	Percent
02	Anywaa	90	19.35
	Highlander	336	72.26
	Nuer	39	8.39
		465	100.00
Kebele	Tribe	number	Percent
03	Anywaa	353	24.50
	Highlander	1083	75.16
	Komo	5	0.35
		1441	100.00
Kebele	Tribe	number	Percent
04	Anywaa	546	44.10
	Highlander	683	55.17
	Komo	3	0.24
	Nuer	6	0.48
		1238	100.00
Kebele	Tribe	Number	Percent
05	Anywaa	235	19.65
	Highlander	953	79.68
	Komo	1	0.08
	Majang	7	0.59
		1196	100.00

Source: Land inventory (2016)

The above table 4.3, magnified the level of ethnic enclave settlement in Gambella City demonstrated that Kebele 01 is mostly inhabited by the Nuer ethnic group. On the other hand, Kebele 02, 03, 04, and 05 have a majority of highlanders, with Anywaa people present in Kebele 04 and 05. Despite their small population size, the Anywaa community remains vocal and assertive in clustering and has claimed their rights to land ownership, particularly their ancestral lands. This level of ethnic concentration produced a lot of consequences for sociospatial, economic, environmental, and infrastructure development in Gambella City.

4.4. Multinomial Logistic Regression (MLRM) on factors associated with the formation of ethnic enclave settlement in Gambella city

This section presents the findings and empirical evidence collected from households through quantitative data collection and field observations during the survey. It is evident that the absence of census tract-level data on Gambella City introduces limitations to this analysis. This could have helped discern whether the formation of ethnic enclaves is primarily a result of natural demographic shifts or human-induced factors. The data were examined based on the categorization of the spatially situated settlement area and individual characteristics: sex, age, education, occupation, marital status, and family size, along with individual preferences for the location and the push and pull factors in Gambella city.

The central question of this study for multinomial logistic analysis is: What are the factors associated with the formation of ethnic enclaves? Are these factors related to the sex and age groups of individuals? How does attaining a higher educational level and better job opportunities affect an individual's enclave settlement? Does marriage and household size significantly contribute to the formation of ethnic enclaves? What specific preferences do individuals have for enclave settlements? What is the push and pull factors influencing settlement in Gambella City's ethnic enclaves? To quantitatively assess the relationship between personal characteristics and ethnic enclave settlement, multinomial logistic regression models (MLRM) are employed, as all variables are categorical and either nominal or ordinal. However, methodologically, no matter how the weighting method is crucial for descriptive statistical sampling (Solon et al., 2013), its use in regression analysis is contentious, as it can amplify certain responses in the population (Gelman, 2007). Therefore, from this meaning, the text ends abruptly, indicating it is incomplete to applied weighting method but referencing method was most favorable for this study.

Table 4.4: Multinomial Logistic Regression (MLRM) on personal factors associated with the formation of ethnic enclave settlement in Gambella city

Independent Variables			Dependent variable: Ethnic Enclave Settlement			
Variables Description	Variables Coding		Anywaa (1)	Komo (2)	Nuer (3)	Opo (4)
Ethnicity (Reference Category: Highlanders)						
Ethnicity with Sex Female)	(Ref.: Female)	Sex Male	0.302 (0.387)	2.952 (1.824)	-0.802 (1.114)	-17.086*** (0.000)
Ethnic Settlement across Groups Yrs18-22)	Age (Ref.: Yrs18-22)	AgeYrs23-27	-0.86 (0.706)	6.771*** (1.632)	2.035 (1.422)	17.483*** (0.000)
		AgeYrs28-32	-0.648 (0.644)	-42.965*** (0.000)	1.549 (1.339)	1.355*** (0.000)
		AgeYrs33-37	-1.085* (0.621)	6.611*** (0.820)	0.115 (1.347)	26.765*** (0.300)
		AgeYrs38-42	-1.264** (0.635)	4.989*** (0.933)	1.898 (1.355)	-22.188*** (0.000)
		AgeYrs43-47	-1.013 (0.636)	4.551*** (0.891)	1.516 (1.378)	-40.589*** (0.000)
		AgeYrs48>	-2.245*** (0.862)	-62.042 (0.000)	2.938* (1.684)	-37.585*** (0.000)
Ethnic Settlement across education level higher educ.)	(Ref.: level educ.)	Edu Diploma	-0.6 (0.371)	-0.167 (1.286)	-1.048* (0.600)	-62.035*** (0.000)
		EducGr. (1-4)	0.001 (0.720)	-0.492 (1.963)	-2.117* (1.098)	-64.424*** (0.000)
		EducGr. (11-12)	-0.812* (0.478)	-2.997 (2.384)	-0.674 (0.635)	-103.609*** (0.000)
		EducGr. (5-8)	-1.000** (0.480)	-56.973*** (0.000)	-0.752 (0.705)	-89.157*** (0.000)

Independent Variables		Dependent variable: Ethnic Enclave Settlement			
Variables Description	Variables Coding	Anywaa (1)	Komo (2)	Nuer (3)	Opo (4)
Ethnicity (Reference Category: Highlanders)					
	EducGr. (9-10)	-0.052 (0.702)	-61.451 (0.000)	-145.098 (0.000)	-73.865*** (0.000)
	EducIlletirate	-1.527*** (0.516)	-65.738*** (0.000)	-2.826*** (0.830)	-69.766*** (0.000)
Ethnic Settlement across Occupations (Ref. Housekeeper)	OccuptPrivate_Sec.	-1.406*** (0.541)	44.986*** (0.951)	-0.442 (0.961)	-36.804*** (0.300)
	OccuptPublic_sec.	-0.842 (0.530)	44.756*** (0.950)	-0.487 (0.972)	-22.551*** (0.000)
	OccuptRetired	-2.022* (1.170)	-20.788*** (0.000)	0.135 (1.167)	6.729*** (0.000)
	OccuptUnemployment	-1.114** (0.535)	43.286*** (1.247)	-1.349 (0.981)	-3.942*** (0.000)
	OccuptUrban_Farmer	-0.379 (0.629)	46.372*** (1.303)	-4.173*** (1.470)	63.322*** (0.000)
Ethnic Settlement with Marital Status (Ref.: Divorce)	MaritalMarried	0.959* (0.567)	78.037*** (0.754)	0.633 (1.108)	9.580*** (0.300)
	MaritalSingle	-0.086 (0.717)	54.960*** (0.000)	0.428 (1.247)	5.483*** (0.000)
	MaritalWidow	1.090* (0.613)	34.927*** (0.000)	0.558 (1.090)	26.507*** (0.000)
Ethnic	HHSFour	0.163	-1.603	-0.962*	-28.652***

Independent Variables		Dependent variable: Ethnic Enclave Settlement			
Variables Description	Variables Coding	Anywaa (1)	Komo (2)	Nuer (3)	Opo (4)
		Ethnicity (Reference Category: Highlanders)			
Settlement across Household Level (Ref.: Five)		(0.361)	(1.371)	(0.581)	(0.000)
	HHSTOne	-1.180*** (0.450)	-58.364*** (0.000)	-0.947* (0.544)	-38.501*** (0.000)
	HHSTThree	-0.428 (0.372)	-1.354 (1.555)	-0.893 (0.587)	-8.585*** (0.000)
	HHSTTwo	-0.837** (0.392)	-1.967 (1.407)	-1.025** (0.510)	-26.000*** (0.000)
Constant		1.683* (0.998)	-129.021*** (0.754)	1.751 (2.031)	-31.462*** (0.300)
Akaike Inf. Crit.		967.961	967.961	967.961	967.961
Note: *p<0.1; **p<0.05; ***p<0.01					

Source: own survey (2021)

4.4.1. Personal factors associated with ethnic enclave settlement

This subsection considers sex, age, education level, occupation, marital status, and family size as individual factors influencing human settlement in an enclave. Despite the controversy surrounding these factors for settlement analysis in ethnic enclaves, the MLRA model elucidates the findings in the subsequent sections.

4.4.1.1. Sex, Age, and Enclave Settlement

Sex was used as a variable to identify individual preferences for settlement locations within ethnic enclaves, based on being born male or female. This assists in discerning the settlement patterns in Gambella City. With highlander settlers as the baseline for ethnic enclave settlement and Kebele 01 as the baseline for location-based settlement, sex has shown a significant impact on the current settlement patterns of Gambella City.

In this context, with all other variables held constant, the increase in male settlements, as opposed to female, indicates that the Opo ethnicity is less likely to settle in enclave areas compared to highlander residents, being 17 times less likely. This analysis suggests that while all male ethnic groups have played a role in the development of ethnic enclaves, the influence is weaker for the Opo ethnicity. This leads to the inference that sex may influence the formation of ethnic enclaves across all ethnicities, but to a lesser extent for the Opo. This could be due to the Opo males being a minority during the survey period, with more females contributing, or their smaller numbers significantly affecting the outcome.

The categorization of residents into age groups is an ordinal variable used to determine ethnic settlement preferences in enclaves—densely populated areas or neighborhoods where members of the same ethnic group reside. This categorization helped to discern the enclave settlement pattern in Gambella town.

Taking the age group of 18–22 as a reference for settlement patterns, it was found that ethnic enclave settlement, according to age distribution, is a significant factor shaping the current settlement pattern of Gambella City. With other covariates held constant, the likelihood of settlement among the 23–27 age group, compared to the 18–22 age group, is less for the general population but is 7 and 17.4 times more likely to influence the Komo and Opo ethnic groups, respectively. The analysis showed that all ethnic groups within the 23–27 age range have a high probability of settling in Komo and Opo enclaves, possibly due to their smaller numbers in the town. Similarly, for people aged 28–32, an increase in settlement within enclaves is 43 times less likely to affect the Komo group significantly, whereas for the Opo, it is 1.4 times more likely compared to highlanders of the same age group. This suggests a strong correlation between the Komo and Opo ethnic groups' tendency to settle in enclaves.

Furthermore, the settlement patterns within enclaves, segmented by age, show that residents aged 33–37 decrease the likelihood of the Anywaa ethnic group settling in an ethnic enclave by a factor of 1.08. Conversely, for the Komo and Opo ethnic groups, the likelihood increases by factors of 7 and 27, respectively. This suggests a strong correlation between this age bracket and the formation of ethnic enclaves in Gambella City. This may be attributed to the fact that individuals in this age range are more sensitive and inclined to assume full social responsibilities within the family, are actively engaged with educated youth, and have a pronounced role in

political activities. For the Anywaa and Opo aged 38–42, the probability of forming ethnic enclaves decreases by factors of 1.3 and 22, respectively, when compared to highlanders of the same age group.

In contrast, the Komo are five times more likely to be influenced by enclave settlements than highlanders. These findings indicate that this age group exerts a Residents aged 43–47 is considerably less likely to affect the probability of Opo settling in enclaves, with a factor of 41 times less than highlanders of the same age group. However, the Komo are five times more likely to settle in enclaves. The notable values for Komo and Opo in this age range could be due to the fact that individuals at this stage of life are at the peak of adulthood, there is a high concentration of these two ethnic groups within enclaves, or it could stem from each ethnic group's distinct cultural background.

In Gambella city, the likelihood of Anywaa and Opo individuals aged 48 and above settling in ethnic enclaves is lower by factors of 2.2 and 38, respectively, compared to highlanders of the same age group. Conversely, the Nuer ethnic enclave is three times more likely to attract settlers than highlanders. This suggests that the interest in ethnic enclave settlements decreases for three ethnic groups as they surpass the age of 48. The diminishing of ethnic sensitivity could be due to better socialization and adaptation among different age groups, or the increasing impact of assimilation over time. In the case of the Nuer, the persistence of enclave settlements might be attributed to the elderly maintaining strong traditions and imparting them to younger generations tasked with preserving familial ties. Overall, age is a significant factor affecting settlement patterns in Gambella City, particularly for those 33 and older who show a pronounced preference for living within ethnic enclaves. Significant influence on the establishment of ethnic enclaves, mirroring contemporary perspectives.

4.4.1.2. School level, occupations, and enclave settlement

The variable of schooling aims to determine ethnic settlement preferences within Gambella city based on educational levels. The study utilizes the EPRDF-led government curriculum standards (primary cycles 1-4 and 5-8, secondary cycles 9-10 and preparatory cycles 11-12, TVET and diploma, and university level and above) as benchmarks for categorizing education levels. This approach aids in mapping the enclave settlement patterns in Gambella town. When considering

other demographic factors, it was found that using respondents with at least a bachelor's degree as a reference, the formation of ethnic enclaves by education level has a minimal impact on the current settlement patterns of Gambella city.

Moreover, when other covariates are taken into account, it appears that settlements with residents holding diplomas, as opposed to those with bachelor's degrees or higher, are less likely to affect the probability of Nuer and Opo settlement by 1 and 62 times, respectively. This indicates a significant but lesser effect of holding a diploma on the likelihood of Nuer and Opo settling within enclaves. Simply put, higher education levels correlate with an increased tendency to form enclave settlements independent of family ties.

For respondents in grades 11–12, there is no discernible impact on the formation of ethnic enclaves compared to those with bachelor's degrees or higher. This is evidenced by the stratification within each enclave, where the concentration of Anywaa is 0.8 times, and Opo are 103 times less likely to form enclaves compared to highlanders with equivalent higher education levels. This may be due to individuals within this educational bracket still being dependent on their parents and not having commenced independent living.

For residents in the secondary first cycle, grades 9–10, it was found that their educational status does not influence the settlement patterns of Gambella City. Specifically, the likelihood of Opo influencing settlement patterns is 74 times less than that of Highlanders with the same educational level. The analysis showed that all ethnic groups with a grade 9–10 education level have a negligible influence. This may be because they are still under family supervision or, despite their age, there is a chance they may marry and start their own families. Furthermore, for those in the first primary second cycle (grades 5–8), the interest in enclave settlement decreased for Anywaa, Komo, and Opo by 1, 57, and 89 times, respectively, compared to Highlanders, following the same family guidance rationale. Similarly, the educational status of residents with levels 1–4 is likely to influence the settlement probability of Nuer and Opo by 2.1 and 62 times, respectively, compared to Highlanders. This suggests that two out of four ethnicities have a significant but weak effect compared to Highlanders.

For residents without any education (illiterate), it was found that there is no correlation between ethnic enclave settlements and the lack of education. Illiterate residents are less likely to affect the settlement probability of Anywaa, Komo, Nuer, and Opo by 1.5, 66, 3, and 70 times,

respectively. The analysis indicated that all illiterate ethnic groups have a weaker effect on enclave settlement than educated Highlanders. These residents may be in the city to visit relatives or because they are of an age where they depend on others, residing where income earners live. Overall, it can be concluded that educational levels have no significant influence on settlement patterns across all ethnic enclaves.

The variable of occupation is considered a key factor influencing the formation of ethnic enclaves in Gambella City, aiding in the analysis of residential patterns. By using housekeepers as a reference group for ethnic enclave settlement by occupation, it was found that the settlement patterns of ethnic groups are a significant factor shaping the current settlement landscape of Gambella City. Considering other covariates, the settlement increases among private sector workers, compared to housewives, is less likely to affect the probability of Anywaa and Opo ethnic enclave settlement by 1.41 and 37 times, respectively, when contrasted with highlander housewives. Komo workers are 45 times more inclined to form an ethnic enclave than highlanders. The analysis indicates that most ethnic groups in the private sector exert minimal influence on settlement patterns, suggesting that occupation-based settlement among private sector workers does not significantly impact enclave formation, as they are primarily focused on personal survival. Rent prices and business considerations dictate their residential preferences, allowing those in the private sector to live anywhere in Gambella Town without significantly affecting enclave formation, with the exception of the Komo ethnic group.

In the same context, public sector workers are less likely to significantly affect the likelihood of Opo settlement in ethnic enclaves by 23 times compared to highlanders. Holding other covariates constant, Komo are 45 times more likely to settle in an ethnic enclave, possibly due to the Komo ethnic group's small size and strong social ties that encourage clustering within the city. However, for Anywaa, Komo, and Nuer, their lack of influence on enclave formation as government workers may stem from the fact that many residents migrate from rural to urban areas with unqualified status, but over time, they adapt, gain education, and find employment. Furthermore, government employment is accessible through the Public Service Bureau, albeit with certain constraints.

For retired individuals, their influence on the likelihood of Anywaa and Komo settling in enclave settlements is reduced by factors of 2.0 and 21, respectively; however, retired Opo residents are 7 times more likely to reside in an ethnic enclave. This suggests that Anywaa and Komo enclaves have a lesser impact on the creation of ethnic enclaves, while a positive effect is noted for retired Opo. This could be because these older individuals settle in areas where enclaves of their major ethnic group were previously more concentrated. Unemployment was also considered a factor influencing enclave settlement in Gambella. It was found that the chances of Anywaa, Nuer, and Opo forming enclaves among the unemployed decreased by 1.11, 1.34, and 4 times, respectively. In contrast, the likelihood of forming a Komo ethnic enclave is 43 times higher compared to housewives. It can be concluded that unemployment rate in Gambella City among residents has little influence on the concentration of the same ethnicity. This less significant can be either to high illiteracy or there is job discrimination as they are found in a concentrated way in their locality.

Urban farming has been identified as a significant occupation, based on feedback from respondents in this survey. In this context, considering other covariates, the Nuer ethnicity is 4.17 times less likely to influence the probability of forming an urban farming enclave compared to highlanders. Occupation-wise, urban farmers from the Komo and Opo ethnic groups are 46 and 63 times more likely to be influenced, respectively. The analysis indicates that the Komo and Opo, engaged in urban farming, have a strong influence on enclave settlement due to their low educational status, which is connected to their ancestral tradition of rural farming and their continued presence in urban areas. Their primary economic activities are deeply rooted in agriculture.

4.4.1.3. Marital status, household size, and enclave settlement

The variable of marital status is analyzed to determine its impact on the development of ethnic enclave settlements in Gambella city. It appears that residents sharing an ethnic background tend to cluster more densely based on marital status within areas where similar ethnic groups reside. When comparing married highlander settler families as a reference group for ethnic enclave settlement to divorced families for settlement patterns, it emerges that marital status is a significant factor shaping Gambella city's settlement landscape. Considering other variables, the settlement of married groups rather than divorced families increases the likelihood of Anywaa

ethnic group enclave settlement by 0.95 times. The Komo, Nuer, and Opo ethnic groups are 78, 0.63, and 10 times more likely, respectively, to be influenced by marital status than divorced families. This analysis suggests that marriage among all ethnic groups in Gambella City has a positive correlation with enclave settlement patterns.

Similarly, the status of unmarried individuals or singles shows that an increase in single settlements decreases the influence on Anywaa ethnic settlement by 0.8 compared to divorced families. Conversely, single Komo, Nuer, and Opo individuals are 55, 42, and 5.4 times more likely, respectively, to settle in enclaves, indicating a higher propensity for single individuals from various ethnic backgrounds to choose enclave living, possibly due to ongoing parental guidance. The negative sign associated with the Anywaa suggests they do not significantly influence the formation of ethnic enclaves, as they are likely to move freely. When considering widows as a marital status category, and holding other variables constant, widows are more likely to affect the likelihood of Anywaa forming an enclave, with a positive value of 1.09 compared to divorced families. Similarly, the Komo, Opo, and Nuer are 35, 0.55, and 27 times more likely to be influenced, respectively, as indicated by significant values. Thus, this analysis indicates that married individuals, singles, and widows have a considerable impact on the decision to settle in an ethnic enclave, with the exception of the single Anywaa ethnic group. Overall, marital status significantly influences the formation of enclaves in Gambella City, especially within intra-ethnic marriages, which exacerbate the situation.

Household size is considered a nested factor in family development as the act of childbearing impacts the definition of family. Research indicates that family size significantly affects the settlement patterns in Gambella City. With all else being equal, households with four members are more likely to contribute to the formation of Anywaa ethnic enclaves by 0.16 compared to highlander households. Ethnic groups like Komo, Nuer, and Opo are 1.60, 0.96, and 29 times less likely, respectively, to form such enclaves. This could be due to higher fertility rates or the preference for more than two partners, leading to larger family sizes and denser settlements. However, for the Opo, their smaller population size may explain the negative tendency. The analysis showed that except for the Anywaa, all other ethnic groups are negatively inclined to create enclaves as the number of family members decreases to four. When household size is reduced to three, the likelihood of forming an Anywaa enclave decreases by 0.42, with Komo, Nuer, and Opo showing similar trends by 1.35, 0.89, and 9 times, respectively. This could be

because such households were infrequent in the survey or that larger families tend to cluster in areas with a higher concentration of highlanders.

For households comprising two individuals, it was found that the likelihood of the Anywaa ethnic group forming enclaves is 0.87 times less. Similarly, the formation of enclaves by the Komo, Nuer, and Opo ethnic groups is less likely by factors of 1.96, 1.02, and 26, respectively. The negative values associated with the Anywaa and Nuer indicate adherence to tradition; typically, members of these groups reside with their parents even after marriage. They are considered dependents and lack the autonomy to establish their own households, remaining in their parents' home for guidance and to prepare for future independence as they progress through family life stages. They move out only after the birth of a second child, when they are deemed capable of self-sufficiency. Additionally, a first-born child is regarded as a grandchild until reaching adulthood. The increase in settlements of single-person households has a negligible impact on the likelihood of Anywaa enclave formation, with a factor of 1.18; this pattern also holds for the Komo, Nuer, and Opo, with factors of 58, 0.94, and 39, respectively, indicating a minimal influence on enclave formation. Therefore, it appears that single-person households do not significantly affect the creation of ethnic enclaves, possibly because single individuals often reside in areas predominantly inhabited by highlanders, where early marriage is common among the natives. In summary, the data suggests that as family size increases, so does the concentration of a particular ethnic group within enclaves, whereas a decrease in family size diminishes their influence on enclave formation.

4.5 Location factors and ethnic settlement

Location significantly influences ethnic enclave settlements. With this in mind, kebeles in Gambella City were spatially categorized under the location factor to determine the impact of each residential area by the concentration of ethnic groups. The variable of Kebele serves to pinpoint ethnic settlement preferences, highlighting areas with higher population density or where similar ethnic groups reside. This approach aids in mapping out the enclave settlement patterns in Gambella town, reflecting the ethnicity's traditional locations. Highlander settlers were used as a baseline for ethnic enclave settlements, and Kebele 01 as the benchmark for location-based settlements.

It was found that the settlement of ethnic enclaves in accordance with their residential locations is a key determinant shaping the current settlement pattern of Gambellacity, as shown in table 4.5.

Table 4.5: Multinomial Logistic Regression (MLRM) on location preference associated with the formation of ethnic enclave settlement in Gambella city

Independent Variables		Dependent variable: Ethnic Enclave Settlement			
Variables Description	Variables Coding	Anywaa (1)	Komo (2)	Nuer (3)	Opo (4)
Ethnicity (Reference Category: Highlanders)					
Ethnic Settlement across Kebeles (Ref.: Kebele_1)	k01kebele_2	-0.705 (0.492)	-39.771*** (0.000)	-1.614*** (0.467)	45.960*** (0.000)
	k01kebele_3	-0.241 (0.444)	-1.059 (1.986)	-130.366 (0.000)	32.859*** (0.300)
	k01kebele_4	1.063** (0.462)	1.889 (1.773)	-2.566*** (0.584)	24.742*** (0.000)
	k01kebele_5	-0.71 (0.445)	-52.546 (0.000)	-109.756 (0.000)	- 12.020*** (0.000)

Source: own survey (2021)

Note: *p<0.1; **p<0.05; ***p<0.01

Probability of Komo and Nuer settling there, with a significant decrease in likelihood by 39 and 1.6 times, respectively. However, for the Opo, there is a significant increase, by 46 times, in the likelihood of settling in Kebele 02. This analysis suggests that the lower probability for Komo and Nuer may be due to their smaller numbers in Kebele 02 compared to Kebele 01, leading to the inference that Kebele 02 has a significant impact on the settlement preferences of all ethnic groups over Kebele 01.

This could be attributed to the historical significance of Kebele 02, which was the original settlement area from which other kebeles developed, also known as the Central Business District (CBD) of Gambella city. It has been able to accommodate residents since it was part of the enclave under Ethio-Italian administration starting in 1907, recognized as an Ethiopian settlement area.

Conversely, the dynamics in Kebele-03 appear to align with those of Kebele-02, employing a similar approach. However, the likelihood of the Opo settling in Kebele 03 is significantly higher, with a notable 32-fold increase. This is accentuated by the fewer Opo initially recorded as residents or officials in this area. This suggests that, with one exception, the impact here is more pronounced than in Kebele 01. In contrast, the settlement pattern in Kebele 04 shows a divergence from Kebele 01, potentially affecting the Anywaa's settlement probability by a factor of 1.0 when compared to highlanders. Consequently, the Opo are 25 times more likely to settle in Kebele 04 than in Kebele 01. Meanwhile, the Nuer are less likely to settle in Kebele 04, with a negative significance when compared to the highlanders. This suggests a high concentration of Anywaa in Kebele 04, as it serves as an entry point for those residing along the riverbank.

The Pinykewu area, historically central to the Anywaa kingdom of Openo during Gambella's establishment, greatly influences the Anywaa presence in Kebele 04. Survey observations indicate that the majority of Anywaa in this kebele originate from "Openo Anywaa" or "River Bank Anywaa," rather than "Lul Anywaa." The negative association with the Nuer may reflect their smaller population in this kebele. Observations suggest that the Nuer are newcomers to Kebele 04, with the settlement forming post the Nation and Nationality Day celebration in 2016. Regarding location preference, the trend of increasing settlement in Kebele 05 markedly differs from that in Kebele 01, implying a decreased likelihood of the Opo being influenced to settle in Kebele 05 compared to Kebele 01, with a 12-fold reduction relative to highlanders.

The establishment of the side and the modest Opo population in the city reflect a lower significance. The side is advantageous for Highlanders as it provides access to the main highway from Addis Ababa to Gambella and acts as an entry for the Anywaa origin, "Lul Anywaa." The city's layout, characterized by ethnic enclave settlements, is shaped by locational factors favorable to the Anywaa and Opo, but not as much to the Komo and Nuer, particularly in comparison to Highlanders and Kebele 01. This suggests that Gambella's current settlement patterns, marked by ethnicity, are largely influenced by the Anywaa in Kebele 04, while the Opo have the potential to settle in Kebeles 02, 03, and 04, with Highlanders and Kebele 01 as the benchmarks.

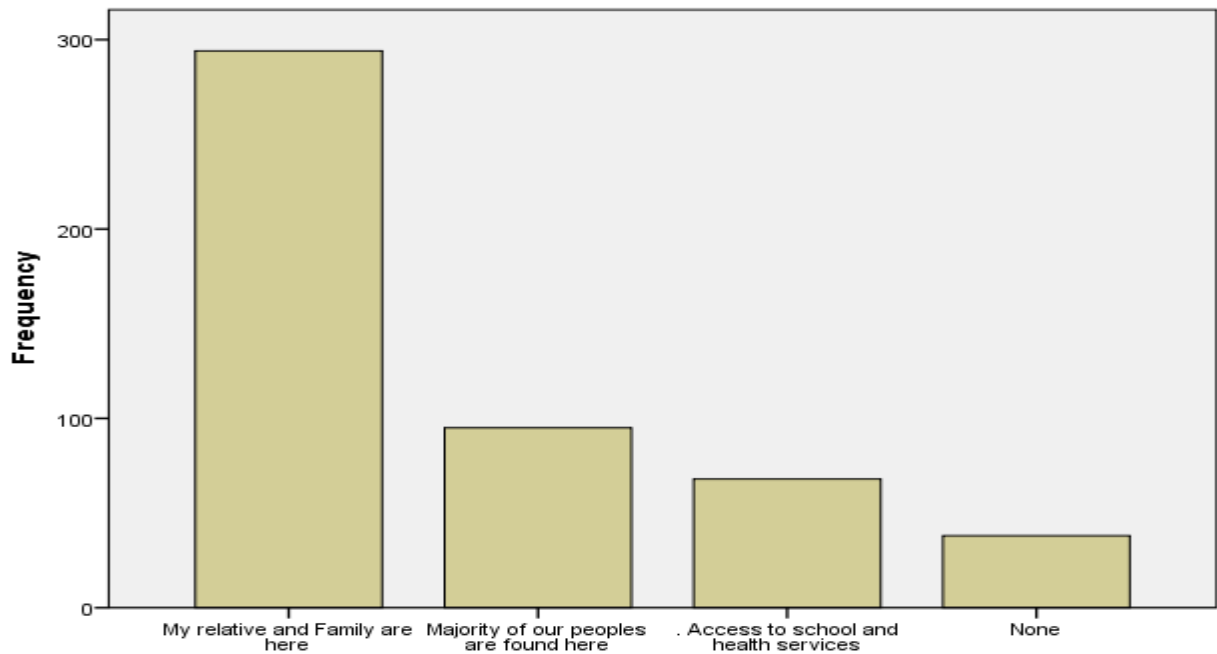
4.6 Reasons for settlement in an ethnic enclave area in Gambella City

Responses were gauged using a Likert scale (1–5; from least to most agreed) to determine individual preferences for residing in specific regions. Key factors that either attract or deter members of the same ethnic group from settling in areas where they are in the majority were utilized as confirmatory methods to identify the variables influencing ethnic enclave settlement in Gambella city. The following questions were addressed: "Why do you prefer to live in this location? Why have you chosen to reside in an area where your major ethnic group is prevalent? What factors influence ethnic concentration in Gambella city?" The findings are illustrated in Figures 4.6 and 4.7, as they elucidated the situation.

4.6.1 Descriptive results on reason why residents reside in ethnic enclave locations

Figure 4.6 highlights the residents' preference to settle in an enclave within Gambella City. According to the figure, the strongest attraction for settling in an ethnic enclave is the presence of family ties and closeness to relatives. This is followed by the clustering of community members in the area, and thirdly, the availability of social infrastructure. A few members were unable to articulate their feelings clearly as they stated the answers provided doesn't qualified their being in enclave areas.

Figure 4.6: Location preference

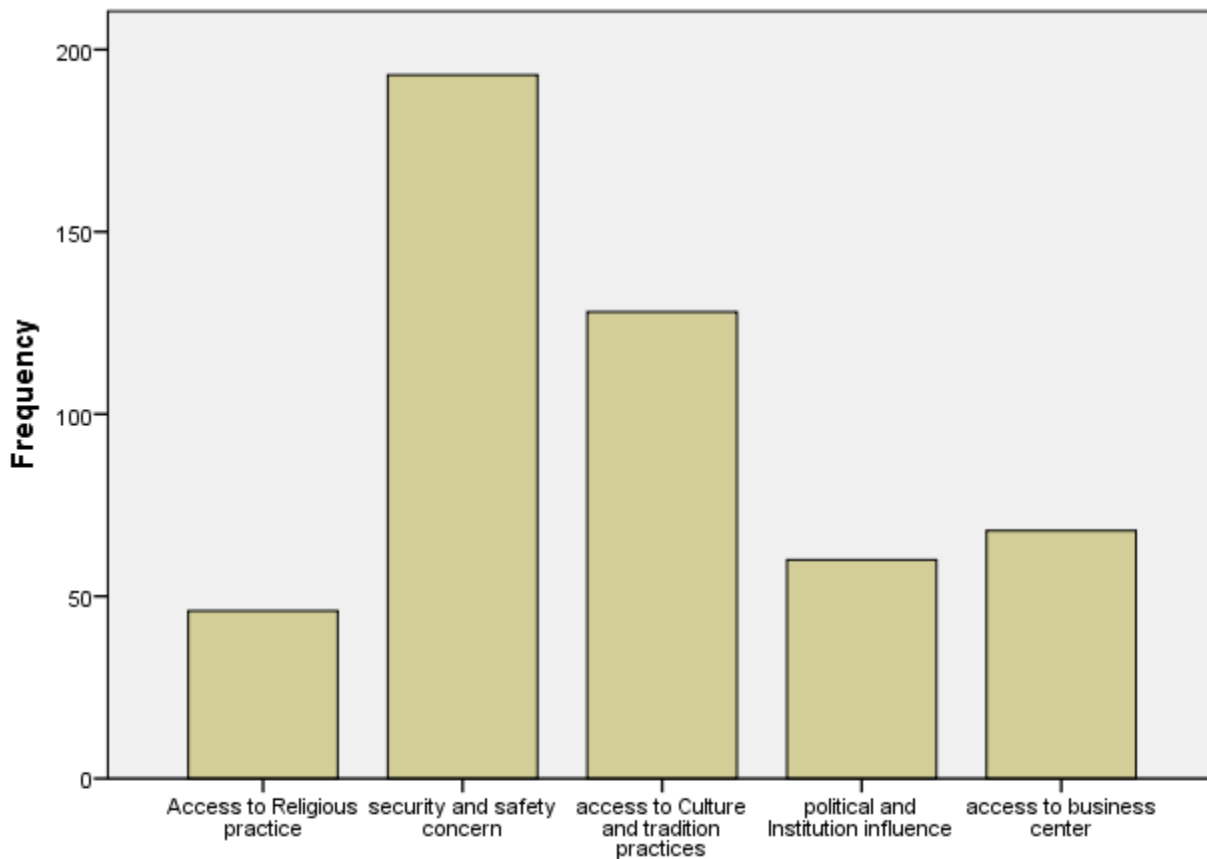


Source: Own Survey (2021)

4.6.2 Push and pull factors for enclave settlement

Beyond the aforementioned residential preference for enclaves, the study also examined forces that may lead to the clustering of residents. Factors such as safety and security concerns, access to cultural and traditional functions, business activities, political and institutional influences, and the closeness to religious facilities were all significant forces driving the concentration of the same ethnic group within urban spaces. According to Figure 4.7, the predominant factor causing Gambella residents to cluster in enclaves was concern for safety and security. These findings were substantiated by Key Informant interview and focus group discussion in the subsequent section of this research.

Figure 4.7: Force and attractive factors on ethnic enclave settlement



Source: Own Survey (2021)

Research question 2: what is the implication of Ethnic enclave settlement on Sociospatial, economic, environmental and infrastructure development in Gambella City?

In this section, we discussed the feedback from respondents based on questions designed for objective two. All the findings were addressed based on responses received from key participants, and we address the rationale for the extension of development activities and the inducement effect of the ethnic enclave settlement on development activities in Gambella Town in reverse through confirmatory factor analysis under the structural equation model as discussed in the following manner.

4.7. The Implication of Ethnic Enclave Settlement on Socio-Spatial, Economic, Environmental; and Infrastructure Development in Gambella City

The purpose of this study, which acts as a continuation of the above findings in the first objective, was narrated, described, and explained based on identified outcomes on the socio-spatial, economic, environmental, and infrastructure repercussions of ethnic enclave settlement in Gambella City. An ethnic enclave settlement in Gambella city is under construction and prevailing at an alarming rate. However, its causes and the consequences of the ethnic enclave settlement on city development in general are unknown. In this part, we discuss all the findings and identify and categorize them based on different basic components that influence development activities, such as economics, the environment, socio-spatial development, and infrastructural development in relation to ethnic enclaves.

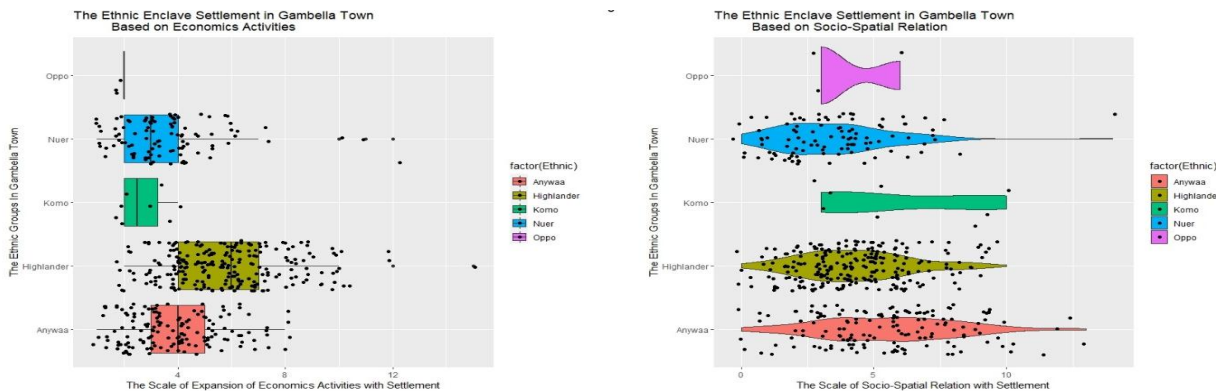
4.7.1. The Relationships between Ethnic Enclave Settlements with Development Activities

The relationship between ethnic enclave settlement and the development spectrum was identified by depicting the identified variables under consideration in this study. According to the findings, the lowest, maximum, median, first quartile, and third quartile of the variables under consideration are depicted in a boxplot and jitter plot, which illustrates how effectively the data are distributed. In this regard, some of the measurement tools to determine the linkages and distribution of developmental activities in Gambella City were utilized. In this manner, the x-lines in Figures 4.8 and 4.9 depict the scales of development and assessed by economics, socio-spatial, environmental, and infrastructure activities. The distribution of settlements by ethnicity, such as Opo, Komo, Nuer, Highlanders, and Anywaa ethnic groups, is depicted by Y-lines in the same figure.

4.7.2. The Relationships between Ethnic Enclave Settlement with the Economic, and Socio-Spatial Development

Figures 4.8 (A and B) show how economic and socio-spatial activities are spread following ethnic enclave settlement, with distribution patterns that change with the size of growth or are influenced by ethnic settlement density. This can be associated with either advances or deteriorations in development initiatives, as well as when an increase in ethnic-based settlement is underway.

Figure 4.8: The Relationships between Ethnic Enclave Settlement with the Economic, and Socio-Spatial Development



Source: RStudio's Analysis of the 2021 Survey Data

In Figure 4.8 (A), an ethnic settlement that influences the expansion of economic activity is seen in the highlanders' settlement, followed by Anywaa and Nuer, with the Komo and Opo settlements having the least influence. The weak presence of the last two ethnic groups (the Opo and Komo) may be attributed to their small population in the town. From the same figure, the economic activities are much higher in highlander settlement areas than in other enclaves in Gambella city.

Figure 4.8 (B) in the same manner also indicated; an ethnic settlement that influences socio-spatial activities is from the Highlanders ethnic group's settlement area, followed by Anywaa and Nuer, whereas the lowest influence was observed from the Komo and Opo. It is still the same reason that economic activities took hold here, as the settlement of the latest two ethnic groups (i.e., Opo and Komo) could be due to their insignificant population in the town. Following the outcomes, there is an increasing expansion of the socio-spatial trajectory in the areas where the Anywaa and Highlanders settled, then medium, where the concentration of Nuer is high, but low, where the Komo and Opo ethnic groups settled.

4.7.3. The Relationships between Ethnic Enclave Settlement and Environmental and Infrastructure Development

Figures 4.9 (A and B) show how environmental and infrastructure functions are extended following ethnic enclave settlement, with distribution patterns that change with the size of growth or are influenced by ethnic settlement density. This kind of expansion or decline in development activities in accordance with the environment and infrastructure of ethnicities is

associated with improvements or declines in development initiatives as well as an increase in ethnic-based settlement. As the development of health, environment, and infrastructure in any city is influenced by human actions, ethnic base settlement may have both positive and negative consequences for city growth.

Figure 4.9: The Relationships between Ethnic Enclave Settlement with the Environmental and Infrastructure Development



Source: RStudio's Analysis of the 2021 Survey Data

In Figure 4.9 (A), an ethnic settlement that influences environmental activity is seen from the highlanders' settlement perspective, followed by Anywaa and Nuer, with the Komo and Opo settlements having the least influence. The presence of the last two ethnic groups (the Opo and Komo) may be attributed to their small population in the town. That means the environmental concern in Gambella city is increasingly observed in highland settlement areas.

In Figure 4.9 (B), an ethnic settlement that influences infrastructure development was also seen from the Highlanders ethnic group's settlement area, followed by Anywaa and Nuer, whereas the lowest influence was observed from the Komo and Opo. It is still the same reason that the environmental activities took hold here as the settlement of the latest two ethnic groups (i.e., Opo and Komo) either because of their insignificant population in the town. Following the above distribution of infrastructure, the increasing expansion of infrastructure development is much magnified in the localities where the Highlanders and Anywaa settled.

4.7.4. The SEM Estimates of the Relationships between Ethnic Enclave Settlement and Socio-Spatial, Economic, Environmental, and Infrastructure Development

In this research, a structural equation model was used for the estimation of the results based on the relationship among variables in contact. In this regard, the relationships between ethnic enclaves and the four development spectrums (economic, environment, infrastructure, and sociospatial) can be positive or negative, depending on the outcomes of the analysis. On the other hand, the CFA-SEM output was used to reveal the major model fit, which may provide positive evidence for model accuracy. With 109 model parameters and 490 observations, the model produced a probability value less than 1 percent, indicating that the factors estimated fit to explain the predicted variables, which are socio-spatial, environmental, infrastructure, and economics, as a result of the ethnic enclave settlement epidemic. Therefore, to conclude, the estimation outcomes from Table 4.4 are appropriate to provide a better estimate of the relationship between ethnic enclave settlement and development spectrums.

Fit Measures/Model Fit Statistics

The Comparative Fit Index (CFI), which is a scale that spans from 0 to 1, tends to have values greater than 0.90, but conservatively, 0.95 indicates a good fit, according to the summary of standard measurement. The well-fit values that represent a good match should be better than 0.90. However, in the case of the Tucker-Lewis Index (TLI), which runs from 0 to 1, The CFI always prevails when both the CFI and the TLI are less than one. The p-value in the RMSEA (root mean square error of approximation) model fit estimation should be tight, meaning the RMSEA should be less than 0.05. If you reject a model, it shows that it isn't a good fit.

Model Test User Model:

Test statistic	2680.927
Degrees of freedom	355
P-value (Chi-square)	0.000

For the degree of freedom that is 355, we are observing that the P-value (Chi-square) test for the model user is significant at a 1 percent level, which is a good indication of the fitness of the model utilized in this context.

Model Test Baseline Model:

Test statistic	7643.872
Degrees of freedom	406
P-value	0.000

In testing for the model baseline model, the P-value of SEM estimation output scored a significant level, which is less than 1 percent. This is an indication of the best baseline estimation employed in this analysis.

User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.679
Tucker-Lewis Index (TLI)	0.632

When comparing the user model with the baseline model, the CFI and TLI model test outcome scored below 0.9, which expresses the existence of the well, fits values of a good match.

Root Mean Square Error of Approximation:

RMSEA	0.115
90 Percent confidence interval - lower	0.111
90 Percent confidence interval - upper	0.119
P-value RMSEA $\leq$ 0.05	0.000

In the case of RMSEA, all values are greater than 0.09, but the model's good fit is demonstrated by the RMSEA p-value of 0.000 or less than 0.05. This revealed that all of the latent variables used to assess the effect are very similar and meaningful for this study.

4.7.5. The Interpretation of SEM Estimate Outcomes

The SEM is explained by the estimation outcome from the development of economic, sociospatial, environmental and Infrastructure in Gambella city. Where each outcome was considered to explain in a thematic form based on the description results from quantitative output according to table 4.6 below.

Lavaan 0.6-9 ended normally after 63 iterations

Estimator	ML
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Optimization method NLMINB

Number of model parameters 41

Number of observations 496

Model Test User Model:

Test statistic 407.745

Degrees of freedom 94

P-value (Chi-square) 0.000

Parameter Estimates:

Standard errors Standard

Information Expected

Information saturated (h1) model Structured

Table 4.6: The SEM Estimates of the Relationships between Ethnic Enclave Settlement with the Socio-Spatial, Economic, Environmental and Infrastructure Development

Regressions:						
	Estimate	St. Err	z-value	P(> z)	Std.lv	St. All
Economic						
EcoN1	1.106	0.070	15.797	0.000	1.106	0.226
EcoN2	0.934	0.075	12.412	0.000	0.934	0.185
EcoN3	1.141	0.033	35.007	0.000	1.141	0.506
EcoN4	0.984	0.040	24.354	0.000	0.984	0.361
EcoN5	1.014	0.040	25.423	0.000	1.014	0.366
EcoN6	0.973	0.034	28.532	0.000	0.973	0.406
Sociospatial						
SocS1	0.957	0.050	19.152	0.000	0.957	0.358
SocS2	0.980	0.131	7.503	0.000	0.980	0.139

SocS3	0.956	0.072	13.296	0.000	0.956	0.246
SocS4	1.073	0.049	22.071	0.000	1.073	0.439
SocS5	0.777	0.064	12.234	0.000	0.777	0.242
SocS6	0.991	0.058	17.091	0.000	0.991	0.315
SocS7	1.129	0.069	16.412	0.000	1.129	0.303
Environmental						
EnV1	1.109	0.100	11.105	0.000	1.109	0.101
EnV2	1.008	0.027	36.756	0.000	1.008	0.333
EnV3	0.981	0.026	37.246	0.000	0.981	0.336
EnV4	1.021	0.014	72.751	0.000	1.021	0.656
EnV5	0.988	0.023	43.078	0.000	0.988	0.388
Infrastructure						
InF1	1.381	0.073	19.036	0.000	1.381	0.325
InF3	1.029	0.038	27.343	0.000	1.029	0.431
InF4	1.197	0.054	22.096	0.000	1.197	0.363
InF5	1.110	0.039	28.142	0.000	1.110	0.464
InF6	0.971	0.146	6.632	0.000	0.971	0.105
Ethnic						

Econ 0.111 0.019 6.007 0.000 0.111 0.264

SocioP	-0.084	0.018	-4.819	0.000	-0.084	-0.217
Envi	0.101	0.019	5.240	0.000	0.101	0.223
Infrus	-0.021	0.035	-0.585	0.559	-0.021	-0.026

Covariances:						
Estimate St. Err z-value P(> z) Std.lv Std.all						
. Economic						
. Ethnic	-0.012	0.028	-0.437	0.662	-0.012	-0.020
. SocioSpatial						
. Ethnic	0.104	0.041	2.546	0.011	0.104	0.125
. Environmental						
. Ethnic	0.047	0.016	2.935	0.003	0.047	0.135
. Infrastructure						
. Ethnic	0.015	0.016	0.940	0.347	0.015	0.044
Intercepts:						
Estimate St. Err z-value P(> z) Std.lv Std.all						
. Econ	0.387	0.092	4.217	0.000	0.387	0.174
. SocioSP	0.729	0.092	7.934	0.000	0.729	0.304
. Envi	0.759	0.038	19.997	0.000	0.759	0.368
. Infrus	0.177	0.148	1.193	0.233	0.177	0.151
. Ethnic	1.701	0.158	10.800	0.000	1.701	1.819
Variances:						
Estimate St. Err z-value P(> z) Std.lv Std.all						

. Econ	0.490	0.031	15.748	0.000	0.490	0.099
. SocioSP	0.964	0.061	15.748	0.000	0.964	0.167
. Envi	0.170	0.011	15.748	0.000	0.170	0.040
. Infrus	0.167	0.011	15.748	0.000	0.167	0.122
. Ethnic	0.720	0.046	15.678	0.000	0.720	0.823

Source: Own survey (2021)

4.7.5.1. The description of economic factors

The explanation of economic factors on ethnic enclave settlement is denoted by utilizing the following six categories that were coded by (Eco1-6) as indicated in table 4.6 above. In this regard, EcoN1 is denoted as representing the presence of a market center in the nearby locality, EcoN2 as the accessibility of financial institutions that can provide loan and banking services, EcoN3 as the explanation of the protections afforded to businesses in the area, EcoN4 as the sources of income, EcoN5 as the function of the business center that employed major employees from the same ethnic background (presence of business relationships based on ethnicity), and EcoN6 as the unorganized and unmodern of business practices. In this regard, the study discovered that all of these variables had a substantial impact of 1 percent on the variation in economic activity in Gambella City.

In this manner, if all other factors are constant, the quantitative descriptions of all variables utilized as a factor that can describe the economic situation in an Ethiopian ethnic enclave city, such as the increase in the number of market outlets in the area (EcoN1), can enhance the probability values of economic activities in that area by 1.11, while access to financial institutions that can provide loan and banking services (EcoN2) can contribute to economic growth by 0.93. Along with this, the increase in the percentage of protections given to business activities in the areas (EcoN3) is enough to increase the probability value of economic activity by (1.4), and the increase in income level that an individual survives with in the city (EcoN4) may increase economic activity by (0.98).

Furthermore, factors connected to business partnerships associated with co-ethnic background (EcoN5) and the practice of doing unorganized and non-modernize business (EcoN6) have a likelihood value of (1.01) and (0.97), respectively. From these descriptions, the study deduced that the Gambella enclave economic activity was related to all but mostly the protection of business activities and increasing accessibility to market outlets, which were the ones with outstanding focus. However, access to financial institutions (EcoN2) that can provide savings and loans for residents had a low effect on the city economy. This implied economic function in Gambella was magnified by the protection of one's own business as an individual as well as a group for the benefit of the enclave, which resulted in a market monopoly in the city market system.

4.7.5.2. The description of socio-spatial factors

The sociospatial was used as one important factor for measuring the implication of ethnic enclave settlement in the development of Gambella City. Under sociospatial, seven important categories that illustrate the contribution of sociospatial to the city's development trajectory are denoted by SOCS1–7. By considering all these, SOCS1 denotes the presence of the school in the nearby area, SOCS2 the accessibility to health facilities, SOCS3 lack of intermarriage among ethnic groups in Gambella city, SOCS4 individual demand for junk of urban land, SOCS5 land ownership as a source of conflict in the town, SOCS6 urban land as God-gifted or community land, and SOCS7 spatial separation of residents by ethnic line settlement intensified conflict in Gambella city.

In this regard, keeping all other factors persistent, all of these variables had a considerable impact of 1 percent on the discrepancy in sociospatial activity in Gambella City. An increase in the number of schools in the nearby residential area (SOCS1) can augment the probability values of the education system in the area by 0.95, while access to health institutions (SOCS2) can contribute 0.98 to resident's safety. Furthermore, increasing the percentage of people of different ethnic backgrounds who can get married to one another in the areas (SOCS3) can increase the probability value of social cohesion among ethnic groups by 0.95, and an increase in the demand for junk land owned by an individual (SOCS4) could increase socio-spatial disparity by 1.07. Moreover, the perception of residents that land is God's gifted or community land (SOCS6) has a

possible value of increasing malpractice on urban land by 0.99, respectively. The outstanding variable for spatial and social disparities in Gambella City is the spatial separation of residents based on ethnic lines, which intensified conflict in the city (SOCS 7). They magnified that 1.12 of the disparities come from this variable. From here, the study assumed that the areas' sociospatial functions in Gambella were influenced by the separation of residents spatially and socially. This was also followed by demand for junk urban land, which increased competition and magnified malpractice on city land (SOCS 4 and SOCS 7).

4.7.5.3. The description of environmental factors

As indicated in the spiral interaction in the conceptual framework designed for this study, the interactions of distinctive latent components with environmental factors were all denoted by ENVI1–5. According to outputs, ENV1 denotes the availability of a waste management system (collection) in a residential area; ENV2 denotes the sense of ownership or civic responsibility among residents for their surroundings; ENV3 denotes the uncontrolled ethnic base settlement deforest nearby suburb; ENV4 denotes the climate-related problems: pollution; and ENV5 denotes the availability of opportunities and the comfortability of the residential area. All these environmental factors were utilized to explain the situation in Gambella City when ethnic enclave settlement is the only form of settlement.

According to the results of the findings, it was discovered that all of these inducement variables had a substantial impact of 1 percent on the variation in environmental activity in Gambella City. An increase in the number of waste collections in the area (ENV1) can enhance the probability values of environmental quality in the area by 1.11, while the sense of resident's connection to their surrounding environment (ENV2) can contribute to the quality of the environment by 1.0 in the city. Increasing the percentage of the uncontrolled ethnic base settlement may lead to deforestation in the city suburb (ENV3) by 0.98, and the environmental pollution (ENV4) in Gambella can devastate the breathing system of city residents by 1.02. The absence of opportunities for well-being and the comfortability of the residential area (ENV5) have a likelihood value of 0.98 to increase the invasion and succession in the city. Therefore, the increase in environmental activity in residential settlement areas affected by an existing form of settlement in Gambella City is largely based on poor waste management (ENV1) and environmental pollution (ENV4). Most wastes are not collected and disposed of where they are

not supposed to be. There are no landfills, septic tanks, or other recognized waste disposal sides in many enclaves. The city is colored by waste deposited everywhere on the main road, nearby stream areas, including JabJabe, and city outlets that increase pollution in the city.

4.7.5.4. The description of infrastructure factors

An important latent category that defines infrastructure factors that attract and are influenced by ethnic enclave settlement was denoted by (INF1-6). In this manner, INF1 denotes the presence of the shared recreational area in the nearby locality, INF2 the access to a streetlight in a residential area, INF3 the electricity connectivity in the area, INF4 the accessibility of potable water, INF5 the presence of road network connection to the residential area, and INF6 the presence of drainage and sewerage line connection to the residential area. In this regard, all of these variables had a substantial impact of 1 percent on the variation in infrastructure development in Gambella Town.

An increase in the number of shared recreation facilities in the area (INF1) can increase the probability values of infrastructure development in the Gambella city by 1.38. Once more, increasing the connectivity of electricity power in the areas (INF3) is enough to increase the probability value of access to power amongst residents by 1.03; and access to portable drinking water (INF4) may increase water coverage by 1.20. Furthermore, access road network connections to individual houses (INF5) can enhance road coverage development by 1.11, and the presence of drainage and sewerage connections in the area (INF6) has a likelihood value of 0.97, respectively.

Therefore, increasing the infrastructure development in each settlement area in Gambella City indicated that the development of infrastructure in the ethnic enclave city can have a positive implication on city development. Particularly, if the city investment is on infrastructure that focuses mostly on related shared recreational facilities (INF1) and access to the road network (INF4) in the residential area, they can enhance the city's development from all perspectives, which would have high implications for physical, social, and economic development for Gambella City. In Gambella City, the latent variable that has a slow contribution to the infrastructure development includes the network of drainage and sewerage line connections to the residential area (INF6). While the outstanding latent variable was recognized for infrastructure development, the study discovered that access to shared recreational public

infrastructures (INF1) has a lot to contribute to city development when investment in them is prioritized.

4.7.6. The description of SEM Economics, Socio-Spatial, Environmental, and Infrastructure Factors Outcomes

According to the outcomes of the findings from the spiral interaction between measurement items and four development spectra, denoted by ECON, SOCIO-SP, INVI, and INF, these codes represent all the economic, sociospatial, environmental, and infrastructure outcomes that were in place in relation to ethnic enclave settlement. In this regard, the study discovered that all the variables have a substantial impact of 1 percent on the variation observed in the Gambella city development.

From the SEM outcomes, the relationship that exists between ethnic enclave settlement and the sociospatial and access to infrastructure produced an inverse relationship with a value of (-0.08 and -0.02). This indicates that the sociospatial and infrastructure functions in Gambella have the potential to weakened the city development if they are not properly managed when the same ethnic settlement increase. However, the economic and environmental factors contributed much with a (0.11) and (0.10), as ethnic enclave settlement dominates the city pattern. From here, the study deduced that the areas' economic, sociospatial, environmental, and infrastructure activities were related to all, but mostly the economic and environmental factors are the outstanding factors with both positive and negative consequences.

4.8. The Interpretation of SEM Covariance and Variance Outcomes Based on the Relationships between Ethnic Enclave Settlement and Socio-Spatial, Economic, Environmental, and Infrastructure Development

4.8.1. The Interpretation of SEM Covariance Outcomes

Covariance in this endeavor helps us to interpret the relationships between two covariates. This implied the relationship spectrum between economics and socio-spatial, environmental, or infrastructural factors, or vice versa. This interpretation also takes covariates that were independent variables and helps us to confirm their relationships with the variables that have a strong correlation with the establishment of ethnic enclave settlement. The SEM in these portions, i.e., the covariate estimation, helps us to understand how settlement-based ethnicity in

Gambella city may affect economic, socio-spatial, environmental, and infrastructural activities.

The estimation also helps to provide empirical estimation results of these associations, and it can identify the magnitude of their relationships as well. In this estimation outcome, the effect of ethnic enclave settlement on the expansion of economic, socio-spatial, environmental, and infrastructural activities was examined. As a result, the expansion of ethnic enclave settlements in Gambella city has a significant effect on sociospatial and environmental activity by 10.4% and 4.7%, respectively. Moreover, there is a modest (2%) correlation between infrastructure development and ethnic enclave settlement, which has led to a subpar infrastructure situation. This means that an increase in ethnic enclave settlement increased socio-spatial-related activities and the expansion of environmental inducement activities in the town. Even though the results of these two components show positive signs, their influence is still detrimental because their rise puts the social welfare of the settlers and the urban environment in jeopardy.

On the other hand, the town's economy actually grew in decline (-1.2%) because the ethnic enclave benefited only a few individuals as group engaged in business activities in hands of few. However, the relationship between spectrum with ethnicity consisted of (0.01) effect. Therefore, the degree of economic power being concentrated in the hands of a small number of individuals in the city causes the city's economy to melt down. This indicated that there is a high degree of economic imbalance between ethnic enclaves in Gambella. According to Table 4.7, infrastructure development, sociospatial, and environment-related functions in relation to ethnic enclave settlement have a positive connection with settlement in ethnic enclave. That makes also the ethnic enclave have the same positive effect toward the four-development spectrum. However, there is a bad correlation between Gambella City's ethnic enclave settlement and economic functions in relation to others.

4.8.2. The Interpretation of SEM Variance Outcomes

Interpreting variance outcomes, considered the variance-measured departures from the mean of each covariate, as results from structural equation models (SEM) revealed. Another method that was taken into consideration to determine the existence of an association was the extent to which the covariates deviated from the mean. The measurement considered how far the development spectrums and ethnic enclave settlements deviated from the requirement of a perfect match, as indicated in Table 4.7. All characteristics in the table were statistically significant at the 1-

percent level for predicting the influence of ethnic enclaves. This shows that the ethnic enclave settlement has a substantial impact on the current economic, sociospatial, environmental, and infrastructure activities in Gambella City. This may be for the better or worse in Gambella City's advancement, as the ethnic form of settlement is the one that dominates the spatial space.

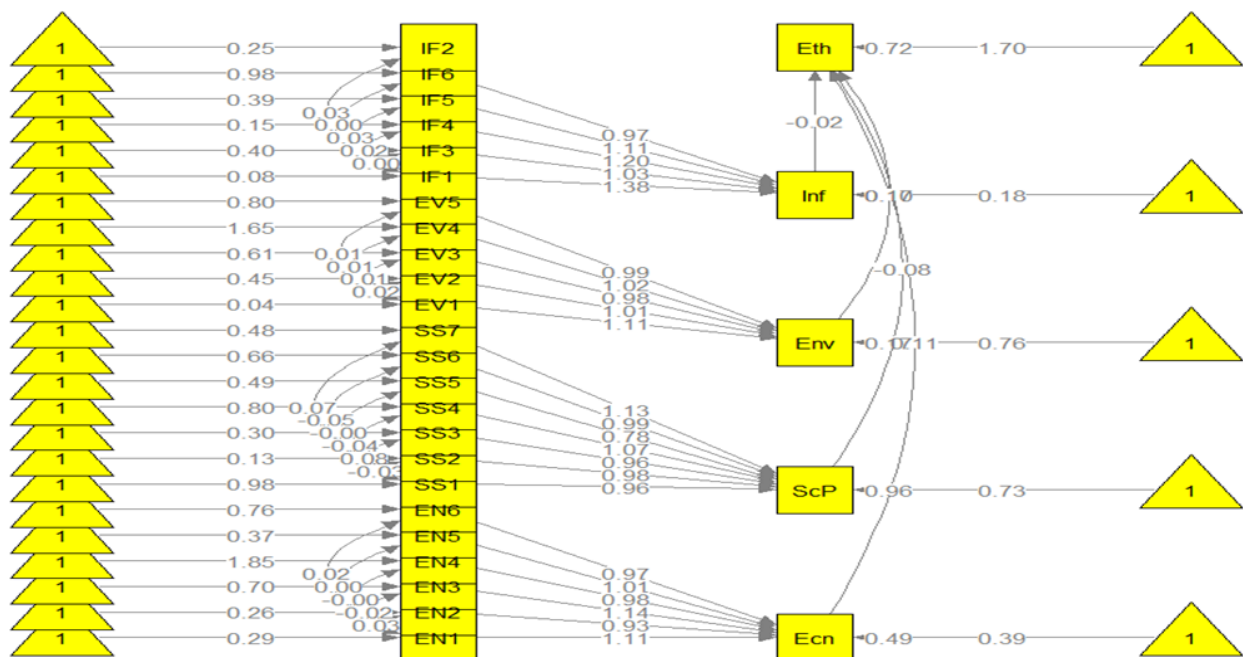
In this manner, Table 4.6 showed that the economic factors contributed a 49 percent disparity in connection to ethnic enclave settlement. This implied ethnic enclave settlement has made a small contribution to the city's economic development. The market system, which is magnified by business protection of a few enclave residents, has introduced a city economic meltdown. Furthermore, if the economy is diversified by all residents, the development in the city can be favorable to all equally. But the absence of such a practice leads to the weakest side of the economy, as the majorities in the economic sector are too conservative to the markets.

Furthermore, SEM results also revealed there is a 96.4 percent disparity in socio-spatial function is observed in connection with ethnic enclaves. As mentioned in the covariate outcomes, there is a positive association between socio-spatial activities in Gambella city and the present ethnic enclave settlement; this result has a negative connotation for the inhabitants' well-being. Since the socio-spatial disparity make the city more fragmented with a lot of risk on the city spatial and social space, ethnic enclave settlement pronounced as hinderance to Gambella city development. The environmental and infrastructure-related functions in Gambella City resulted in a 17 percent variation or disparity as ethnic enclave settlements dominated the city's form of settlement. The unpleased morphological city structure, pollution, and poor infrastructure distributions and development magnified in the emerging region of Ethiopia were all influenced by the present ethnic enclave settlement. In general, the findings indicated that an ethnic enclave settlement in relation to four development spectrums produced 72 percent dissimilarity that hindered all the development sectors as ethnic-based interests blew up everything in the city. This makes the Gambella enclave unique to previous studies around the world.

4.8.3. SEM Correlational Diagrams of Ethnic Enclave Settlement and Socio-Spatial, Economic, Environmental, and Infrastructure Development

The SEM diagram depicts the cause-and-effect relationships between the variables. Figure 4.10 shows the visualization paradigm for the structural equation model, which can show how patterns interact with one another and how they fit together to explain the effect holistically. According to the results, all characteristics were statistically significant at the 1 percent level for predicting the influence of ethnic enclaves. This shows that the ethnic enclave settlement has a substantial impact on the current economic, sociospatial, environmental, and infrastructure activities in Gambella City, which may be for the better or worse for Gambella City's advancement.

Figure 4.10: SEM Correlational Diagrams on the Relationships between Ethnic Enclave Settlement and Socio-Spatial, Economic, Environmental, and Infrastructure Development



Source: RStudio's Analysis of the 2021 Survey Data

Therefore, the SEM outcome details are framed, thematized, grouped sequentially, and combined with qualitative views from the interviews, observations, and focus group discussions.

4.8.3.1. Ethnic enclave settlement and economic effect in Gambella City

Figure 4.10 above-described access to financial institutions (EcoN2) has the least contribution as ethnic enclave ranged, while protections provided to businesses in the areas (EcoN3) have the most contribution to the flourishing of economic activities in the areas. Overall, the variables in the category of economic activities had a beneficial impact from the establishment of the ethnic enclave settlement. However, as the ethnic enclave settlement expands, there is detrimental effects of these ethnics-focused settlements on long-term economic activity, which are producing bad results. According to the diagram, the presence of favorable economic variables increases economic activity, but expanding ethnic enclave settlement increased the economic effect for certain ethnicity that also reduced for others in Gambella Town. The market system in Gambella city was found to encourage monopolies and illegal activities on the economy as ethnic enclaves dominated (Observation, 2021/2022 G.C.). The concentration one ethnic group doing business in clustered area magnified agglomeration of economic on this group that has negative effect to others outside this territory.

In Gambella, 49 percent of the differences in the economy have a lot of consequences for economic growth. Business protection magnified the enclave market monopoly in the city. Negatively, the practice affects the city economy as it makes many residents more conservative in their enclaves, which makes them less likely to unleash their potential to uplift the city economy. Few Highlanders and local traders controlled the business sectors that made them determine the price as they wanted. They are more conservative to disclose what they get from the market in their enclave. An interview with a Gambella municipal expert (KII5, 2021G.C.), “the weak development in the city is because people with money are too conservative to invest in the city.

Not only this, they added an inadequate payment tax to the municipality or revenue authority”. No matter how tax payers register, many taxpayers in the enclave never pay the amount according to what they get in the market. A lot of them cheated the market through the code they had on their enclave. The ethnic concentration misleads the transactions in the market system that sanctioned legal means of payment (Observation 2020&2021G.C.). Buyers are given two options by the seller: either to buy with or without receipt. This makes the majority go and buys without receipt as the VAT increase the price to consumers. This makes the money in the market

flow to individual pockets as seller declare to tax office only what is registered on tax machine.

The Gambella ethnic enclave settlement magnified market segregation from one locality to another. Whole seller is in the hand of lineage; exaggerated by the good to market coming from the central part of Ethiopia, this makes local indigenous traders failed to compete with highlanders in Gambella. From here local traders prefer going for illegal trade in their enclaves as a means to compete in the market and cope up with ethnicities with upper hand in the business sector. Local indigenous traders go for cross-border trades, Dubia, Kenya, North Sudan, and South Sudan and Ethio- Somali, and Oromia Moyale on the border to Kenya. All these brought to Gambella, seller illegally in the enclaves. Moreover, enclaves are favorable and used as a contraband center where goods for market hind and sell on the streets and door steps in each locality. Because enclave's hinds such a traders and practices; they work as unknown, unregistered that never pay tax to the city revenue authority as they work in and out of their enclaves. Figure 4.11 visualize a sample of trading activities in different enclaves. The figures demonstrated the enclave settlements trade center in each enclave that mark the disparity among trade center in each residential area, which weakened the proper economic growth.

Figure 4.11: the major enclave's businesses activities in Gambella city



Source: Own observation (2021/22)

In addition to above figure, further segregated in clear context and visualize indigenous enclaves commonly trading goods in the market, as indicated in figure 4.12 below. Indigenous traders feed the market with local materials that are good for daily consumption, as demanded by local residents. They use maize powder, fish, dry grass, wood for cooking, and others local indigenous goods for market. They sell all these to secure their daily bread instead for profit and saving. They are not register in the market; they work locally and employ less. Consequently, a number of youngsters in most indigenous enclaves (Nuer, Anywaa, Komo, Majang, and Opo) are heavily found unemployed, addicted by drinking tea and coffee, chewing khat on the city's main streets, waiting for sunset, doing nothing. Most of them act as carriage of good as mean to have something for daily bread. From the observation in practice (2020–2021), the work cultures in Gambella city, from enclave to enclave contributed to weak economy growth observed in the city.

Compared indigenous work culture with that of highlanders, there is a big difference. Indigenous people select the job from the pride of being the native. They ignore the daily labor job; while they are the most paid. Highlanders come to Gambella city, start working in small businesses: like transporting water and fire woods using donkey, sell them around the town with small saving, and with immediate effect, they prosper. This work culture that ignores jobs makes all indigenous resident youths worthlessly engaged in idleness, doing nothing and exposure to crime deed. From the observation Gambella youths spend most of their time playing pool, betting games, smoking and chewing khat. However, failing to succeed in any of the task lead to smuggling and stealing. These idleness youths are mostly found in the 4Kilo pedestrian area, Mobile area, Khat station at the back of BOFED, 8100 area, Gonder Sefer, Dualkuach high school, Dipo area, Gambella University, Gambella teachers and health science college, Gambella hospital area, and Water Bureau front. All these spatial spaces accommodate youths of the same ethnic background, with a lot of consequences that marked localities with high crime rates. Figure 4.12 below displays the local enclave trading centers with most local trading goods.

Figure 4.12: the common trading activities in Anywaa and Nuer enclave business area



Anywaa enclave

Nuer enclave



Source: Own Observation (2020/2021)

4.8.3.2 Ethnic enclave settlement in relation to socio-spatial trajectory in Gambella city

Ethnic enclave settlement was seen in relation to socio-spatial activities from the abundance of illegal activities on sociospatial functions in Gambella city. According to SEM findings, 96.4 percent of the disparities observed in Gambella come from the sociospatial trajectory. This has

raised concerns about safety and security difficulties for residents. Even though living in an ethnic enclave has a favorable impact on intergroup contact based on social and cultural interaction, this perception is countered by findings in Gambella City. Settlement in enclave for Gambella counted as its increase in inter-ethnic conflict and criminality in social and spatial prospective. An ethnic enclave settlement magnified as its intensified inter-ethnic conflict in the city. One highly qualified example of this is the 2016 conflict that occurred in Gambella City. It started with a small land issue between two people, it escalated to many parts of city and woredas. Police officers deployed to Jor, Makuey, and Gog Woredas to protect Murley, which used to abduct Gambellians children happened killed each other based on ethnic lines (KII7, 2021, FGD, 2021). Such a practices marked the significant of ethnocentric police practices with no common goal for city or the region but for their ethnicity as they act as tribal police that is loyal to their ethnic practices than working for common goods of city security sectors.

Ethnic enclave settlement made the Gambella city, the focal point for the killing and butchering of civilians by unknown assailants. “Living in an ethnic enclave assisted us in realizing subtle discrimination and marginalization from major ethnicities in power (KII 7, 2021)”. Enclave settlements in Gambella maximize safety and security concerns; robberies, smuggling, and other related dangerous crimes unnamed criminals kill and burn to deaths vulnerable innocents in certain pockets (Observation, 2020–2021GC and KII6, 2021) as indicated in figure 4.13.

Figure 4.13: Burned House at night by unknown person



Source: Own observation (2022)

Consequence of this criminal practices, forced residents to search for the safest place to reside that increased the volume for new enclave settlement area in the city. For example, Highlanders inhabited Kebele 04 currently evacuating to Kebele 05 toward Mettu Road, where their ethnic majority reside in the southeast of the city. The same practice on Anywaa resided in Kebele 01 and 03; they also moved to a new locality named “Agnota” near Gambella Teacher and Health Science College, the HIV/AIDS regional Laboratory and Management Institute areas in Kebele 05 (observation, 2021), located in the southwest of the city.

In the same trend, the Nuer enclave is highly saturated, new residents side development happened in Kebele 04 in 2016 as cover of nation of nationality day. “Nuer Mender/village/,” in Kebele 04, situated on the way to the Itang special Woreda main outlet, found in the Northwest of the city. Because the new side was not urban planning initiative and practice but political motivated, the new side of residency for Nuer ethnicity; hurt Anywaa counting themselves the owner of Gambella city residing in Kebele 04. This feelings and attitude of Anywaa residents marked the agenda for the new side to be a center of clashes between the Nuer and Anywaa ethnic groups that claims a number of lives on July 21, 2023 in Gambella city.

From the interview and observation (2021), the study found that many parts of the city faced a lot of challenges from the existing enclave settlement. In Kebele 03, the former well-known hotels in Gambella, “Adinet Hotel and Park Hotel,” abandoned work because their surroundings were hashish and dangerous to owners and customers as crime practices abundance (KII 7, 2021). An interview with elders in Kebele 05 on July 21, 2021 stated that “ethnic-based settlement is very dangerous it reached the peak today in Gambella City”. “We don't feel comfortable in our neighborhood; smugglers compel people to give them stuff in their pockets throughout the day, and if individual don't, they are attacked by a knife or any sharp material they carry (KII 5, 2020)”. This makes the people go to bed early in time, which was not a usual practice in Gambella many years ago. Gambella was a peaceful city, but now it is dangerous place to live as crime practices seem to overrun.

A new trend of being is now observed in Gambella City, particularly among indigenous youths. According to Elder (KII7, 2021), “previously, thieves which not a good practice to Gambellians used to steal, but they don't knife or kill. However, now a day the practice is: they take your property and still kill you. Which make the city clustering of residents more dangerous to

resident wellbeing that fades off the best cultural practices among residents”. From the observations during this research, most enclaves have pockets that act as crime hotspots. This makes enclave hamlet shameful. Residents never feel safe when going to town until they come back to their resident. These practices increase the Nuer, Anywaa, and Highlanders residents’ distrust in spatial space. The physical separation keeps murders from not being easily identified as they are confined within the enclave. In Gambella, crime is committed, but the enclave residents never take the responsibility to disclose the criminal. That makes the culture of dishonoring the wrong deed previously absent that danger’s social well-being in the city.

Groups of gangs organized themselves; used dangerous tobacco and medicine like “Tramadol HCL “taking ten tabs out of normal dose at once, mixed and drink it with spirit, or orange soda” for them to resist any pain. These group smuggling, kills and murder residents in the city. Gambella enclave settlement also magnified human trafficking since the city is an outlet to South Sudan. In practice, a Nuer man who worked as a “Federal internal security officer” assigned to work in Gambella killed in Kebele 05 around Gambella stadium in 2022, and in the same Kebele the Supreme Court vice president wife was also killed in 2021 by unknown organized groups. The worse part of these murders, they kill and transported the deceede to a place that is unsuspected area where such a horrible act should not be perceived to happen that created more confusion and increase distrust among residents. The same practice was also observed in kebele 01, 03 and 04. Buffers with intensive killings and high distrust are mostly magnified in localities where Nuer, Anywaa, and Highlanders enclaves bordered. Though the murder may not be from anti-ethnicities, but long-term haters and conflict and the organized revenge killings, supported by the contribution of money from enclave residents, defined the situation.

An ethnic enclave and criminal practices in spatial space were further amplified by the FGD (2021GC), conducted with the city and regional police personnel. According to the police, “ethnic enclave settlements seriously threatened the city's security system”. High contraband practice observed on the fire army, from small pistols to PKM (see figure 1.14). Moreover, medication for malaria and waterborne and tropical diseases medicines mostly transported along borderline of Gambella illegally.

Figure 4.14: the fire army contraband in Gambella city



Source: Gambella police office (2023)

Enclave settlement in Gambella more influences the denial on access to certain enclaves. That make it harder to identify what is going on in the enclave particularly localities where Anywaa, Nuer, and Highlanders most concentrated. Criminals use the enclave as their safest location, renting homes with the cash they rob from other people. According to the police, Highlander's enclave hind out their crimes, which also applied to Nuer and Anywaa enclaves. Criminals from nearby refugee camps make the Gambella city center to practice criminal acts. Refugee criminals from Gog, Jewi, and Kule 1 and 2 camps come to Gambella, they rob, thieves and do harm to residents (KII5; FGD, 2021). Since these criminals have relatives that speak the same local language as people from the same lineage.

In the same manner, Highlanders from several regional states of Ethiopia take advantage of living in an ethnic enclave. They regarded the enclave as a cozy neighborhood and a place to take care of themselves. All these makes Gambella City the safest place on earth for criminals to reside, since non-disclosure magnified. Residents of Gambella never gave a thought to exposing criminal dwellers in their enclave. From the interview (KII7, 2021), one of the main reasons for none disclosure of wrong deed in addition to enclave settlement, socially, the practice of being count accountable and being witness. Since the process of investigation took longer period and

going to court regularly on something that doesn't concern individual resident found to be tedious and tide some which is not accepted by many residents and counter the tradition of many local residents.

Majority of social being perceived any criminal caught red hand should not need further more investigation than judgement to take place in immediate effect. This practice for indigenous residents is not that admired. From here, Gambella is a center that accommodates many criminals in many prospective as ethnic enclaves ranged. Some of the spatial space marked as red zone with high crime rates include the JabJabe stream during the dry season, the back of Gambella University, the old market area, the Gambella hospital area, Mettu round about (mazouria), the Bathur and Abattoir areas. These localities were full of drag-addicted youths doing horrible acts in the city as indicated in figure 4.15, and 4.16 which shows localities in connection with criminal activity and flashpoint disputes with displaced residential neighborhoods.

Figure 4.15: Paused residents on the flashpoint



Source: Own observation (2021)

In addition to the above figure, number of crimes in Gambella increased by conservative and protective act of residents to wrong deeds. From figure 4.16, certain enclave plan forbidden tobacco in their enclave and sell it to the market with good price. Since enclave is not easily visit, accessed by the police or government security officers, the malpractice in urban land and misuse of the city land for wrong plantation magnified non-disclosure of crime practice in the enclave residential area.

On the other hand, enclave settlement also seems to have paralyzed the jurisdiction system. The police imprisoned criminals such as murderers, thieves, or the Ganges but ethnic affiliation jurisdictional practices released them from prison before the case is completed. Moreover, ethnic enclave also abnormalized policing functions for the protection of civilians as police are ethnically affiliated. For example, for criminal to fear the wrong deed, it is police officer to patrol, and be vigilant to whole city civil protection. However, the practice in Gambella is different.

During the data collection (2020–2022), police personnel were rarely seen patrolling the city at night, and even day time. They were not observed at the junctions and flashpoints in every kebele. Only in rare cases did by the Ethiopian Federal Police (EFP) and Ethiopian Defense Force (EDF). They were observed patrolling important thoroughfares and intersections that connected enclaves (observation 2020–2022). However, they never go to the most dangerous area where criminals should be found. Which makes the saying from one elder (KII7, 2021): “it seems the EDF and EFP are here to protect only highlanders more than indigenous residents”. These forces are reactive to the problems that happen in the localities of indigenous residents, while they are more active on the issue of highlanders. They don’t go where criminals are inside indigenous enclaves. They mostly patrol only main road network in the city, which make the easy access to criminal more danger though they are the one feared most by local criminals.

Figure 4.16Figure 4.16, youths engaged in Gangs activities and illegally tobacco plan



Source: Own Observation (2020/2021)

In Gambella, the fade of the best culture social practices was also magnified by the interview with elders in Kebele 01 and 03 (KII 7, 2021). Enclaves organize unknown public gatherings in the city that harm others. They also provide rooms to thieves and related criminals. Through these organized networks, they stolen properties from one enclave passed to another enclave by their illegal network. Local thieves stole from their enclave and shifted to a highlander enclave; these highlanders transport the stolen properties to the highlands of Ethiopia. Furthermore, high distrust among residents from enclave settlement stated as it increases robbing and smuggling. Thieves used the junctions in flashpoints of conflict area as opportunity area, they spoke local languages and wording of anti-ethnic groups that terrified and scares local residents for them to quite pace and these group will have opportunity to loot residents' properties of those residing in the buffers or found in flashpoints (FGD, 2021). From these practices; the enclave settlement in Gambella contributed to weak social cohesion among residents, which increases spatial separation.

Another important concern of ethnic enclave settlement is the malpractice of ethnic groups in the city land management system. In Gambella, widespread land grabbing and malpractices on city land are observed. Land is treated as group or community land rather than government or public property in every enclave (KII 2, 2021). Many residents in Gambella City acquire land on their own instead of getting permission from the municipality. They sell it, exchange, and transfer it without the municipal knowledge. Every enclave in Gambella City has its own atmosphere, as their surroundings are controlled by their own ethnicity. From the observation (2021), an organized group of people of the same ethnic background used the neighboring forest in the city suburb and the city's periphery as theirs; they marked and signed trees with symbols that magnified their ownership. Without their permission, no one can access a plot of land in such a location. Figure 4.17 depicts how there is misuse of land and its usage by a person's or a group's property.

Figure 4.17: illegal appropriations of land in Gambella ethnic enclave



Source: Own Observation (2020/2021)

Moreover, an ethnic enclave settlement impact on the Gambella city land was magnified by the city deputy mayor (KII2, 2021), “the land management in Gambella City is much under threat from ethnic groups that organize themselves and hold the junk of land as their”. The majority of land is in the hands of individuals as well as groups that are not legalized. In localities where ethnic groups of the same background are common, there is high malpractice on land use.

Thus, ethnic enclaves challenged city structure plan implementation as the majority resisted the installation of inner roads (KII5, 2021GC) unless forced. Since resident's occupied land without proper planning and the traditional form of settlement, all these factors add complexity to the Gambella enclave settlement. To implement the plan, the bulk of the population rejected the operation that came through their neighborhood. Complaints aligned as there is an interest in doing harm intentionally to their residency. They sounded they being targeted because they are from anti ethnic group that is why they are victims of demolition. They voice out in numbers for the government to halt the plan implementation. That is why in from 4.18, houses marked delayed the inner road opening in 2021 in Kebele 01 and 05. High resistance encountered by the team in work during operation (observation 2021–2022). Furthermore, some related the operation with the political system as they are counted group that don't the existed political system. As a consequence, the inner road opening in Kebele 01 and 05 was paused in April 2021 by the order of the office of president (KII 2, 2021, FGD, 2021). An ethnic enclave was also utilized by its residents as a means to stir up internal conflict in an effort to delay or pique the interest of higher officials to stop the implementation of the structural plan (KII 5, 2021).

Figure 4.18: marked inner roads network for implementation



Source: Own Observation (2020/2021)

The complexity of land management in the city with ethnic enclave was also observed in the form of a number of ethnic enclave settlers occupying land without the required title deed or legal papers. Numerous occupants and newly constructed homes out of LDP in many enclaves lack safe and permanent tenure, leaving them vulnerable whenever demolition occurs (KII 5, 2021). The best example of such a practice was the 40-meter-wide inner road opened in 2022 by Nuer development Association and Gambella municipality in Kebele 01 as proposed by 2018 city structure plan. This road was opened by community participation and special support from the “Nuer Development Association in North America and Australia”. The support backed by locality being most concentrated by Nuer majority as a mean to minimize crime in the area and support the family back home.

Forceful demolition marked the practice, concrete-built homes were bulldozed without receiving any payment for compensation, which has a lot of implications for individual psychological feelings and the economy. Not only this, it can also create haters between social beings in the operation selected to implement the plan. Furthermore, since this enclave settlement considered by indigenous residents a place, they should build their traditional settlement practices that demand junk of urban space for multipurpose; these failed to match the proposed city structure plan that challenges both residents and municipality. This made the existing ethnic enclave settlement and land use planning to disagree in implementation. The incompatibility of land use with enclave settlement functions is visualized in figure 4.19. Tombs of the deceased or loved ones that expired are grounded in the resident’s backyard particularly, on those indigenous residential areas. This counted one of the reasons to demand the junk of land as part of the land use function within the plot of an individual space. The Housing, indigenous animal, cemetery, and agriculture space counted as part of residential area of each plot.

Figure 4.19: Tomb within residential area demolished



Source: Own observation (2021/2022)

The growth of ethnically based communities in Gambella City has worsened corruption, which increases the abuse of the land management system. From the observation (2020–2022), many enclaves are utilized by municipal experts as a means of having a bunch of land illegally. Fear and related dangers count as opportunities for some professionals and officials, as access to certain areas is limited. But for those who have access, they do what benefits them accordingly. Since the official evaluated the effectiveness of the work only on the paper. Though real situation may be different in practices, which may increase land corruption in the city.

From this perspective, an ethnic enclave settlement in Gambella has abnormal rules of city development that prevent urban-related regulations from working properly.

Particularly in the enclave where Nuer and Anywaa are much more concentrated, customary laws dominate the system. The complain by municipal experts (KII5, 2021), “It seems we have four laws that govern the city.” From Nuer, Anywaa, and Highlander's enclaves, each have their own laws that governed their day-to-day operation out of known government laws for city management. They distribute land and handle conflicts on land by their own custom. Because of this practice, the municipality and mayor office strong saying marginalized by individual group covered by ethnicity. This practice posed a danger to the government in Gambella city as well as

Gambella Zuria woreda of Anywaa zone. Since every area regulates their activities, they give land to their own ethnicity and expand the city horizontally that grab another Woreda territory land without their concern.

4.8.3.3. Ethnic enclave settlement and its relationship with environmental activities in Gambella City

Ethnic enclaves were also thought to be a major cause for concern because they damaged and drained the ecology of the Gambella. For the sake of the citizens' health and sense of ownership, the urban environment needs to be tidy and secure. The Gambella City exhibits a modest sense of ownership over its environment. Weak urban planning and the poor quality of the city's structures give it the morphology of a less rural and not an urban community. SEM resulted in a 17 percent increase in environmental destruction. As a result, enclaves polluted the city through the widespread disposal of solid and liquid garbage (see figure 4.20) that are not collected within and around the city. Despite the city's long history, Gambella City's urban waste management cycle is still in its infancy since there isn't a functional landfill or sewage infrastructure in place. The majority of ethnic enclaves lack an efficient waste management system.

No disposal facilities like trucks, septic tanks, or prepared land fill in absent (Observation 2020–2022). Residents dumped their trash in neighboring neighborhoods discrimatedly. Particularly in the bare open space around the cemetery area and swamp area, and for those in proximity to the JabJabe stream, they used the JabJabe stream as their disposal site.

Moreover, all the buffers also were also utilized. For example, under the JabJabe small bridge, chemical-related waste, including outdated medications and garbage from the commercial industry found disposed (Observation, 2021). From this waste management practices, a lot of consequences for the Baro River as all the waste is depleted. In addition, since residents rely on the nearby JabJabe stream for drinking water and bathing, waterborne and dermatology diseases are imminences. Waste dumped in the city may also endanger downstream residents only, it also eroded the Baro river shore. Residents' lack of sensitivity to urban ecosystems led to manhole obstructions that blocked the rainwater flow properly along asphalt main roads. Moreover, resident's carelessness causes the Baro shoreline to waterless more than expected. Plastic waste dumped everywhere in the city all depleted to Baro river and increase the decrease the depth of water level in the river Baro, Generally, the sluggishness of residents in Gambella City from

every enclave affect the city environment.

Figure 4.20: Wastes disposal systems in Gambella City



Source: Observation (2020/2021)

Furthermore, no matter how SEM descriptive results identified; one of the inducement factors like deforestation has less contribution to environmental effect but has significant influence. Lack of ethnic enclave settlement controls to the city suburbs, unplanned settlement and demand for dry fire wood, and local housing construction materials, all depleted the nearby forest or green area in the city. High deforestation in the city suburb toward Gambella Zuria Woreda as the municipality failed to control those enclaves' settlers. The preserved green areas like Meles Zenawi Park in Kebele 01, 03, and 05; were invaded by strong residents, and officials within lineage. These parks were changed into residential areas. The environment invasion from expansion of ethnic enclave is at an alarming rate in Kebele 01, 03, 04, and 05. Ethnic enclaves affect the city horizontally, followed three wings where high concentrations of the same ethnic group from Nuer, Anywaa and Highlanders much observed. In practices; the highlander concentration followed the main corridor of the main road of entry point from Addis Ababa,

Mettu mazouria, cross the river Baro to Dembedolo Road. The Nuer considered the eastern part of the city and northwest along Itang Road, but the Anywaa took the west and southwest of the city and some pockets in old settlement areas in Kebele 02 and 03 as many kebele house were situated and most of these plots changed to individual properties.

As previously discussed in the first objective of this study, an ethnic enclave settlement found to increased forceful displacement and location preference. These practices pushed out and pulled residents to look for a new side they considered the safest place them to live. Looking for opportunities and fear for the place were all magnified. From this prospective, Nuer residents in Nazarene church area near the Gambella University were supposed to relocate from Kebele 01 to Kebele 03 in Zone 6. The municipality prepared the land use functions based on the LDP according to IDP of Gambella. The locality is found in the northern part of the city, near the Hill Nuer ethnic group used to claims as “Pam Choul Joack,” a hill where “Chuol Joack” was killed during second world war (WWII). According to city council speakers (KII3, 2021); the government intention to reallocate residents to this site was to introduce the integration to city residents as well as to magnified space for Gambella University.

However, because of the 2016 G.C. conflict between Nuer and highlanders that emerged because highlander workers got killed by refugees in Jewi Camp, and the highlander in Gambella counted Nuer in Gambella city the same to those in the camp as they speak the same local language, this area was destroyed and looted. All well-known Nuer properties installed in Kebele 03; Zone 6 were destroyed. In this sense, Nuer fled the area of being minorities and leaves the locality to the Highlanders. Thus, Nuer with undestroyed sell out their remaining properties and the plots to highlanders who can afford to buy. By then, the area is a pure highlander settlement area, where the majority of residents speak Oromo that are mostly from Kelem Welega (Dembedolo). With the intention of future growth and existing trend; the Oromo regional state and the Gambella regional state agreed and constructed a school on this proximity as they presumed the increase of highlander enclave on this side. Through invasion and succession, the city environment is alarmingly changing morphologically. Therefore, if ethnic enclaves continue to grow, environmental concerns will increase as the city grows abnormally with high pollution, deforestation, and resident displacement.

4.8.3.4. Ethnic enclave and the development of infrastructure in Gambella City

According to SEM estimations, 16.7 percent variation on the city infrastructure development influenced by people concentration on ethnic enclave as coverage on access to city water, electric, road networks and recreational facilities still in infant age. Despite the city's division by a river that changes course throughout the year, the availability of drinkable water is a major worry for every enclave in Gambella. An interview with an elder (KII7, 2021G.C.) from Kebele 01 on August 7, 2021G.C. said, "There is no drinking water available from the tap that is potable." Not only have these, the Gambella city had a high demand for water due to the extremely hot weather, which necessitates both drinking water and bathing water. The absence of potable water is illustrated by Figure 4.23. The citizens' demand for water pushed them to dig a nearby well for groundwater in their enclave. Lack of access to drinkable water also led to child abuse walking distance that exposure them to hazards like the river Barro's wild crocodiles. From the interview it was mentioned every year, the crocodiles claim youths lives particularly the young ladies those used to fetch water for family. In figure 4.21 in 2022, a one crocodile takes away and ate three young ladies consecutively in a two-week period that forced one Gambella special police force called Ashine to killed one crocodile around the Ichue area. This was the second big crocodile killed in the River Baro because the used to eat children's.

Figure 4.21: crocodile killed around Baro river bank (IChiew)



Source: Own Observation (2022)

From the result, the shortage of potable water in Gambella City seems to be common in many enclaves. That why the feedback from kebele 01 interview was also observed in the interview with one elder (KII7, 202) in kebele 05. Formerly this resident was in Kebele 04 near BOFED but shifted to Kebele 05 three years before the interview. The interviewee had a good time in Gambella City and stayed there for more than 42 years. According to her (KII7, 2022), she started by compared the water shortage in Gambella today with the water supply under the Dergi regime. "Access to potable water was adequate during the Dergi era," but things had changed significantly by then. There is no clean water either for drinks or for bathing. Residents and hotels owners are forced to pay 8–25 birr per jar according to distance from water sold by donkey carriages. In simple term, it is very hard economically, particularly, for the hotel owners, as guests need water for bathing regularly based on rooms numbers.

The severity of water shortage was also conducted from an informal discussion with donkey riders who used fetch tap water from Kebele 03, and 02 and Baro river. The interview recognizes that; these daily workers are getting enough as the distance from the city core increases. They are paid between birr 7 and birr 20 per jar as the distance from the city's main core increases. While they fetched water by paying either birr 2 or birr 3 from the public or individual taps.

Though the focus of this study was not much of water supply; the severity of the case pushed for interviewing the core process or the department head of water supply in the office of Gambella City Water Supply and Sewerage. According to an expert (KII 5,2021), he acknowledges the issue of a potable water shortage and supports it by citing data from their office that; those with access to individual water tap are less than 10,000 inhabitants. These individuals also still facing regular access and proper functioning of personal tap. According to the unmet population estimate and potable water sources, the coverage did not match the demand.

However, not only these, experts also related the city's ethnic enclave settlement, as it has a negative impact on a water bill payment and installment of public waterline as the city is irregular in shape in most enclave settlement areas. He stated, the Gambella City residents never paid their water bills on a regular basis. The majority of them lived in a dire water shortage situation due to irregular water supply, they ignored paying bills. Moreover, comparing the local indigenous and highlander enclaves, he further recognized that the highlander enclaves have proper access to potable water and they pay the bill regularly. This group is centered in the city's

main core were proper infrastructure available. However, as the enclave expanded spatially, some of the most affected residential areas in Gambella City by water shortages are those in Kebele 01, some parts of Kebele 03, Kebele 04 abattoir and Nuer Mender area, and Kebele 05 as these kebeles are densely populated by Nuer and Highlander ethnicities that counted the larger number of city residents.

Figure 4.22: Severity of potable water shortage in Gambella City



Source: Observation (2020-2021)

Ethnic enclave settlement in relation to the road network was one of the second concerns in Gambella. The city is mostly settled in the traditional form of settlement, where occupancy is concentrated in their way of being. People from the same family found themselves residing in certain localities in the city by following their traditions mean of contracting homes. The city structure plan road networks failed the implementation from weak capacity of residents and the municipality. The majority of residential areas are filled and constructed with houses that never maintain proper block systems as per the city's structural plan. The traditional type of habitation increases the patchy coverage of roadways that are very narrow in Gambella City (Figure 4.23). A further obstacle to the development of city roads is the poor ability of citizens to pay for public services like roads and other social infrastructure from the conservation of each enclave and economic situation.

From the interview and observation (2021-2022) many residents have the attitude that every development should come from the government, they ignored what they should contribute as citizens. They blamed and pointed figures to the city administration for weak development observed in Gambella. However, signs of participations for road development that is in emerging stage observed in Kebele 01 and 05. They contributed money for roads that focused on their localities in 2021. No matter how the city is one of the beneficiaries of the IUUDS projects supported by the World Bank, the project asked inhabitants to pay for cost sharing, but it is hard; residents never pay matching funds (KII 5, 2021). High suspicious that the project is fully funded from the donation of the World Bank.

The weak road network was also highlighted by the highlander's complaints: "We are the tax payers, but we don't benefit from development like projects that provide roads. We are asked to pay for roads, but we don't get feedback from the municipality (KII7, 2021)". They give much focus to localities where indigenous residents much found. The government is sustaining the project by allocating matching funds from own purse collected from tax (KII 5, 2021). The Gambella city roads networks commonly observed in Gambella are narrow, unpaved roads and human pass that go through somebody homes. The most common roads magnified in Gambella City are revealed in Figure 4.23, which depicts the various road infrastructures. It accentuated the inner roads in the Anywaa, Nuer, and Highlander enclaves.

Figure 4.23: Inner roads in the enclave city of Gambella



Source: Observation (2020-2021)

An ethnic enclave settlement development increases recreational demand and favor existence of recreational facilities. Though Gambella ethnic enclave city seems to be favorable on access to recreational facilities in every enclave; the spatial separations from the enclave led to question the compatibility of recreational facilities. For example, the Gambella stadium and Jenina nearby Baro River that still under construction was among the proposed recreational area in Gambella City. These localities proposed to upgrade the status of recreational areas in the city. The more they develop; they can play a great role in social interaction, as they are used as a playing ground for youths and political rallies.

However, because the Gambella ethnic enclave settlement that increases spatial and social mistrust amongst residents, make the use of these recreational facilities be under few residents with weak access to others. This turned the use of these recreational areas into centers for chewing khat, smugglers, conflicts, thieves, and the Ganges, as well as smoking houses for Gambella young generation. Even though recreational areas receive strong influence with slight coverage with poor standard, In Gambella still a lack of public parks, big business centers, cinema centers, cultural and tourist centers, and a public square that can accommodate residents in Gambella (observation, 2020–2022). The existence of these centers is important for Gambellians since most youngsters like a luxuriant way of life that magnified social cohabitation.

4.9. The case study on the implication of Anywaa, Nuer, and Highlanders ethnic concentrations in Gambella city development

4.9.1. The relationship between Anywaa ethnic concentration and the sociospatial, economic, environmental, and infrastructure development of Gambella City

The Anywaa people are a unique linguistic group from Ethiopia and South Sudan, and they have a significant presence in Gambella City (Feyissa D., 2011, 2014). They are primarily found in Kebele 03 and 04, they have recently moved to Kebele 05 in the southwestern part of the city. Despite being the smallest ethnic group compared to the other two (Nuer and Highlanders) in the city (CSA, 2007, LUI, 2016) they have a strong voice and are considered an important contributor on the city in terms of sociospatial (SOCSP) dynamics, economy (ECO), environment (ENV), and infrastructure (INF). Their unique grammar, vocabulary, and phonetics set them apart from other language families in the region. The Anywaa concentration in

Gambella City has a significant impact on the sociospatial aspects of the city. The social interactions and spatial organization for Anywaa marked by strong lineage (Wimaac). As indicated previously from land inventory (LIN, 2016), the Anywaa ethnic group previously mostly concentrated in Kebele 03 and 04, but distrust among residents forced them to relocating to Kebele 05 towards the western part of the city clustering around Gambella teacher and health science college. The Anywaa ethnic concentration in certain urban space of Gambella city from the SEM results of multiple regression, Table 4.7 description magnified the relationship that exist between the Anywaa enclaves and development spectrums.

Table 4.7: The SEM Estimates of the Relationships between Anywaa ethnic enclave and Settlement with the Socio-Spatial, Economic, Environmental and Infrastructure Development

lavaan 0.6-9 ended normally after 64 iterations

Estimator	ML
Optimization method	NLMINB
Number of model parameters	41
Number of observations	496

Model Test User Model:

Test statistic	396.250
Degrees of freedom	94
P-value (Chi-square)	0.000

Parameter Estimates:

Standard errors	Standard
Information	Expected
Information saturated (h1) model	Structured

REGRESSIONS:

	ESTIMATE	STD.ERR	Z-VALUE	P(> Z)	STD.LV	STD.ALL
ECON ~						
ECON1	1.130	0.070	16.168	0.000	1.130	0.231
ECON2	0.956	0.075	12.722	0.000	0.956	0.190
ECON3	1.122	0.033	34.483	0.000	1.122	0.498
ECON4	0.997	0.040	24.720	0.000	0.997	0.366
ECON5	1.012	0.040	25.394	0.000	1.012	0.365
ECON6	0.982	0.034	28.856	0.000	0.982	0.410
SOCIOP ~						
SOCS1	0.989	0.050	19.683	0.000	0.989	0.370
SOCS2	0.993	0.132	7.549	0.000	0.993	0.140
SOCS3	0.954	0.072	13.182	0.000	0.954	0.246
SOCS4	1.061	0.049	21.714	0.000	1.061	0.434
SOCS5	0.790	0.064	12.361	0.000	0.790	0.246
SOCS6	0.978	0.058	16.751	0.000	0.978	0.311
SOCS7	1.108	0.069	16.010	0.000	1.108	0.297
ENVI ~						
ENV1	1.114	0.099	11.201	0.000	1.114	0.101
ENV2	1.014	0.027	37.113	0.000	1.014	0.335
ENV3	0.975	0.026	37.148	0.000	0.975	0.334
ENV4	1.020	0.014	72.854	0.000	1.020	0.656
ENV5	0.991	0.023	43.362	0.000	0.991	0.389
INFRUS ~						
INF1	1.382	0.073	19.050	0.000	1.382	0.326

INF3	1.029	0.038	27.363	0.000	1.029	0.431
INF4	1.198	0.054	22.114	0.000	1.198	0.363
INF5	1.109	0.039	28.108	0.000	1.109	0.463
INF6	0.969	0.146	6.613	0.000	0.969	0.104
ANY ~						
ECON	-0.040	0.009	-4.450	0.000	-0.040	-0.195
SOCIOP	0.049	0.008	5.855	0.000	0.049	0.260
ENVI	-0.045	0.009	-4.802	0.000	-0.045	-0.204
INFRUS	0.007	0.017	0.406	0.685	0.007	0.018
COVARIANCES:						
ESTIMATE STD.ERR Z-VALUE P(> Z) STD.LV STD.ALL						
.ECON ~~						
.ANY	-0.020	0.014	-1.498	0.134	-0.020	-0.070
.SOCIOP ~~						
.ANY	0.007	0.020	0.353	0.724	0.007	0.017
.ENVI ~~						
.ANY	-0.028	0.008	-3.524	0.000	-0.028	-0.163
.INFRUS ~~						
.ANY	-0.008	0.008	-0.993	0.321	-0.008	-0.047
INTERCEPTS:						
ESTIMATE STD.ERR Z-VALUE P(> Z) STD.LV STD.ALL						
.ECON	0.357	0.092	3.887	0.000	0.357	0.161
.SOCIOP	0.717	0.092	7.801	0.000	0.717	0.299
.ENVI	0.759	0.038	20.001	0.000	0.759	0.368
.INFRUS	0.180	0.148	1.213	0.225	0.180	0.154
.ANY	0.444	0.077	5.803	0.000	0.444	0.973

VARIANCES:						
	ESTIMATE	STD.ERR	Z-VALUE	P(> Z)	STD.LV	STD.ALL
.ECON	0.490	0.031	15.748	0.000	0.490	0.099
.SOCIOP	0.963	0.061	15.748	0.000	0.963	0.167
.ENVI	0.170	0.011	15.748	0.000	0.170	0.040
.INFRUS	0.167	0.011	15.748	0.000	0.167	0.122
.ANY	0.170	0.011	15.727	0.000	0.170	0.814

Source: RStudio's Analysis from the 2021 Survey Data

4.9.1.1 The covariance results for the Anywaa settlement area

Covariance is an essential concept in understanding the impact of economic activities on a region's social, spatial, and environmental aspects. The survey revealed that the sociospatial (0.007%) impact played a significant role in shaping the Anywaa enclave's settlement in positive mean to the city's overall development. However, the Anywaa enclave had a limited contribution to the economic (-0.02), environmental (-0.02), and infrastructure sectors (-0.008) development, its influence on the sociospatial dynamics (0.007) of the city was substantial. This implies that the concentration of the Anywaa ethnic group in the enclave affects the social and spatial well-being of residents in Gambella City positively with a lot of consequences. It is crucial to increase collaboration and integration between the Anywaa community and other residents to foster overall development.

The covariance interpretation reveals the interdependence between these factors and their impact on the development of the economy, ensuring a safe environment, and improving infrastructure. The presence of the Anywaa ethnic enclave in Gambella City has a positive effect on the existing city's urban and spatial trajectory, contributing to the weak growth and diversification of the local economy. The existence of the Anywaa enclave in Gambella City poses challenges such as limited access to economic opportunities, environmental degradation, and inadequate infrastructure, which hinder progress in these areas. The Anywaa ethnic group's concentration in the enclave further hinders their ability to contribute to economic growth and environmental sustainability due to the lack of communication and integration with the rest of the city. The

absence of proper infrastructure limits opportunities for overall development and connectivity of Anywaa with other parts of the city, as this group is isolated socially and spatially.

4.9.1.2 The Anywaa enclave Variance output results

The effect of ethnic concentration is how much the covariates strayed away from the norm. By tracing the role of this concept in the analysis to how far economic activities, socio-spatial trajectories, environmental pollution, the provision of necessary infrastructure, and ethnic enclave settlement variations strayed from the criterion of a perfect fit. The sociospatial effect of the Anywaa concentration in Gambella City is characterized by the potential disruption of social cohesion and spatial organization disparity defined by 96.3%. The concentration of the Anywaa ethnic group in one area may lead to fragmentations into pockets within the city, limiting intergroup interactions and integration. The analysis of the Anywaa enclave's impact on the current state of Gambella City provides valuable insights into the specific areas where the enclave has had the most significant negative impact on economic development, social dynamics, poor environmental quality, and weak infrastructure provision.

The settlement patterns of the Anywaa enclave have significantly impacted the city's socio-spatial, economic, and environmental conditions, as well as the demographic composition and community interactions. The enclave has led to the development of distinct cultural practices and traditions within certain spatial spaces, affecting economic activities. The presence of the Anywaa ethnic group has also led to significant changes in the economic with 49 % and the environmental landscape, accounting for 17% of the observed variation. The Anywaa ethnic population has also significantly influenced infrastructure development, contributing to a 17% difference in infrastructure accessibility. The Anywaa ethnic enclave produced slight variances in environmental and infrastructure development compared to sociospatial and economic functions that highlighting the significant influence of the Anywaa ethnic enclave on Gambella City's overall development. The Anywaa ethnic enclave's presence in Gambella City has had a significant impact on the city's socio-spatial and economic dynamics. The concentration of Anywaa formed ethnic-based settlements led to unequal economic, social and spatial benefits, harming the town's growth. The lack of integration and interaction with other communities exacerbated a high shortage of safe water and environmental degradation as wastes collection lagged. In addition, the unequal distribution of infrastructure in these settlements has limited

access to basic amenities and services, further hindering their socio-economic progress.

The ethnic-based distribution of settlements has created challenges for effective policing and maintaining law and order (FGD 1 and 2, 2021). The city police forces find it difficult to implement a cohesive strategy due to the fragmented nature of the population. The police in Gambella City face challenges in managing and enforcing law and order due to ethnic division's spatial separation and concentration. Residents are reluctant to report misconduct within their communities, especially in areas like Kebele 01, 03, 04, and 5, where the Anywaa, Nuer, and Highlanders ethnic groups are the majority (FGD 1 and 2). This highlights the need for effective policing in areas where residents share a common background and are reluctant to report criminal activities. Building trust and fostering cooperation between different ethnic groups is crucial for successful law enforcement efforts. However, Gambella city police's alignment with ethnic affiliations has found to have the potentially to exacerbate tensions, crimes and fuel ethnic conflicts in the city as their operation highly hindered.

4.9.2 The Nuer enclave settlement effect on sociospatial, economic, environmental, and infrastructure development

The Nuer people belong to the Nilo family and are primarily found in concentrated on the eastern part of Gambella City. Historically, they are found in both Ethiopia and South Sudan as the majority (Feyessa D, 2011). They have a rich cultural heritage that includes unique traditions, customs, and rituals that have been passed down through generations but underutilization. They are pastoralists, relying primarily on cattle herding as their main source of livelihood that still in used in the city.

The Nuer people play a significant role in the socio-spatial (SOCSP), economic (ECO), environmental (ENV), and infrastructure (INF) functions of the city. Their presence in Kebele 01 and the monument "New Land" highlight their historical and cultural significance in the city. Despite facing challenges such as displacement and conflict, the Nuer community in Gambella City continues to preserve and celebrate their cultural identity. They have also created a contentious border area with the Anywaa community in Kebele 04 that challenges the city's development from the conflict perspective. The relationship between Nuer enclaves and development spectrums has a lot of implications on the city growths as indicated in Table 4.8 below.

Table 4.8: The SEM Estimates of the Relationships between Nuer ethnic enclave and Settlement with the Socio-Spatial, Economic, Environmental and Infrastructure Development

lavaan 0.6-9 ended normally after 70 iterations

Estimator	ML
Optimization method	NLMINB
Number of model parameters	41
Number of observations	496

Model Test User Model:

Test statistic	347.921
Degrees of freedom	94
P-value (Chi-square)	0.000

Parameter Estimates

Standard errors	Standard
Information	Expected
Information saturated (h1) model	Structured

REGRESSIONS:

	ESTIMATE	STD.ERR	Z-VALUE	P(> Z)	STD.LV	STD.ALL
ECON ~						
ECON1	1.112	0.069	16.054	0.000	1.112	0.228
ECON2	0.939	0.075	12.588	0.000	0.939	0.186
ECON3	1.145	0.032	35.399	0.000	1.145	0.508
ECON4	0.980	0.040	24.471	0.000	0.980	0.360
ECON5	1.016	0.040	25.704	0.000	1.016	0.367
ECON6	0.966	0.034	28.593	0.000	0.966	0.404

SOCIOP ~						
SOCS1	1.011	0.049	20.629	0.000	1.011	0.378
SOCS2	0.876	0.128	6.856	0.000	0.876	0.124
SOCS3	1.040	0.070	14.770	0.000	1.040	0.268
SOCS4	1.035	0.048	21.695	0.000	1.035	0.424
SOCS5	0.752	0.062	12.108	0.000	0.752	0.235
SOCS6	1.021	0.057	17.960	0.000	1.021	0.325
SOCS7	1.083	0.067	16.074	0.000	1.083	0.290
ENVI ~						
ENV1	1.125	0.100	11.222	0.000	1.125	0.102
ENV2	1.011	0.028	36.735	0.000	1.011	0.334
ENV3	0.973	0.026	36.841	0.000	0.973	0.334
ENV4	1.016	0.014	72.254	0.000	1.016	0.653
ENV5	1.004	0.023	43.635	0.000	1.004	0.394
INFRUS ~						
INF1	1.376	0.073	18.955	0.000	1.376	0.324
INF3	1.031	0.038	27.382	0.000	1.031	0.432
INF4	1.198	0.054	22.087	0.000	1.198	0.363
INF5	1.110	0.039	28.121	0.000	1.110	0.464
INF6	0.986	0.147	6.722	0.000	0.986	0.106
NUE ~						
ECON	-0.045	0.008	-5.467	0.000	-0.045	-0.249
SOCIOP	-0.018	0.008	-2.221	0.026	-0.018	-0.105
ENVI	-0.008	0.008	-0.953	0.341	-0.008	-0.041
INFRUS	-0.011	0.015	-0.695	0.487	-0.011	-0.031

COVARIANCES:

	ESTIMATE	STD.ERR	Z-VALUE	P(> Z)	STD.LV	STD.ALL
.ECON ~~						
.NUE	0.038	0.012	3.096	0.002	0.038	0.143
.SOCIOP ~~						
.NUE	-0.099	0.019	-5.215	0.000	-0.099	-0.261
.ENVI ~~						
.NUE	0.016	0.007	2.283	0.022	0.016	0.101
.INFRUS ~~						
.NUE	0.001	0.007	0.121	0.904	0.001	0.006

INTERCEPTS:

	ESTIMATE	STD.ERR	Z-VALUE	P(> Z)	STD.LV	STD.ALL
.ECON	0.393	0.091	4.293	0.000	0.393	0.177
.SOCIOP	0.708	0.092	7.688	0.000	0.708	0.295
.ENVI	0.758	0.038	19.977	0.000	0.758	0.367
.INFRUS	0.162	0.148	1.094	0.274	0.162	0.139
.NUE	0.551	0.070	7.914	0.000	0.551	1.378

VARIANCES:

	ESTIMATE	STD.ERR	Z-VALUE	P(> Z)	STD.LV	STD.ALL
.ECON	0.490	0.031	15.748	0.000	0.490	0.099
.SOCIOP	0.972	0.062	15.748	0.000	0.972	0.169
.ENVI	0.170	0.011	15.748	0.000	0.170	0.040
.INFRUS	0.167	0.011	15.748	0.000	0.167	0.122
.NUE	0.147	0.009	15.532	0.000	0.147	0.920

Source: RStudio's Analysis from the 2021 Survey Data

4.9.2.1 Covariance results for Nuer concentration in Gambella City

Covariance is an essential concept in understanding the impact and relationship between economic activities on a region's social, spatial, and environmental aspects. The concentration of the Nuer ethnic group in certain spatial spaces has a significant positive relationship with economic (0.03), infrastructure (0.00), and environmental functions (0.01). This suggests that the presence of the Nuer ethnic group in the enclave contributes to the overall development and functionality of the urban space economic, environmental and infrastructure. However, the Nuer ethnic concentration has a negative value of (-0.09) in the sociospatial space of Gambella City, which magnifies the sociospatial space trajectory observed in Gambella emerged from the weak ties of the Nuer ethnic group concentration with others. All the factors relationship has both positive or negative consequence on the city growth.

4.9.2.2 The Nuer enclave Variance output results

The Nuer ethnic group concentrations have a significant impact of 1% on the city's economy, society, space, environment, and infrastructure. The concentration of the Nuer ethnic group has led to a unique cultural and social dynamic that has resulted in the development of weak economic activities and the need for tailored infrastructure. The Nuer ethnic enclave plays a dominant role in shaping the social and spatial dynamics of Gambella City. It contributed to a 97.2% variation in socio-spatial paths. Although ethnic settlement patterns may influence social interactions and environmental dynamics, the sociospatial issues observed in Gambella City like Ganges, crimes, distrust among residents are primarily attributed to the social and spatial separation of residents.

In Nuer enclave the most common crime includes intra-ethnic conflict, burning of houses at night, thieves and hangs. These are most common crimes observed in residential areas where Nuer ethnic group are the majority. The concentration of the Nuer ethnic group also hindered social integration and cohesion with other communities like Anywaa and highlanders. Moreover, the sudden emergence of violent acts in the city raises concerns about the town's potential destabilization and calls for immediate action to address the underlying causes and ensure the safety of all residents. The influx of South Sudanese refugees after the 2013 conflict has also led to a wave of violence in Nuer enclave, causing fear and uncertainty among residents (KII2, FGD, 1 &2).

This influx has led to an increase in violent practices among the younger generation. This practice was not previously a part of Gambellians culture. It seems an adopted new way of being to Nuer ethnic group. In addition, a 49% difference in economic activity in Gambella was magnified by the weak contribution of Nuer enclave to city economics. As their being; hinder their potential to discharged out what they earn in their enclave for city growth. The Nuer ethnic concentration in one space creates socio-spatial and economic challenges. Minor variances on environmental and infrastructure expansion were 17%. The disparities are demonstrated in the form of weak access to basic services like safe water, a road network, electricity, and related social like weak inter-ethnic marriage and physical infrastructure. Moreover, environmental pollution magnified as wastes management in infantry stage as waste collection from the municipality still weak and not in good coverage.

4.9.3 Highlanders' enclave effects on sociospatial, economic, environmental, and infrastructure development

Highlanders (Oromo, Amhara, Tigrian, and other ethnicities previously counted as Southern nation and Nationalities during the EPRDF led government), who are residing in Gambella City. These groups are an integral part of Gambella City's social structure and economic development. Highlander with their own strong traditions, work culture and customs, adding to the city's vibrant atmosphere. Their presence has increased economic opportunities, as they bring skills and expertise that benefit the local economy. These groups of residents; from their first step to Gambella, they are attracted by doing trade and commerce. With this intention, this has allowed them to thrive economically and contributes to the region's development. Their cultural diversity enriches the community and the social structure of Gambella. Since the establishment of the enclave, their primary responsibility has been to work in the commercial sector, that make them controlled the central or level one land use of the city. They were also working in the civil service sectors as they were the educated residents. They are mostly found in enclaves throughout the city particularly in kebele 02, 03 and 05. These areas are significantly known with a strong trade and commerce, mostly found in the Northeast, central and Southeast of Gambella city. The enclave is spread across the city, showcasing its influence and presence as in Table 4.9.

Table 4.9: The SEM Estimates of the Relationships between Highlanders ethnic enclave and Settlement with the Socio-Spatial, Economic, Environmental and Infrastructure Development

lavaan 0.6-9 ended normally after 65 iterations

Estimator	ML
Optimization method	NLMINB
Number of model parameters	41
Number of observations	496

Model Test User Model:

Test statistic	420.227
Degrees of freedom	94
P-value (Chi-square)	0.00

Parameter Estimates:

Standard errors	Standard
Information	Expected
Information saturated (h1) model	Structured

REGRESSIONS:						
	ESTIMATE	STD.ERR	Z-VALUE	P(> Z)	STD.LV	STD.ALL
ECON ~						
ECON1	1.083	0.070	15.505	0.000	1.083	0.222
ECON2	0.922	0.075	12.282	0.000	0.922	0.183
ECON3	1.156	0.033	35.540	0.000	1.156	0.513
ECON4	0.974	0.040	24.171	0.000	0.974	0.358
ECON5	1.018	0.040	25.558	0.000	1.018	0.367

ECON6	0.962	0.034	28.267	0.000	0.962	0.402
SOCIOP ~						
SOCS1	0.972	0.050	19.579	0.000	0.972	0.364
SOCS2	0.930	0.130	7.168	0.000	0.930	0.132
SOCS3	0.977	0.071	13.670	0.000	0.977	0.252
SOCS4	1.065	0.048	22.041	0.000	1.065	0.436
SOCS5	0.765	0.063	12.122	0.000	0.765	0.238
SOCS6	1.004	0.058	17.414	0.000	1.004	0.319
SOCS7	1.122	0.068	16.410	0.000	1.122	0.301
ENVI ~						
ENV1	1.109	0.101	11.009	0.000	1.109	0.101
ENV2	1.001	0.028	36.253	0.000	1.001	0.331
ENV3	0.979	0.027	36.921	0.000	0.979	0.336
ENV4	1.019	0.014	72.262	0.000	1.019	0.655
ENV5	1.001	0.023	43.328	0.000	1.001	0.393
INFRUS ~						
INF1	1.381	0.073	19.045	0.000	1.381	0.325
INF3	1.028	0.038	27.339	0.000	1.028	0.431
INF4	1.196	0.054	22.073	0.000	1.196	0.363
INF5	1.111	0.039	28.154	0.000	1.111	0.464
INF6	0.976	0.146	6.663	0.000	0.976	0.105
H_LAN ~						
ECON	0.096	0.009	10.379	0.000	0.096	0.431

SOCIOP	-0.032	0.009	-3.615	0.000	-0.032	-0.154
ENVI	0.051	0.010	5.362	0.000	0.051	0.213
INFRUS	0.011	0.018	0.613	0.540	0.011	0.025
COVARIANCES:						
	ESTIMATE	STD.ERR	Z-VALUE	P(> Z)	STD.LV	STD.ALL
.ECON ~~						
.H_LAN	-0.025	0.014	-1.797	0.072	-0.025	-0.084
.SOCIOP ~~						
.H_LAN	0.073	0.021	3.500	0.000	0.073	0.174
.ENVI ~~						
.H_LAN	0.007	0.008	0.854	0.393	0.007	0.038
.INFRUS ~~						
.H_LAN	0.008	0.008	0.942	0.346	0.008	0.045
INTERCEPTS:						
	ESTIMATE	STD.ERR	Z-VALUE	P(> Z)	STD.LV	STD.ALL
.ECON	0.411	0.092	4.475	0.000	0.411	0.185
.SOCIOP	0.722	0.092	7.855	0.000	0.722	0.300
.ENVI	0.757	0.038	19.964	0.000	0.757	0.367
.INFRUS	0.173	0.148	1.164	0.245	0.173	0.148
.H_LAN	-0.080	0.079	-1.010	0.313	-0.080	-0.160
VARIANCES:						
	ESTIMATE	STD.ERR	Z-VALUE	P(> Z)	STD.LV	STD.ALL
.ECON	0.490	0.031	15.748	0.000	0.490	0.099

.SOCIOP	0.964	0.061	15.748	0.000	0.964	0.167
.ENVI	0.170	0.011	15.748	0.000	0.170	0.040
.INFRUS	0.167	0.011	15.748	0.000	0.167	0.122
.H_LAN	0.181	0.012	15.624	0.000	0.181	0.732

Source: RStudio's Analysis from the 2021 Survey Data

4.9.3.1 Covariance results for Highlander's concentration in Gambella City

The concept of covariance for highlanders' concentration is used to analyze the connections between the economic (ECO), socio-spatial (SOSP), environmental (ENV), and infrastructural factors (INF), or vice versa. This analysis helps understand how the Highlanders ethnic concentration influences the development or is influenced by various aspects of the city's socio-spatial, environmental, and infrastructural factors. From the SEM results, the economic effect consisted of (-0.02), which indicated that the highlander concentration decreases weak economic effect on the city development. The sociospatial context consisted of (0.07) and the environment and infrastructure relationship with highlanders' settlement in the enclave consisted of (0.00) both. From the above description, we can conclude that highlander enclaves have a likelihood of affecting society, the environment, and infrastructure positively with less effect on weak economic growth. This implied both positive and negative consequences magnified from Highlander enclave settlement on the Gambella city development.

4.9.3.2 The Highlanders enclave Variance output results

The structural equation model (SEM) estimates help understand how the highlanders enclave affects the economic, socio-spatial, environmental, and infrastructural activities in the town. The interpretation of SEM variance outcomes allows for a better assessment of the overall impact of the Highlanders settlement on various aspects of Gambella City's economic, socio-spatial, environmental, and infrastructure functions.

The study reveals that Highlander ethnic concentration significantly impacted socio-spatial, economic, environmental, and infrastructure activities by 1%. However, there is a 96.4% variation in socio-spatial trajectories; this indicates existing socio-spatial disparity and related problems (crime, smuggling, and killing); highlander concentration has a big share. The

concentration of resources and opportunities within specific communities exacerbates socio-spatial segregation, leading to limited interaction and integration between different ethnic groups, hindering social cohesion, and potentially leading to conflicts. A 49% difference in economic activity occurred in Gambella due to the monopoly in the market that is in the hands of a few doing business in protected market. There is 17% variation in environmental and infrastructure functions due to the concentration of highlanders. While ethnic concentration in four development spectrums consisted of 18%. From this perspective, many residents failed to give more focus to their surroundings, and they have weak participation in the infrastructure development. The environmental deterioration caused by the influx of settlers puts a strain on natural resources and contributes to ecological imbalances, particularly in the Baro and JabJabe rivers. The presence of a distinct ethnic group concentrated in one area can lead to the marginalization of other communities and hinder inclusive development efforts. Many of the highlanders are too conservative to flash their potential to city development in full extent. These results magnified the attributes of the Highlander ethnic enclave that make variations observed.

Research question 3: What is the extent of ethnic enclave settlement on city spatial, social, economic, and political segregation in Gambella City?

4.10. The Extent of Ethnic Enclave on City Spatial, Social, Political, and Economic Segregation in Gambella City

This part, represents the third objective of this research, the analysis of the extent of segregation among residents due to the influence of change on spatial, social, political, and economic factors from ethnic enclave settlement in Gambella city. Framed thoroughly by employing visual and descriptive analysis tools. Hence, the analysis considered through three analytical parts (i.e., graphical, descriptive, and econometric) taken from the six tiers (i.e., overall town plots included in the land use inventory (LUI) and spatial stratification based on five kebeles).

In this section, the paper tabulated all variables under the social, spatial, economic, and political categories according to ethnic and settlement line-up. A multiple linear regression model was used to aid in this endeavor. This model is applied in the context of the effect of a change in the extent of ethnic enclave that magnified the percentage change in social, spatial, economic, and political factors. The primary goal of this section is to analyze the extent of ethnic segregation by tracing the effect of socioeconomic and spatial-political factors in the Gambella geo-locational range.

4.10.1. Description of Segregation by Ethnic Groups

The level of segregation based on the ethnic group was identified by considering the following variables for each resident and locality in Gambella City: According to the survey linked with land inventory data from the Gambella municipality (2016), analyzing the level of segregation in Gambella city. Variables utilized for measuring the extent of ethnic segregation in Gambella City were found by looking at links between the variables under each category: These covered land ownership demand, the availability of trust among residents in space, proximity to market outlets among ethnic groups, the closeness of financial institutions in the locality, being an employed worker, citizenship, level of participation in the politics of the state or city, and the influence of individuals to the surrounding community. All these were categorized and utilized to maximize and measure their influence on change, spatial, social, political, and economic, that maximizes the level of segregation in Gambella City.

In this manner, in Table 4.10, linked the 2016 land inventory data with survey data designed for measuring the level of segregation in Gambella. This table describes that the Anywaa ethnic group recognizes mistrust among residents outmost with 96%, followed by citizenship concern with 71% and land ownership demand with 51%. These factors were considered by Anywaa respondents as the most outstanding factors that influenced the change in spatial, social, economic, and political factors that led to segregation in Gambella City when ethnic enclave settlement is the only form of settlement. The segregation in Gambella from the view of highlanders was recognized by distrust in spatial space, citizenship, employment, and land ownership. These consisted of 96%, 75%, 64%, and 50% changes in the spatial, social, economic, and political aspects that magnified the segregation that happened in Gambella city.

For Komo, the segregation observed in Gambella was recognized as an absence of trust among residents (87%), followed by citizenship concern (87%), employment (74%), and influence on the community (53%). Additionally, the segregation in Gambella, according to Majang ethnicity respondents, resulted in an absence of trust among residents with 100% and segregation on employment and citizenship with 100%. According to the feedback from the Nuer and Opo ethnicities, we found that the Gambella segregation happened from citizenship with 100%, followed by distrust of residents with 96%, and employment issues with 54%.

Lastly, Opo considered trust among residents at 100%, land ownership at 90%, employment at

70%, influence on the community at 60%, proximity to the market, and citizenship at 50%. In general terms, an ethnic enclave settlement in Gambella influenced the city's spatial, social, economic, and political functions that segregate others from the existence of high distrust among residents, citizenship, land ownership, and employment. These factors were found to be the most influential and important factors in the segregation observed in Gambella City, as the ethnic enclave is the only settlement pattern.

Table 4.10: factors associated with Segregation level by Ethnic Group

Characteristic	Anywaa , N = 1,260 ¹	Highlander, N = 3,338 ¹	Komo, N = 15 ¹	Majang, N = 7 ¹	Nuer, N = 1,929 ¹	Open Space, N = 710 ¹	Opo, N = 10 ¹
The Land Ownership	644 (51%)	1,684 (50%)	6 (40%)	2 (29%)	974 (50%)	0 (0%)	9 (90%)
The Trust Among Ethnics	1,210 (96%)	3,205 (96%)	13 (87%)	7 (100%)	1,849 (96%)	0 (0%)	10 (100%)
Proximity to Market Outlets	453 (36%)	1,147 (34%)	5 (33%)	1 (14%)	645 (33%)	0 (0%)	5 (50%)
The Existence of Financial Institutions	284 (23%)	773 (23%)	4 (27%)	2 (29%)	440 (23%)	0 (0%)	3 (30%)
Being Employed	828 (66%)	2,141 (64%)	13 (87%)	4 (57%)	1,123 (58%)	0 (0%)	7 (70%)
Being Citizen	899 (71%)	2,519 (75%)	11 (73%)	7 (100%)	1,928 (100%)	0 (0%)	5 (50%)
Political Participations	94 (7.5%)	230 (6.9%)	2 (13%)	2 (29%)	152 (7.9%)	0 (0%)	2 (20%)
Influence to the Community	326 (26%)	764 (23%)	8 (53%)	3 (43%)	472 (24%)	0 (0%)	6 (60%)

¹n (%)

Source: RStudio 4.1.1 Analysis from 2020 G/Town's Geo-Survey Data (2021)

4.10.2. Segregation of Ethnic Groups by Locations (Kebeles)

In Gambella City, as the maturity of residents live where their same- inclined community lives, spatial separation is imminent. As described in Table 4.11 below, for each kebele, comparing the spatial separation from one kebele to another, the formerly enthralled land where the kebele is positioned. The following variables on certain spatial spaces in Gambella City were all employed for measuring the position of separation of residents in Gambella. The parcel of land or land power, strong and weak trust among residents in spatial spaces, propinquity to request services, access to fiscal services, and possibility of getting employed in certain spatial spaces in each kebele were all dimension variables for the separation of residents according to the kebele.

Descriptively, in Kebele 01, the citizenship issues (93) trust among ethnical groups (90), and employment (55), were the most contributing factors that separate residents of this Kebele from others. In Kebele 02, the citizenship (95), trust among residents (91), employment (67), and land power (54), and were the most honored factors that impact isolation observed in Gambella. For kebele 03, they considered trust among residents (90), citizenship (65), and employment (54), indicating the isolation observed in this kebele. The differences observed in Gambella from Kebele 04 repliers are trust (91), citizenship (66), and employment (55). That means this kebele replier recognizes that isolation in the city happed for spatial, profitable, and political reasons. Incipiently, the isolation that makes Kebele 05 different from others is the absence of trust among residents (74), followed by employment issues (60), and citizenship (53).

From this perspective, the changes in spatial, profitable, and political factors mark the separation of Kebele 05 from other kebeles. In this regard, the isolation from Kebele to Kebele was magnified by the absence of trust among residents, employment, and citizenship enterprises. In simple terms, the spatial separations that be from ethnical enclave agreements increase Gambella city isolation. Economically, ethnical enclaves mandate the proper employment process that every citizen can get, as ethnical traditionalism dictates other employment. Incipiently but not least, feeling and engaging to be honored or counted as citizens in Ethiopia (I'm the only Ethiopian), such a saying segregate other and influences the political position of isolation in Gambella.

Table 4.11: Segregation of Ethnic Groups by Locations (Kebeles)

Characteristic	Kb_01, N = 2,359 ¹	Kb_02, N = 488 ¹	Kb_03, N = 1,563 ¹	Kb_04, N = 1,314 ¹	Kb_05, N = 1,545 ¹
The Land Ownership	1,102 (47%)	263 (54%)	735 (47%)	614 (47%)	605 (39%)
The Trust Among Ethnics	2,119 (90%)	444 (91%)	1,400 (90%)	1,190 (91%)	1,141 (74%)
Proximity to Market Outlets	748 (32%)	172 (35%)	505 (32%)	420 (32%)	411 (27%)
The Existence of Financial Institutions	514 (22%)	112 (23%)	331 (21%)	275 (21%)	274 (18%)
Being Employed	1,287 (55%)	328 (67%)	841 (54%)	729 (55%)	931 (60%)
Being Citizen	2,201 (93%)	464 (95%)	1,011 (65%)	871 (66%)	822 (53%)
Political Participations	171 (7.2%)	19 (3.9%)	110 (7.0%)	89 (6.8%)	93 (6.0%)
Influence to the Community	523 (22%)	136 (28%)	358 (23%)	281 (21%)	281 (18%)
¹ n (%)					

Source: RStudio 4.1.1 Analysis from 2020 G/Town's Geo-Survey Data (2021)

4.10.3. Multiple Linear Regression Econometric on Extend of Segregation in Gambella

The investigation into the extent of segregation among residents caused by ethnic enclave influences on the city's spatial, social, political, and economic factors was based on the elasticity of change. The application of elasticity of change from a percentage increase in the unit of one of these factors. The estimate explanatory variables that cause ethnic segregation in Gambella City under the four major factors, i.e., spatial, social, economic, and political.

Through the estimation coefficients plus their intercept value, the inclusive residual value, which consists of the four factors taken from the explanatory variables estimated against ethnic segregation in that specific area. Having the residual values of the four factors (i.e., social, spatial, economic, and political), an estimation of their overall effects in conjunction with the ethnic and settlement locations (i.e., kebeles) is carried out with a multiple linear regression model. Hence, the step-wise analysis and presentation of the estimation outcome are exemplified and discussed in the following sections by considering social, spatial, economic, and political-related factors functioning in Gambella city.

4.10.3.1. Spatial factors on ethnic segregation

The proliferation of many spatial elements in an urban context is the most common cause of spatial segregation in cities. In this investigation, many spatial functions were evaluated for their applications to spatial segregation. These include the lack of trust among residents in the area, the abundance of criminals in the area, a conflict that displaced residents, and land ownership concerns as territory. As shown in Table 4.10, four factors in relation to geographical characteristics (trust, gangsters, conflict, and land ownership) that emerged because of the ethnic enclave settlement in Gambella city were used to evaluate the level of ethnic segregation under consideration.

From the findings, the full set of geographical variables used to fill in for spatial segregation estimates in this model fit well. When the contribution function of the given geographical factors is estimated, however, it also explains their effect on the variance that occurs across ethnic segregation in Gambella City. Both the R^2 and adjusted R^2 scores are 68%, which exceeds the 50% level norm. This suggests that these four variables, namely trust, gangsters, conflict, and land ownership, were responsible for over half of the spatial segregation in the city, while the

remaining 32% was attributable to unexplained changes that were not considered during this study.

From the Table 4.11, the explanatory factors are significantly different at 1 percent while keeping all other variables constant. An increase in the lack of trust among inhabitants causes ethnic segregation to grow by 46.5 percent. In line with a focus group discussion (FGD) conducted on September 17, 2021, the Gambella regional and city police officers; revealed that a lack of trust among residents much in practice in Gambella city. From the same discussion it is recognized that the high suspicion among the police officers magnified the level of distrust among police officers. This was marked by police reluctance and weak seriousness on civil protection. Police men act recklessly on issues that do not affect their tribal men. From this practices, killers, murders, robbers, and gangs became more customized in Gambella City (KII 6, 2021). In Gambella, Police men, work more effectively in the localities where their ethnic majority residing. In an observation conducted on April 17, 2021, around the old main market and Bure Sefer, a group of gangsters hanged one civilian in the daylight around the old park hotel area at 4:50 p.m. However, because of fear and negligence of otherness, residents in Bure Sefer (the Highlands) and the Anywaa around old Park hotel, they failed to help the victim intentionally.

From the table below, the percentage rise in the availability of gangsters in the enclave settlement area resulted in a 2.7 percent increase the existence segregation in spatial space. This maybe the homogeneity of resident's brought the weak disclosure of the existence of Ganges activities in the neighborhood. Push factors connected to "flash conflict" impact spatial settlement in the city, resulting in a 3.6 percent increase in the degree of segregation in a cross-settlement region. The spatial segregation in Gambella City was also observed by a 12.1 percent rise in land protection and demand from ethnic groups residing throughout settlement zones. These groups prevent others from accessing nearby land without proof. This indicates that the spatially related form of segregation that happened in Gambella city was from mistrust among city residents, followed by land ownership (protection), and that accidental conflict and gangster activities influenced the separation observed in Gambella city spatially. According to Ischak et al. (2018), social segregation occurs when a number of settlement areas in the intersections of new developers with significant financial resources cause residents of the same ethnic background to separate from the social bondage in their previously displaced land. In the region

where their social well-being and their growth are segregated, they sell their land and homes to new developers. This is what happened in Gambella: indigenous residents sold their land to highlanders in localities they felt they are more less in number and they felt being segregated from the affordability perspective. These residents look for another land where their ethnic majority is found in concentrations.

An interview with the company owner (KII6, 2021) in Kebele 03 at the Gambella Market Center backed the intensity of safety concerns in their workplace. The major business community abandons their stores and shops in the previous city's main market center due to fear and a high number of robberies.

A number of FGDs (2021) and an interview conducted with Kebeles local administrators in Kebeles 01, 03, 04, and 05 indicated that there are many pockets in the city that are deemed unsafe or "red zones" for all residents, regardless of whether it is daylight or night. Residents in all of these communities face numerous hardships and worry for their lives as they are attacked discriminatedly by youths.

On top of these, even though the land is public property according to the 1995 Ethiopian Constitution and is owned by the government and people of Ethiopia, the due process failed to materialize, as it claimed the lives of many innocent people in Gambella City. Land ownership that segregates others, exaggerated safety concerns since it acted as a flashpoint of conflict. It accelerated inter- and intra-ethnic conflicts among residents. The best example is the land issue in kebele 04 between Nuer village residents and Anywaa in Kebele 04. This tension blew up into an ethnic conflict between the Nuer and the Anywaa in Gambella City. This killed innocence women resided in Gambella for study in Gambella Teacher's and Health Science College. The tension was also escalated, bombing of students at the Gambella Teacher and Health Science College campus. Prisoners fought and killed each other's in Gambella main prison. This also led to the assassination of the Gambella regional state rural road authority deputy director in Abobo town, the Anywaa zone capital, on May 19, 2016. All these deaths, murders and killings were happened as a consequence of a land dispute between two conflicting ethnicities.

Contrary, the Anywaa beliefs and feelings about the area surrounding Gambella city as Anywaa zone territory contradict the perception of other ethnic groups like Nuer and Highlanders (KII5, 2021), who see land as government-owned or God-given; their views counter the Anywaa

intention on ownership of land in Gambella. From this perspective, high suspicion, mistrust, and skepticism about space in Gambella are underway. This gives the Anywaa the impression that their land is being taken away from them, and they seem to be uprooted from their ancestral homeland (KII 5, 2021). The Anywaa used violence and malpractice against others in localities they perceived their majority. They used these practices as tools and a means to prevent other ethnicities from encroaching on the Anywaa-occupied ancestral territory without Anywaa permission instead of municipality (KII-5, 2021).

Moreover, high skeptics on assimilation also make the Anywaa to settle in their concentrated area from others. For example, the new side around Gambella teacher's and health Science College expanded as the Anywaa enclave and kebele 04 around Abattoir side. In all these localities, the Anywaa concentration defined the location as pure enclave for Anywaa ethnic group residing in Gambella

The demand and claims for Anywaa zone and Gambella Zuria Woreda for Gambella city land also fueled the segregation on land. This prevented the city's horizontal expansion. These practices adopted and makes the practice that correspond to the Sheger City of Oromo that surrounds the capital city Addis Ababa (Geleta F.G.,2014). From the observation (2021- 2022), the Oromia Sheger city practice trend is now to be adopted by the Anywaa zone, Gambella, Zuria, Woreda. For them to have access to city land and other benefits on Gambella city. They used the prevention method as a political tool on access city land. In practice, residents that acquired land in a city suburb faced a lot of challenges as the land they occupied was claimed by the Anywaa zone while their localities included in the 2018 city structural plan. Insecure tenants they occupied as the land certification is awarded by Gambella Zuria Woreda and getting others urban services from Gambella city.

An interviewed resident (2022) in zone 7 of Kebele 05 on January 12, 2022, stated, "I received a land certificate from Gambella Zuria Woreda and paid land tax to them while I am getting other services from Gambella City as a resident." Moreover, the observed and the conducted informal discussion with traders and tax collectors at both checkpoints in the Gambella inlet from highland of Ethiopia and outlet to Itang, Investors were forced to pay two taxes at one checkpoint when entering and leaving Gambella city. Tax collectors from Gambella Zuria, and city tax collectors collected taxes at one checkpoint that never comply with Ethiopian revenue

collection procedures. But because the woreda claimed the right to territory and mineral like clay and stone for constructions, they maintained the right to tax, as they were backed systematically by higher authority at regional level. This systemic support from authority made the Anywaa zone and Gambella Zuria Woreda award the nearby land on the city outlet for investment for fifty years. This makes the intention of Anywaa as a means to prevent further growth of the city that did not considered the normal growth of city horizontally.

Table 4.12: Extend of Segregation due to Spatial Factors

Residuals:

Min 1Q Median 3Q Max
-62.845 -9.271 -0.502 7.729 74.568

Dependent Variable: Degree of Ethnic Segregation				
Coefficients:		Std. Error	t value	Pr(> t)
Variables	Estimate			
(Intercept)	17.6914	0.5198	34.04	<2e-16 ***
Trust	46.5039	0.7173	64.83	<2e-16 ***
Gangsters	2.7410	0.1108	24.75	<2e-16 ***
Conflict	3.6016	0.1612	22.34	<2e-16 ***
Land Ownership	12.1120	0.3702	32.72	<2e-16 ***

Signif. Codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 15.49 on 7264 degrees of freedom

Multiple R-squared: 0.6829, Adjusted R-squared: 0.6828

F-statistic: 3911 on 4 and 7264 DF, p-value: < 2.2e-16

Source: RStudio 4.1.1 Analysis from 2020 G/Town's Geo-Survey Data

4.10.3.2. Economic Factors in Ethnic Segregation

In cities, segregation is mostly a result of the expansion of different economic disparities in the urban context. This is very common in many developed countries. Many economic categories, such as proximity to the market center, access to financial facilities, income level, and access to employment opportunities in settlement areas, have been demonstrated in various works by many researchers for segregation. This was also reflected in the applications in this analysis for Gambella City. The estimate on the extent of ethnic segregation selectively from four economic variables (i.e., market, finance, income, and employment), as indicated in Table 4.12 below. In this measurement frame, the entire set of economic variables filled in the estimation of segregation in this model well.

On the other hand, when estimating the contribution function of the listed economic variables, they also explain their influence on the variation that happens across the segregation in Gambella City. From this, the R^2 and adjusted R^2 scores are 12%, which suggest that these four factors—market, finance, income, and employment—were entirely observed as levels of segregation as economic factors. The remaining 88 percent, however, was brought on by unexplained deviations.

In the same table, all the explanatory variables are significantly different at 1 percent. However, no difference was observed for the access to financial institutions variable, which indicates a non-significant level of 6 percent according to the description. This is because the financial institution mostly concentrated in certain residential area that lower their significance.

Keeping all other variables constant, a percentage increase in the presence of a market center near the settlement area tends to increase ethnic segregation by 8.5 percent. An increase in the availability of financial institutions near settlement areas is (1.6 percent). This is lower than in the case of proximity to the market center. For source of income as an economic variable, a percentage increase in the income level of the individual resident and an increase in the number of employed individual residents resulted in 1.4 and 8.4 increases in the degree of ethnic segregation across settlements, respectively.

In this manner, it should be stated that the economic factors that contributed to the present segregation observed in Gambella City were the issue of access to the market center and access to the employment center in the neighborhood. That means the segregation in the economic

sector is defined by weak access to the market center and employment opportunities, as ethnic enclave settlement dictated the market functions. As observed during the interview and survey, the city has only one market center with poor infrastructure, no big malls, an unorganized market system, and a lack of market days and bazaars. A small group of traders that are well organized controlled the system based on the formula that protected their way of doing business for their own benefit. For financial institution and income level disparity is low because the practice is common to all residents and enclaves in Gambella city.

Table 4.13: Extent of Ethnic Segregation due to economic Factors

Residuals:

Min	1Q	Median	3Q	Max
-104.441	-6.813	7.037	16.410	30.871

Dependent Variable: Degree of Ethnic Segregation				
Coefficients:		Std. Error	t value	Pr(> t)
Variables	Estimate			
(Intercept)	6.680e+01	4.797e-01	139.246	<2e-16 ***
Market	8.542e+00	7.099e-01	12.034	<2e-16 ***
Finance	1.641e+00	8.722e-01	1.882	0.0599.
Income	1.420e-03	1.608e-04	8.830	<2e-16 ***
Employment	8.443e+00	9.338e-01	9.042	<2e-16 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 25.79 on 7264 degrees of freedom

Multiple R-squared: 0.1209, Adjusted R-squared: 0.1204

F-statistic: 249.8 on 4 and 7264 DF, p-value: < 2.2e-16

Source: RStudio 4.1.1 Analysis from 2020 G/Town's Geo-Survey Data

4.10.3.3. Political Factors

Segregation is mostly considered a result of the expansion of different political functions and practices in urban areas. Many political activities, such as citizenship, individual political status (position), and influence in the community in some settlement areas, were considered for the applications in this analysis in Gambella City. We estimate the extent of segregation selectively from three political factor categories (i.e., citizen, political status, and influence), as in Table 4.13 below. This indicates that the entire set of political variables fitted in the estimations of segregation in this model fit well for Gambella City observed segregation. On the other hand, when estimating the contribution function of the listed political variables, they explain their influence on the variation that happens across ethnic segregation in Gambella City. From this, we observed that the R^2 and adjusted R^2 scores are 28 percent. However, other factors, with 72% not mentioned in this study, do contribute to the city's current segregation in a strong way.

Descriptively, we observed only 28 percent, as explained by this variation that is inclined up with this model, as they have contributed to Gambella City's current segregation. Keeping all other variables constant, a percentage increase in the number of people preaching citizenship egoism among residents tends to extend segregation by 33.3 percent. A percentage influence among people with high political status near the settlement resulted in an 8.0 percent increase in segregation. However, a 1 percent increase in individual influence on the community was reduced by 1.0 percent across settlements, respectively. This suggests that people with a giant influence on the citizenship concern have a strong voice against the existing segregation within the city. As shown in Table 4.12 below, the citizenship issue and political status were the two variables that had a large contribution effect on the current ethnic segregation in Gambella City received from the same ethnic concentration.

Table 4.14: Extent of Ethnic Segregation due to Political Factors

Residuals:

Min 1Q Median 3Q Max

-61.906 -7.888 2.094 11.094 45.512

Dependent Variable: Degree of Ethnic Segregation				
Coefficients:		Std. Error	t value	Pr(> t)
Variables	Estimate			
(Intercept)	53.5065	0.5401	99.069	< 2e-16 ***
Citizen	33.3999	0.6401	52.177	< 2e-16 ***
Polit_Status	8.0528	1.2843	6.270	3.81e-10 ***
Influence	-1.0185	0.7906	-1.288	0.198

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 23.27 on 7265 degrees of freedom

Multiple R-squared: 0.2845, Adjusted R-squared: 0.2842

F-statistic: 963.1 on 3 and 7265 DF, p-value: < 2.2e-16

Source: RStudio 4.1.1 Analysis from 2020 G/Town's Geo-Survey Data

4.10.3.4. Social factors in ethnic segregation

Segregation is mostly caused by the proliferation of various social programs and social relationships. Ethnic segregation is mostly a result of the expansion of different social projects and different social ties. Many social projects, such as the provision of schools and health services in some settlement areas, as well as the prevalence of some social ties, such as marriages and household size, as demonstrated in various works of literature and previously discussed in this paper, they were all considered for the applications in this analysis.

The extent of ethnic segregation selectively from four social functions (i.e., school, health, marriage, and household size) as indicated in table 4.14 below; the model fit showed a significant value by having a p-value of $<2.2e-16$, which is less than a 1 percent level. This indicates that the entire set of social variables included in the estimations of ethnic segregation in this model fit well. On the other hand, when estimating the contribution function of the listed social variables, they explain their influence on the variation that happens across ethnic groups in Gambella City. This suggests that the complete set of social factors in this model matches the ethnic segregation estimates effectively. The contribution function of the above-mentioned social factors is estimated; however, it explains their effect on the variance that occurs across Gambella City.

The R^2 and adjusted R^2 scores are both 53 percent, which is higher than the 50 percent threshold. This suggests that about half of the ethnic group segregation in Gambella City is magnified by social factors produced by these four variables, namely, access to school and health facilities, inter-ethnic marriage, and household size, with the remaining 47 percent owing to unexplained variances that are not accounted for in this model. Except for the health variable, which has a significant level above the standard, all explanatory variables are noticeably different at 1 percent, as seen in Table 4.14 below. An increase in the number of schools adjacent to the settlement that is surrounded by one ethnic group tends to enhance ethnic segregation by 25.8 percent, followed by an absence of inter-marriage among ethnicities with a slide difference in family size when all other factors are held constant. This implies that the distribution of schools in Gambella City and weak inter-ethnic marriage are the contributing factors that cause social segregation in Gambella. Not only these, but socially related functions like communal places, mostly recreational areas like stadiums, and common faith base institutions were also mentioned as being very rare in Gambella City while they are importance for habitation (KII5, 2021).

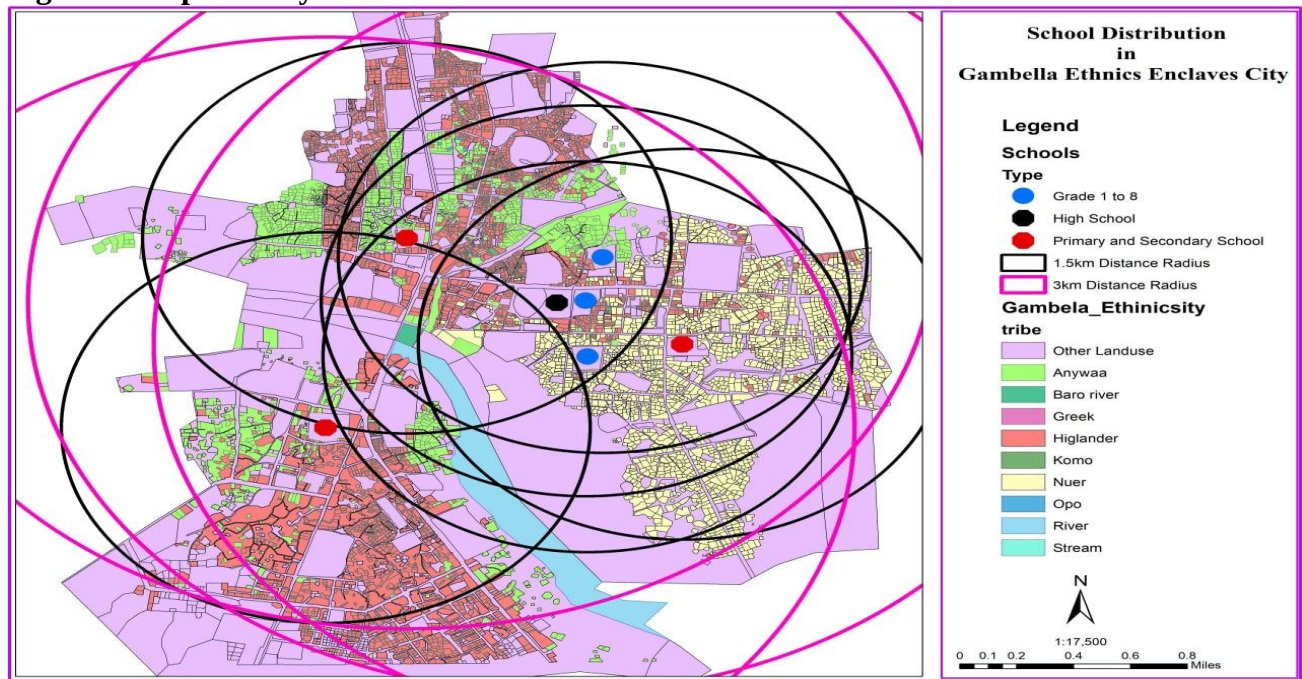
Along with the observation (March 2020–August 2022), in purposively selected public schools in Gambella City, the study discovered that inhabitants of the same ethnic background are strongly associated with school enrollment. It appears that where the dominant ethnic group dwells determine where students of the same ethnic background learn. An interview with the four school principals (Chiengkuar, JabJabe, Gambella High School, and Weber) also revealed that the settlement patterns of the dominant ethnic groups had a significant impact on school functions (KII 5, 2021). For instance, the Nuer local language is taught in schools where the

Nuer ethnic group predominates, like Chiengkuar and Dualkuach. In Webur and Eley elementary schools, the Anywaa language is used as a medium of instruction; in primary schools, a similar array is seen. These schools highlighted the domination of indigenous learners that hampered the rights of highlander children and small minorities.

No matter how the Constitution of 1995 gave every citizen the right and opportunity to learn their mother tongues, there is no room for other ethnicities. Not on these, schools in such a settlement area were not accessed by other ethnicities. For example, in school located in Nuer majority residential area, Anywaa pupil are rare to learn in. The same practice also applied to Nuer on Anywaa majority schools.

An informal contact with Majang pupils attending class in Eley School as pupil residing in the Majang site on December 1, 2021 during World AIDS Day in Gambella Stadium, “Majang children are forced to learn Anywaa local language in Eley primary school” even though they have a chance to learn their local language as natives compared to highlanders. But because Majang was counted as a minor in this school, they were denied access. This is also still the same race in those schools, dominated by others (Nuer) against highlanders and Komo. In addition to the observed disparity, the present of systematic segregation in Gambella was magnified by the side selection of Eley Senior Secondary Schools, which was built by the donation from the office of First Lady Zinashe Tayachew in 2021. From the interview (KII6, 2021), the site that this school was constructed was selected out of the proposed school location by a city structure plan. It also failed to match and conform with urban planning standard of 3km for high school. In Gambella, because school allocation dictated by ethnic enclave settlement, high disparity is observed as indicated in figure 4.24 that magnified how the schools are unevenly distributed in the city.

Figure 4.24: proximity school facilities to residents



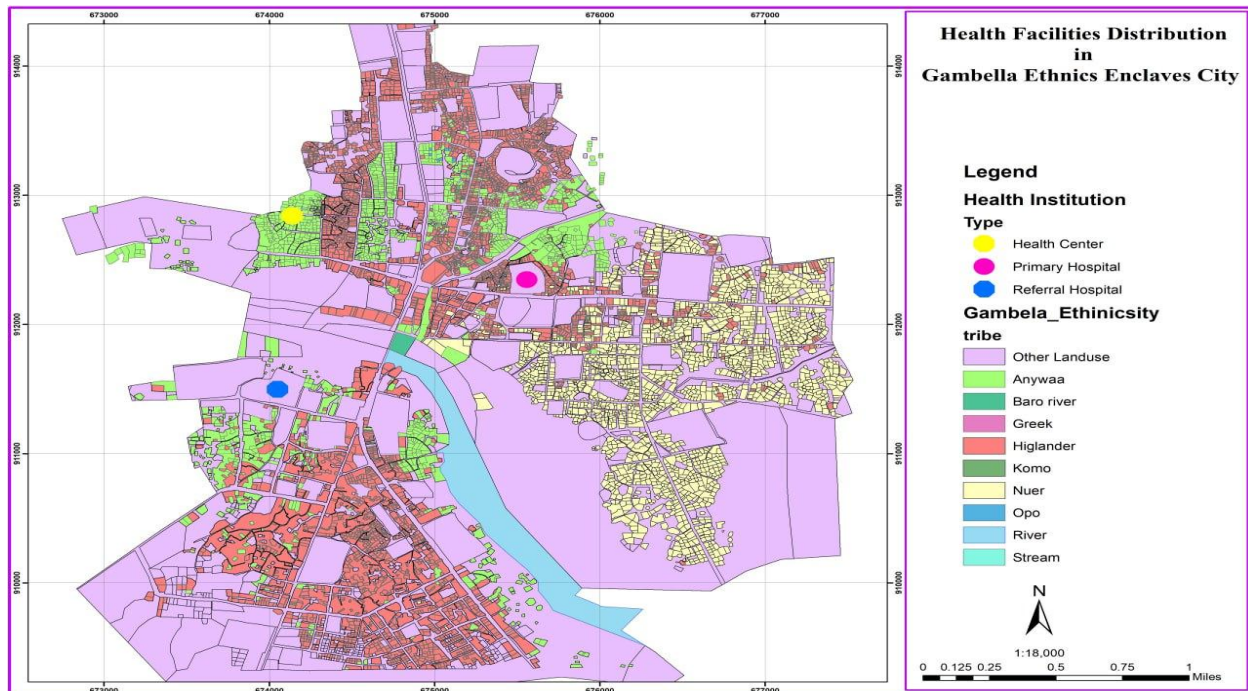
Source: Own survey (2023)

The second most important social factor is the lack of intermarriage between ethnic groups. This exacerbated ethnic segregation by 17 percent. In practice, just a handful of people have married someone from various ethnic groups. Certain discriminatory phrasing in practice and culture has a stronghold in weak inter-ethnic marriage, particularly among indigenous people (KII 6, 2021). But the best part observed during this research was that some indigenous Nuer, Anywaa, and Majang men married from other ethnicities. Along with this, many indigenous females started practicing commercial sex work, which may, in the long run, bring in intermarried residents of different ethnic groups. This may break the backlog and stigma among ethnic groups that prevent inter-ethnic marriages. However, the absence of inter-ethnic marriage is considered an important factor in the existing segregation in Gambella City, which murders social cohesion.

Another social-related explanatory variable, along with school and marriage, considered in this study was access to health facilities. The proximity of health facilities to a residential area is due to socio-economic considerations. An increase in 1 percent demand for access to health facilities near ethnic enclave areas increased health disparity by 2.6 percent, but less than education disparity. Even though Ethiopian health policies determine the standard for where to locate facilities according to the population size that can make the existing Gambella general hospital,

Gambella primary hospital, and one health center in Kebele 04 (Figure 25) enough for Gambella,

Figure 4.25: proximity of health and school facilities to residents



Source: Own survey (2023)

From observation and an interview with a resident (2021), access to health services as per walking distance (see Figure 4.25) is weak in the residential zone located in Kebele 01, 03, and 05, where there is a high concentration of Highlanders and Nuer residents. Not only this, fear from enclaves where hospitals are situated magnified the denials. Ethnic affiliated hospital management resulted into denial of salary to specialist doctors working in Gambella general hospital that resulted from fear of their safety from the June–September, 2023 crises in Gambella city. Because the side is located where Anywaa most concentrated while these Doctors were Nuer, their work environment was not favorable that make them to quite the work.

Moreover, the Gambella Referral Hospital location like schools also failed to confirm with the city's major population. The hospital is located where one kebele is situated, leaving the others four kebele on the other side of the rivers. High incompatibility of health facilities is observed as indicated in the blue color in Figure 4.25 above. Lastly but not least, a 1 percent rise in household size results in a 1.5 percent increase in the degree of ethnic segregation between settlements. The growing family size tends to enhance ethnic segregation, as much has been

observed among indigenous residents (Table 4.14). The larger the family size, the higher the level of social segregation increase, as ethnic enclave settlements magnified by the concentration of the same ethnicity. Therefore, cumulative effects of social factors (education, health, marriage, and family size) are largely dependent on education and the absence of inter-ethnic marriage among enclaves.

Table 4.15: Ethnic Segregation from Social Factors

Residuals:

Min 1Q Median 3Q Max
-67.093 -8.900 -1.935 14.136 63.685

Dependent Variable: Degree of Ethnic Segregation				
Coefficients:		Std. Error	t value	Pr(> t)
Variables	Estimate			
(Intercept)	32.7975	0.5558	59.005	<2e-16 ***
School	25.8513	1.2883	20.066	<2e-16 ***
Health	2.6115	1.2139	2.151	0.0315 *
Marriage	16.5324	0.4938	33.480	<2e-16 ***
Hhsize	1.5178	0.0758	20.023	<2e-16 ***

Signif. Codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 18.94 on 7264 degrees of freedom

Multiple R-squared: 0.5258, Adjusted R-squared: 0.5256

F-statistic: 2014 on 4 and 7264 DF, p-value: < 2.2e-16

Source: RStudio 4.1.1 Analysis from 2020 G/Town's Geo-Survey Data

4.10.3.4. The overall effect of ethnic enclaves on the extent of ethnic segregation in Gambella City

This study intends to recognize the most contributing independent variable in the forecast of the dependent variable. Thus, the strength of each predictor (independent variable) influencing the criterion (dependent variable) can be investigated via Beta coefficient. The regression coefficient explains the average amount of change in the dependent variable that is caused by a unit change in the independent variable. The larger value of Beta coefficient an independent variable has, brings the more support to the independent variable as the more essential determinant in predicting the dependent variable.

In multiple linear regression models in our study, our dependent variable is degree of ethnic segregation and we have four continuous independent variables (socially, spatially, economically and politically) and two categories independent variables (ethnic and *kebeles*). The four continuous independent variables (socially, spatially, economically and politically) have positive significant effect on the degree of ethnic segregation in *Gambella* city since their p-value is less than 0.05. On the ethnic category variable, the open space level has a negative significant effect on the degree of ethnic segregation in *Gambella* city since the p-value is less than 0.05 and the Highlander, *Komo*, *Majang*, *Nuer* and *Opo* are not significant but they have a negative effect on the degree of ethnic segregation in *Gambella* city. On the *Kebele* category variable, their all levels have a negative significant effect on the degree of ethnic segregation in *Gambella* city and their p-value is less than 0.05.

Based on these results, the regression equation that predicts the degree of ethnic segregation in *Gambella* city based on the linear combination of socially, spatially, economically, politically, ethnic and *kebeles* is below.

$$\begin{aligned}\hat{Y} = & 85.352 + 0.0891 * socially + 0.2197 * spatially + 0.2525 * economically + 0.1457 \\ & * politically + (-51.639 * ethnic_{open\ space}) + (-2.2191 * Kebele_{02}) \\ & + (-1.7159 * Kebele_{03}) + (-1.6509 * Kebele_{04}) + (-3.5605 * Kebele_{05})\end{aligned}$$

According to the regression equation established, taking all factors in to account (socially, spatially, economically, politically, ethnic and *kebele*) constant at zero, the degree of ethnic segregation will be increased by 85.352 in *Gambella* city.

The coefficient beta of socially is $\beta = 0.0891$, with statistically significant p-value of $P = 0.000 < 0.05$ of $t = 20.648$, the regression results found that socially have positive significant effect on the degree of ethnic segregation in *Gambella* city. So, any unit increase in socially will lead to increase the degree of ethnic segregation by 8.91% in *Gambella* city.

As indicated in the table 4.15 below, the spatially had 0.000 level of significance with $\beta = 0.2197$ and $t = 47.802$. This implies that; spatially have positive significant effect on the degree of ethnic segregation in *Gambella* city. Any unit increase in spatially will lead to increase the degree of ethnic segregation by 21.97% in *Gambella* city.

On an economically factors in *Gambella* city. The coefficient determination of economically $\beta = 0.2525$, with statistically significant p-value of $P = 0.000$ which is less than 0.05 and $t = 40.879$, the regression results imply that economically have positive significant effect on the degree of ethnic segregation in *Gambella* city. So, any unit increase in economically will lead to increase the degree of ethnic segregation by 25.25% in *Gambella* city.

In the table 4.15 below, the politically has positive impact on degree of ethnic segregation is supported by model; the result shows that a politically increases the degree of ethnic segregation by 14.57% for each additional politically level increment in *Gambella* city. The p-value for this coefficient is statistically significant ($P=0.000<0.05$), meaning that politically is a significant predictor of degree of ethnic segregation in *Gambella* city. Accordingly, the finding revealed that the politically has the positive significant effect on the degree of ethnic segregation in *Gambella* city is supported by the data on this paper as (p-value < 0.05; $\beta=0.1457$) and $t = 29.060$.

For ethnic category variables, the open space coefficient Beta ($\beta = -51.6398$) implies that 50.6398 times reduction in the degree of ethnic segregation for any unit increment of open space compared with *Anywaa*. So, open space has the negative significant effect on the degree of ethnic segregation in *Gambella* city since the p-value is less than 0.05.

Based on the *Kebele* category variable, the Newland (*Kebele* 01) is reference category and *Arat Kilo* (*Kebele* 02), *Mehal Ketema* (*Kebele* 03), *Addis Sefer* (*Kebele* 04) and *Baromado* (*Kebele* 05) have a negative significant effect on the segregation in *Gambella* city since their p-value are less than 0.05. The coefficient Beta of *Arat Kilo* (*Kebele* 02) ($\beta = -2.2191$) implies that 1.2191 times reduction in the degree of ethnic segregation in *Arat Kilo* (*Kebele* 02) than Newland

(*Kebele 01*) in *Gambella* city. The coefficient Beta of *Mehal Ketema (Kebele 03)* ($\beta = -1.7156$) implies that 71.56% reduction in the degree of ethnic segregation in *Mehal Ketema (Kebele 03)* than Newland (*Kebele 01*) in *Gambella* city. The coefficient Beta of *Addis Sefer (Kebele 04)* ($\beta = -1.6509$) implies that 65.09% decrease in the degree of ethnic segregation in *Addis Sefer (Kebele 04)* than Newland (*Kebele 01*) in *Gambella* city. The coefficient Beta of *Baromado (Kebele 05)* ($\beta = -3.5605$) implies that 3.5605 times reduction in the degree of ethnic segregation in *Baromado (Kebele 05)* than Newland (*Kebele 01*) in *Gambella* city.

Table 4.16: Model Coefficients for Extent of Ethnic Segregation in Gambella City

Residuals:

Min	1Q	Median	3Q	Max
-28.8148	-2.4805	0.8183	3.2414	26.9640

Variables	Coefficients Estimate (β)	Std. Error	t-value	Pr(> t)
(Intercept)	85.352480	0.258288	330.454	< 2e-16 ***
Socially	0.089073	0.004314	20.648	< 2e-16 ***
Spatially	0.219736	0.004597	47.802	< 2e-16 ***
Economically	0.252523	0.006177	40.879	< 2e-16 ***
Politically	0.145671	0.005013	29.060	< 2e-16 ***
Ethnic				
<i>Agnuak (R)</i>	1			
Highlander				
<i>Komo</i>	-0.235775	0.162262	-1.453	0.1463
<i>Majang</i>	-1.199203	1.241592	-0.966	0.3341
<i>Nuer</i>	-3.507084	1.816349	-1.931	0.0535 .
Open space				
<i>Opo</i>	-0.498601	0.274412	-1.817	0.0693 .
	-51.639870	0.399905	-129.130	< 2e-16 ***

	-0.067240	1.518489	-0.044	0.9647
Kebele				
<i>Newland (01) (R)</i>	1			
<i>Arat Kilo (02)</i>	-2.219136	0.295712	-7.504	6.91e-14 ***
<i>Mehal Ketema (03)</i>	-1.715661	0.247709	-6.926	4.70e-12 ***
<i>Addis Sefer (04)</i>	-1.650934	0.255243	-6.468	1.06e-10 ***
<i>Baromado (05)</i>	-3.560517	0.245366	-14.511	< 2e-16 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 4.768 on 7254 degrees of freedom

Multiple R-squared: 0.97, Adjusted R-squared: 0.969

F-statistic: 1.675e+04 on 14 and 7254 DF, p-value: < 2.2e-16

Source: RStudio 4.1.1 Analysis from 2020 G/Town's Geo-Survey Data

The coefficient of determination, R^2 , is used in the context of statistical models whose main purpose is the prediction of future outcomes on the basis of other related information. It is the proportion of variability in a data set that is accounted for by the statistical model. It provides a measure of how well future outcomes are likely to be predicted by the model. Our results shows that the coefficient of determination (R^2), using all the independent variables simultaneously, is ($R^2= 0.97$) meaning that 97% of the variance in degree of ethnic segregation can be predicted from independent variables while the rest of 3% is explained by other factors. Therefore, this indicates that 97% of the variance in degree of ethnic segregation was explained by the model.

Adjusted R^2 is a modification of R^2 that adjusts for the number of explanatory terms in a model. Unlike R^2 , the adjusted R^2 increases only if the new term improves the model more than would be expected by chance. The adjusted R^2 can be negative, and will always be less than or equal to R^2 . The adjusted R^2 gives some suggestion of how well the model generalizes and its value to be the same, or extremely close to the value of R^2 . That means it adjusts the value of R^2 to more correctly represent the population under study (Pedhazur, 1982). The difference for the final

model is small, in fact in our result in table 4.15 above the difference between R^2 and Adjusted R^2 is $(0.97 - 0.969 = 0.001)$ which is about 0.1%. This reduction means that if the model were derived from the population rather than a sample it would account for approximately 0.1% less variance in the conclusion.

The ANOVA shows the overall significance/acceptability of the model from a statistical perspective with the p-value is less < 0.05 which indicates the variation explained by the model is not due to possibility (Pedhazur, 1982). F-statistic determines whether the model is a good fit for the data. The F-statistic is calculated by dividing the average enhancement in prediction by the model by the average difference between the model and the observed data. If the improvement due to appropriate the regression model is much greater than the inaccuracy within the model, then the value of F-statistics will be greater than 1 and *RStudio* calculates the exact probability of obtaining the value of F-statistics by chance. Based on our result in the table 4.15 above, the statistic $(F) = 1.675e+04$, $p\text{-value} = 0.000$ was implying that the model was significantly used in predicting the effects of independent variables on degree of ethnic segregation in Gambella City. And the F-statistic for our model is greatest than 1, which is very unlikely to have happened by chance.

The cumulative effect of the ethnic enclave on change in economic, spatial, social, and political factors that magnified ethnic segregation Gambella were digested to enrich the segregation theory and ethnic enclave settlement. Changes in social, political, economic, and spatially related functions fragmented Gambella city when the ethnic enclave was the only residential settlement (Anywaa, Highlanders, Nuer, Komo, Opo, and Majang). Moreover, the residents' preferences in choosing the location (Kebeles) were all appropriately considered for measuring the extent of segregation in Gambella City. We estimate the extent of ethnic segregation selectively from various variables considered by defining the degree of ethnic segregation as indicated in Table 4.14 below. According to this table, we observed that all the explanatory variables are significantly different at the 1 percent level. Keeping all other variables constant, a 1 percentage increase in social change increased segregation among the ethnic groups by 0.8 percent. This implies that social segregation accumulation's effect is low when compared to the other three factors (spatial, economic, and political). That means the social segregation observed in Gambella City has weak ties among ethnic groups. This is because the homogeneity in the neighborhood failed to reflect the social segregation by ethnicity since every variable under

measure represents the sound of people from the same locality in a close neighborhood.

Along with social factors, a spatially related function was utilized to determine the level of ethnic segregation. According to the estimate, 21.9 percent of Gambella resident disparity happens because of existing spatial, ethnic-based settlements. The spatial concentration of one ethnic group in one spatial space pushed another ethnic group away from space (figure 4.6). From the interview, Anywaa moved away from others because of fear of assimilation (KII 7, 2021). Malpractices and criminality in certain spatial spaces are utilized as tools by ethnicity in certain area to reflect others in the neighborhood. In the same connection, the cumulative effects of economic activities in Gambella City account for 25.2 percent of the segregation that is underway. This pinpointed that the economy was utilized as a factor to identify the level of segregation in Gambella City; it contributed the most outstanding effect of the four estimations that are utilized to define the extent of ethnic segregation in Gambella City. This finding also magnified and concise with previous discussion on the second objective in this study as part of implication of ethnic enclaves from the business protection. In comparison to the other three explanatory variables, political segregation accounted for 14.5 percent. Political factors contributed to the third stage of ethnic segregation in Gambella. From the observation (2021–2022), the Gambella political system has practices that neglect others, resulting in the weak participation of non-indigenous residents and other minorities that received a weak share in the political system. High fragmentation in the political sector is underway as ethnic affiliated political system in place.

Another important concern was the segregation among ethnic group residing in the city. From Table 4.15, the segregation by ethnicity seems to be low or none, as the entire findings are negated with any significant value. From these results, the concentrations of Highlander, Komo, Majang, Nuer, and Opo were all less significant than Anywaa, which was utilized as the reference category. As the data collected within the adjustment neighborhood concentrated by people from the same ethnic background according to land use inventory, the result failed to define the level of ethnic segregation clearly. That mean from the variable in hands, they failed to defined the ethnic segregation from one ethnicity to another. Other unrecognized and mention factors maybe the one will influence ethnic segregation. The level segregation in Gambella by locational pattern (Kebele) in the time kebele-01 the reference category for location. In this regard, the level of segregation from kebele to kebele varies; the segregation level in less

magnified in kebele 02 by 2.21 percent, 1.7 percent in kebele 03, and 1.6 and 3.7 percent in kebele 04 and 5 than in Kebele 01. This means all the kebeles displayed the presence of less level of segregation except in Kebele 01. The segregation level observed as weak in the four Kebeles defined how homogeneity of residents highly magnified and reflect others except settlement in Kebele 01.

Research question Four: What residential settlement policy and planning model has there been for Gambella, an ethnic enclave city, since its establishment in 1907?

4.11. Policy and planning model for Gambella City, Ethiopia

A "human settlement" is any size of city or town where people live and work close to one another. It is known that different countries describe city regions in distinctly different ways. In this study, "urban areas" and "cities and towns" are defined based on the Ethiopian urban category that spatially separates the three settlement regions. Defining the term "human settlements" is a broad term that refers to any collection of dwellings where people reside and can also include communities (UN Habitat, 2019). It is also believed that Ethiopia's human settlement pattern is similar to that of other parts of the world. The historical viewpoint of settling in an urban center or the development of urbanization in Ethiopia before the twentieth century is strongly related to the establishment of political capitals in the country. The historical background of Ethiopia's urban settlement systems has changed significantly over the past century. This happened because of the significant contributions that various administrative structures have made to the country's growth. This enables someone to understand the current problems with Ethiopia's modern urbanization and planning methods. Therefore, this section covers the historical perspective of Ethiopian urban development and its policies, planning processes, and models that Ethiopian cities have been undertaking, with particular focus on Gambella enclave planning. This section is mostly dealing with secondary sources, FGD, observation, and interviews with key informants (KII).

4.11.1. The development of urban settlements in Ethiopia

In Ethiopia, like in other developing countries, there is considerable debate about the planning and policy for residential permanent settlements. Appelhans (2017) argues that urban theory

excludes the characteristics of local urbanism and practices of settlement and building in Ethiopia. This makes us unable to describe the continuous process of urbanization that defines the urban reality in Ethiopia. Ethiopia's urbanization, which gave rise to the nation as we know it today, was thought to have started with the expansion of the country's urban centers between 1889 and 1925 (Appelhans, 2017). The evolution of cities from one era to the next, however, was not covered by this historical background in more detail for Ethiopia in general. This is because the focus is on Gambella Enclave city policy and planning with a unique character on its formation that is not well articulated in Ethiopian urban development before as the many focus on the center and North part of Ethiopia.

In Ethiopia, urban areas that eventually developed into densely populated cities began to appear in the late 19th and early 20th centuries (Appelhans, 2017). During this period, military barracks started to develop into urban neighborhoods. That is where Ethiopia's first stage of modern urban settlement began. Imperial control, which developed the state bureaucracy and led to taxes that safeguarded the central command structure and raised the functional level of various administrative systems, allowed Ethiopian citizens to create urban centers and urbanize. The development of economic and communication corridors was the last, but certainly not the least, aspect that helped Ethiopian cities evolve.

The UN Habitat (1996) claims that Ethiopia has never had a human settlement policy and was slow to recognize the importance of human settlement in its national policy and the process of socioeconomic development. A major component of human settlement policies appears to be clearly embodied in other urban development policies and strategies that are now being used and implemented in many Ethiopian cities. Even though there isn't a clear integration between human settlement policies and other developmental policies in relation to socioeconomics in Ethiopia, planning that prioritizes urban land use and other aspects of urban growth is something that is frequently seen in Ethiopian cities (KII 5, 2021). However, there are many areas of Ethiopia's cities that have terrible living conditions. Sanitation problems exist in the older urban fabric, and more room is needed to accommodate the city's expanding population. However, Ethiopian national politics first developed an urban policy in this framework in 2005 (MWUD, 2007). Hence, a Plan for Accelerated and Sustained Development to End Poverty (PASDEP) released by the Ministry of Works and Urban Development expanded the political vision of "development" (cf. Müller 2015) to the field of urban development. The supply of infrastructure

and the construction of housing have gained prominence on Ethiopia's political agenda.

Yet, the starting point for ideas for urban policy design is not always everyday behavior, whether traditional or modernized. That is why in Ethiopian cities, urban development policies are commonly implemented through displacement and reconstruction, which make space for "development" initiatives. The practices of daily urban living in Ethiopia that produce housing of varied sorts and standards and appropriate places for livelihoods are dynamic and prone to change in connection with shifting materiality and societal norms and trends. The construction is carried out outside of the control of governmental institutions by citizens, cooperatives, investors, or NGOs (Appelhans, 2017). Since policies were mostly designed in favor of political system, citizens resided in these areas face demolitions when they did not adhere to land-use restrictions, building requirements, or business regulations. The lack of understanding of the complexity and intensity of the human settlement problems in Ethiopia, as well as the influence of previous and ethnic federalism, which prioritizes ethnicity as a primary concern without regulatory means, all hindered the growth of the country. Ethiopian cities presently face challenges in meeting demand and regulating the rapid population expansion shaped by ethnicity stereotype, urbanization, high population density, and the diversity of citizens with strong familial ties. The bulk of the population does not fit the urban way of life, as the Ethiopian human exodus from rural to urban and urban to urban, which is ethnically shaped attitudinally, has contributed to the unfavorable social being in cities.

As slightly mentioned above, after the Derg regime was overthrown in 1991, Ethiopia's government placed a special emphasis on urban development to ensure proper urban growth. The EPRDF-led government established a policy package on urban development strategies. For instance, the agriculture-Led Industrial Development Program, PASDEP, and GTP I and II were all developed for all sectors to improve the growth of the nation. However, the topic of human habitation for urban settlement received little attention throughout the entire process. The national and urban development policies of the countries appear to lack a human settlement texture composition policy for spatial space. There are no policies or directives designed to dictate where to place residents, how to locate resident and policy that discourage the homogeneity form of settlement in the city space. There is no dispersal policy in many Ethiopian cities. Moreover, since the majority of Ethiopian communities were under deprivation from the

previous era, the city's resident's consciousness of federalism proved disastrous. To shape this societies for proper growth of cities demand policies and planning model for diverse nation like Ethiopia.

Since then, for proper growth, the Proclamation 317/1987, developed to magnified national urban plan institute (NUPI). NUPI was founded with the goal and focus of being an entity that would deal with the urban development of Ethiopian cities. However, this institution failed from the centrality perspective. Their focus was on planning for urban land use and socioeconomic development in cities. The Proclamation 574/2008, which was also produced by the Ethiopian government, was another urban ordinance that grants all metropolitan regions in the nation the power to plan unplanned cities, control expansion, and act as a road map for the goal of balanced and integrated local, regional, and national development.

Despite the fact that planning for a single urban center or city is required under Urban Planning Proclamation No. 574/2008's objectives, laws that keep intact the dispersal of the same ethnic group or discourages homogeneity in spatial space were not developed while they could balance the diversified population distribution. Settlement areas in the suburb and informal settlements caused by ethnic enclaves are counted as “squatter”, “suburb “and "informal" in Ethiopia (Ministry of Works and Urban Development, 2007). While the cause for all these urban patches originated from ethnic enclave settlement. many scholars give much focus on the pressure of rapid urbanization and the natural increase in population plus donor's interest in Ethiopia.

The real practices on the ground in many Ethiopian urban centers did not receive enough attention. This marked and conceded with Watson (2002), views the discrepancy between the new standards of development and the practices and structures that are now in place is the result of a disagreement between explanatory and prescriptive viewpoints. These contributed to Ethiopia's contemporary city expansion since ethnic-based settlements have gone unresolved. In Ethiopia, no clear definition of urban tradition, the history of urbanization trends and city development, ethnic enclaves, and the intrinsic urban planning models of industrialized nations. Most of all these defined based on generalization of certain localities based on earlies scholarly work.

For the growth and development of the Ethiopian city, all of these require sound definition, planning techniques and clear investigation and analysis. The ethnic federalism that impacted

how citizens interacted with one another seems to have counted and pushed for enclave settlements as weak regulatory and policy in absence. In addition to this, it is unclear and still debatable in much of the literature if there are laws that are designed to regulate the makeup of residential settlements as a matter of planning and policy. Extremely few signs are mentioned in the literature, despite being very few in general terms. This does not imply that there has never been a regulation regarding the right to a dignified human settlement. However, because humans are the only ones with the potential to play in the city, the progress that is assumed would not be readily attained if not carefully managed. As stated, the emphasis on the role of planning and urban artifacts in escalating or resolving urban disputes is problematic because it smells of behaviorism, social engineering, and manipulation and may be ontologically close to determinism (Fregonese and Brand 2009). The same may be said of strategies that emphasize the significance of ethnic, religious, or national identity.

The social and spatial aspects of cities are heavily emphasized in Ethiopia as the only means of development (MWUDH, 2008). Concern for human settlement connected with the rights to adequate housing, access to infrastructure, health, education, and a safe environment, as well as the right to urban land. From here policy and laws that can regulate how to place residents and development were not standard and more in absence. Lack of essential preparations to understand the importance of resident settlement composition and settlement dispersal policy in any urban area was not given much due. The procedures that are in place for any city settlement and those that address issues pertaining to the freedom to reside anywhere are still insufficient since there is no relevant regulation in place.

Though human settlement policy in Ethiopia seems recent, the existing policies, laws on planning failed to clearly define access to land to reside everywhere, as the UN-guaranteed right to a permanent home in any major city, regardless of their race, education, social standing, or membership in a particular religion or political party (UN Habitat, 1996). From here the concentration of the same ethnicity become the practices in many Ethiopian cities. Not matter how the Ethiopia's ethnic federal system, which appears to have benefited many Ethiopian citizens and the state, there is a need to have a policy that takes measures that are deliberate, concrete, and on target (Inclusive) as clearly as possible realizing the right to a residential location in the city.

These measures will include specific means of legislation that have the goal of realizing the right to settle in any spatial space in a variety of forms that are heterogeneous. The practice that is missing from modern Ethiopian cities is this one. Because they were adopted to fulfill distinct societal interests within the city rather than implement rights to settlement, the current urban planning and policies are insufficient. That is why Appelhans (2017), stated both the right to a reasonable standard of living and the right to a safe neighborhood have been violated by the redevelopment of cities. The victims lack legal options because the majority of buildings in Ethiopian towns, in addition to informal housing, were built in accordance with state-led policies. These need special attention a like other Ethiopian cities, the Ethiopian urban planning policy, planning models seems have failed ethnically enclave Gambella city as demonstrated in the next section.

4.11. 2. Residential settlement policy and planning model for Gambella City

History shows that the early colonization of Gambella was not similar to that of other Ethiopian cities. The settlement's city plan took into account a clustering of citizens that distinguishes natives from colonial traders (see figure 4.24). The figure visualizes where indigenous residents resided in cluster form on both sides of the Baro River and the Jab-Jabe Stream. Furthermore, it illustrated the types of buildings that had been in existence since 1907, some of which are still visible today. Gambella Town was established in the early 20th century, and according to NUPI (2007), it served as both an administrative and a commercial center. Its growth as a commercial hub that was mostly fueled by the Baro River's navigability, which has facilitated trade links between Ethiopia and Sudan (Bell St., 1988, NUPI, 2007). Additionally, the region's business activity was boosted by the presence of a sizable population of foreign traders of Armenian, Greek, Syrian, Italian, Sudanese, and British descent (NUPI, 2007). From this background, the trends in Gambella city planning since its establishment are as follows.

4.11.3. Trends of urban planning and policy for Gambella City

The trends of urban planning in Gambella followed sketch plan and master plan of emperor, Dergi and the EPRDF -led government plans. Under this analysis, the drawback and strengths of each planning was analyzed in their following.

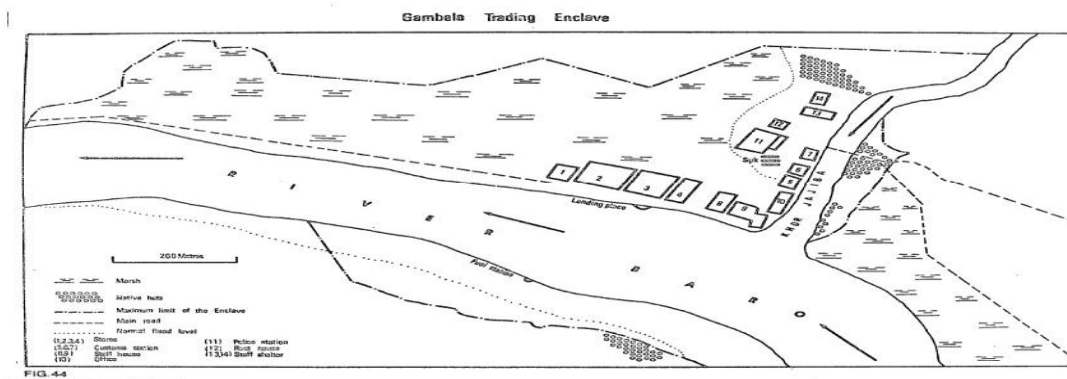
4.11.3.1. The First Sketch Plan for Gambella City

The 1902 contract between Menelik II and the British, which resulted in the delineation of the Ethio-Sudanese boundary, provided the basis for the foundation of Gambella town. Business cooperation between Sudan and Ethiopia to exchange goods via the Baro transit led to the establishment of Gambella City. The today Itang special Woreda was the original town (enclave) that later developed into Gambella City. The initial enclave's plate displayed a sketch plan that specified various land uses and services within the enclave, as can be seen in the first enclave figure below. The two nations' lack of interest and lackluster attitudes toward establishing their new sides that ignored the indigenous contributions are directly responsible for the poor growth that is currently being observed in Gambella today.

According to information gathered from elders' interviews and the bulletin of the 100th anniversary of Gambella, 2013, the pact made it possible for the British to establish a trading post in Ethiopia. That makes the first trading post initially founded in today's Itang special Woreda. In order to be closer to the resource-rich region of highland Ethiopia and flood challenges, the first post was transferred to the current Gambella town in 1907 (Bell St., 1988; Hassan, 1971; Zewde, 1976). This historical perspective resulted in the establishment of Gambella City today, which was recognized by two major colonial powers.

Britain from Sudan and Italy from Ethiopia both divided the enclave administration. The eastern part of the Jab-Jabe stream separated, the today 4killo count to Ethiopia part as of today the Italian built house still in existence. From the JabJabe stream edge with unclear demarcation on the north, follow the Baro River flow to the west, took the shape of the main enclave, till today we observed the British build house, store that still in existence was controlled by the British (Figure 4.26). From the figure, the sketch plan for the enclave magnified different land uses: local resident villages, stores, customs officer residences, offices, and other trade houses. All these buildings are still in existence today, but they are underutilized though they should be count as the city heritage as well as tourist destinations historically. From the same sketch plan, we observed the concentration of local residents outside the enclave on both sides. This implied that the sketch plan introduced Gambella with a proper plan from day one of its establishment, and at the same time, it also displayed the clustering of local residents in certain localities in a separate form.

Figure 4.26: the First Gambella Trade Enclave (1907)



source: Hassan (1971)

4.11.3.2. The modern planning of Gambella City (1967–1991)

The second plan, which was the first of its type planned by Ethiopia government, was the master plan prepared for Gambella Municipality by Emperor Regime in 1967. The city was presumably granted municipal status in 1951 G.C. under the province of Illubabor before being transferred to the Gambella administrative area in 1989 (GSP,2018, NUFI,2008)). Even though the enclave received sporadic attention throughout Emperor Haile Selassie's reign, the minister of work and urban development (MWUD) prepared a master plan for the municipality. This design described a Gambella enclave with urban features, the networking of roads, and an effective method for managing land.

The same ministerial office also reviewed the second master plan for Gambella City in 1986, during the Dergi era, through the National Urban Planning Institute (NUPI), supported by the socialist planning model. Gambella had plan for its development. However, these two planning models failed to reform the municipality as expected, but some signs of growth were underway. From the Dergi's overthrow in 1991, the Federal Democratic Republic of Ethiopia government changed the Name of National Urban Planning Institute (NUPI) to Federal Urban Planning institute (FUPI) with the role of designing all urban centers in Ethiopia. From this stage, the municipality was let to be accountable to Gambella Bureau of Work and Urban Development.

For proper growth of the city and demand from FUPI, the Gambella municipality was shaped and upgraded to the city status in accordance with the reform and urban development policy package and initiatives adopted in the nation. Because Gambella was the seat of the GPNRS,

Proclamation 47/2006 made the Gambella municipality a city in 2006, and an elected city council was established. From here, the FUPI took on the role and designed the third master plan for Gambella. In 1995, the institution created a development strategy for the city of Gambella; however, because the city's capacity was very weak, the plan failed to be implemented. The fourth master plan, which was once again created by the Federal Urban Planning Institute (FUPI) in 2007, appears to serve as the fundamental development strategy and transformation for Gambella in the present. This plan received a little attention with slack implementation but compared to the previous Master planning, it received a small attention.

However, some still lagged, the issue and concern of inclusiveness among city residents and planner or urban professional with capacity were among the most questionable, as the partiality of reaching every resident was magnified. From the entire plan, we recognize that it was all done out of consultation with city residents as they plan was top-down model. More precisely, the plan failed to consider the capacity of municipal manpower as well as resource within the municipality for implementation. These defined the weakness that previous planning models have since the establishment of the city. On top of these, they also forgot the concern of ethnic enclave settlements that disturbed the proper growth of Gambella City compared to other Ethiopian cities. From here, the city administration in 2017 in support from Gambella Urban development and Construction Bureau plus Gambella president office invited the Ethiopian Civil Service University to develop the new city development plan that counted the fifth planning model for Gambella city. The pressure from World bank for city to service UIIDP II, force for development of new structure plan. The Gambella current structural plan, which is the development plan for the next ten years, has the goal of making Gambella “a livable city, a hub for the agro-industry, and a popular tourism destination.” For this goal to be reached, planning the settlement pattern of residents is highly important for the realization of this goal. From this goal document, we realize that the ethnic enclave settlement issue still did not receive due attention though slightly mentioned as a concern for certain spatial space.

Despite the existence of an extensive growth plan that spans from 1967 to 2022 in Gambella, the planning that took into account the makeup of the resident's settlement composition in the city was incredibly poor and unpleasant. The absence of regulation, policies and a planning model that can shape settlement patterns in Gambella has resulted in a dispersed city development function that is fragmented. This also makes the perception on EPRDF's state development

program seems the one contributed to current ethnic focus settlement in Gambella as it seems to favor ethnic-focused development. The seriousness of ethnic enclaves in Gambella as discussed in the previous section in chapter one and some part of this chapter as it has a lot of consequences to city development. For example, Highlanders, who make up the majority of city tax payers, complained of not getting developmental services from the municipality. This markedly politicized ethnic settlement benefits are for the only indigenous enclave settlers since the Gambella city mayors and city managers (Nuer or Anywaa) focus on their ethnic majority settlement area and allocated projects. Since these two ethnicities are antagonistic to one another in conflict form. Their competition increases malpractice on the city functions.

In the recent structural plan of Gambella 2018, though the involvement of local planners seems to have room during the planning stage, the concern of residential allocation that integrates and mixes residents has received weak attention in this plan. The absence of regulatory laws on how to place residents in certain spatial spaces that maintain the heterogeneity of residents and diversity makes the enclave settlement more challenging. Therefore, since the first master plan, Gambella, in 1967, few designers have paid much attention to the ethnic basis of settlement. Despite Ethiopia's explicit support for ethnic federalism, policy and planning model, laws that can reconcile ethnic thinking and urban way of life much demanded. Lack of effective regulation forced Gambella City to become fully ethnically segregated, fragmented and under develops and undesirable for living as enclaves for the Nuer, Anywaa, and highlanders (Figure 4.6) jeopardize the city. These enclaves have strong effects on the city social, economic, environmental, and political repercussions in all five kebeles' that impeded the growth of Gambella.

4.11.4. The interviewees views on contemporary Gambella city policy and planning

The current Gambella city was observed to see if it has had a residential settlement policy or planning model since its establishment, which was the core question under this section. Participants were asked what kind of planning and policy was in place for Gambella, whether it recognized ethnic enclave settlements, and what the role of the planner and policymaker was during city planning. According to the views of the planner and the city authority, who were the participants in this study, the city plan was no different from that of other Ethiopian cities, which mostly started in the central part of the country. Among these sketch plan, master plan, integrated development plan (IDP) and structure planning models were the most have been found used

since the establishment of Gambella. Because all the plan and policies failed to regulate ethnic enclave settlement and its challenges, this study will enrich the Ethiopian urban planning practices and policies for Gambella city.

An interview with the deputy mayor (KII 2, 2021) stated that there was no clear policy that defined the place resident or disperse them in certain spatial space in Gambella. The plan in hand main focus is on urban function from the designed land use in the city structure plan. Urban planners and municipal experts, explained, the land use according to structure plan indicated clearly where to locate pure residential and mixed residential areas that defined the existence of a settlement policy in Ethiopia (KII 5, 2021), but what is not there are the laws that can regulate the implementation of city structure plan. Contrary, the urban planner in the Gambella Planning Institute stated that “we have no settlement policy that defines where to place city settlers in Gambella City.” The plan is prepared on the existing settlement pattern that already enclave. No plan or policy models that discourage the homogeneity form of settlement for Gambella city. He also added and disclosed the low participation of planners in city planning, exacerbated the real-world context very common in many parts of the world.

From the structure plan document (2018), we found that the Gambella modern city's physical planning appears to be quite linear. Both the city's east and west exhibit the same activity. It traveled southwest along Abobo and Elier Adura roads from Mettu Main Road to Itang and Dembedolo, Gambella Airport, and other familiar routes (figure 1.1, 3.1 & 4.6.). This linear growth is accompanied by ethnic homogeneity settlement in enclave. This form of settlement destroyed the city morphology as it makes the city architecture appears more abnormal. Settlements based on ethnicity accelerated linear growth in an excessively horizontal way (KII 2, 2021).

The physical view of the city is colorful with the concentration of traditional tukul houses in certain area and build concrete house in another location that magnified enclave economic capacity or status. Moreover, the absence of effective urban planning strategies in relation to the enclave residential settlement, Gambella city has lost a number of advantages (KII2, KII5, 2021).

From these views, the interviewee's demonstrated, planning for ethnic enclave and creating laws that appropriately control the type of habitation in a city can lead to healthy urban growth and boost Gambella's competitiveness with other Ethiopian towns and cities throughout the world.

Although there is no clear policy or planning model for ethnic enclave settlement in Ethiopian cities, research on ethnic enclave settlement in other parts of the world can enrich and inform the development of effective policies that can control the make-up of enclave residents.

Moreover, recognizing the UN-human settlement charter and adopting country experience like South Africa and Rwanda, seems crucial for the city of Gambella's continued health progress. Since the ethnic enclave settlement in Gambella City created both favorable and unfavorable results for development.

Furthermore, the settlement policy is necessary for city like Gambella because it serves as agglomeration hubs and houses numerous individuals coming from different backgrounds. The Gambella city settlement form of ethnic base settlement pattern needs appropriate planning (KII2, 2021). The lack of legislation and rules to regulate residential construction in Gambella had a detrimental effect on city growth (KII 5, 2021). Most land grants for settlement are made at the request of an individual rather than a municipality (KII-5, 2021). Many residents never come for approval to municipality or pay land tax because they got the land from their relative. According to authorities in the Gambella municipality, there is no residential settlement policy that considers ethnic composition or dispersal policy in place. From the interview, the role and responsibility of municipality in Gambella is either accepting or legalizing the already occupied piece of plot.

From the manager (KII 4, 2021), "We seldom consider where to place someone when the residential area's texture is clearly visible; our role is to legalize the already-occupied plot." According to him, in 2016, the municipality developed an LDP in kebele 03, to place some residents in Kebele 01 displaced by new road with the intention to integrate residents. But this failed as conflict risen. From all the planning models, we concluded that, in any city design, the layout of the metropolis only focuses on the city's general growth and socioeconomic functions rather than regulating the settlement situation. The positioning of residents according to their ethnic origin is not taken into consideration because it is not magnified as a problem on the development of Gambella. We validate the concern about the composition of the settlements by furthering our investigation into how the Gambella Urban Development and Housing Bureau place officials and staff in need of governmental rental houses. The information from the government housing department at the Gambella infrastructure and urban development bureau

was taken into account, as it may have backed up real practices. An urban development expert (KII-5, 2021) revealed that the 6 Kilo and Baro Akobe rental residences are the homes of the Anywaa and Highlanders connected to the Anywaa ethnic enclave settlement area.

Furthermore, in 50 Koteba and 24 Koteba, there are rental properties available for Nuer and Highlanders connected to the Nuer ethnic enclave settlement area. Even though all of those ethnic groups can get free housing on any side, it is highly unusual to allocate someone home in the neighborhood where their ethnic minority is (observation 2020–early 2022).

In this manner, we magnified the absence of policy and also increase the volume on existence of disparities among ethnic groups and city residents in Gambella. Such a practice also makes the highlanders to be a danger and feel in fear where the anti-group resided. They are also suspected by both ethnic group when conflict rise. As the power in Gambella in the hand of two ethnicities, the time power shifts to Anywaa, the highlanders affiliated with Anywaa benefit in every circumstance, and if the political power shifts to Nuer, the highlander in close contact with Nuer will start supporting Nuer interests and benefit there. This makes Highlanders more opportunists with weak confidence as citizens on their country. Highlander playing cards also seemed attracted by carrots and sticks for sake of their benefit. Furthermore, Housing development expert stated the fear and distrust among ethnic groups from the 2016 conflict between Nuer and Anywaa make them to settle any one in any dangerous area. A sign of high haters between Nuer and Anywaa was observed. Because Anywaa Youths plundered Nuer Cabinet houses in 6killo government rental houses and none Cabinet member from Anywaa side in the same neighborhoods prompted to help their colleague properties (KII5, 2021). According to her, “we avoid assigning anyone to a location where their safety may be in danger”.

On other hand, experts (KII-5, 2021) from the municipality were also used to confirm how the current city settlement pattern should be. The city mayor and experts described the current ethnic base settlement as it has a negative aspect on the city development. They saw ethnic enclaves as obstacles to municipal growth rather than as opportunities. This needs special intervention. They added “the absence of a common ground for the city has now presented an opportunity to those who controlled the city ethnically”. Mentioned, the poor physical structure observed in Gambella, is because traders with capital, instead of constructing quality building in Gambella, they preference their place of origin like Addis Ababa and other Ethiopian big cities than

Gambella (KII5, 2021). This noted the existing city's bad physical and architectural imagery comes from these attitudes.

Magnificently, according to acceptable city building standards, the structures built in quality with G+3 and above have never exceeded 30 structures build in Gambella (observation, 2021). Absence of residential settlement policy and regulatory laws make many settlers violated the planning guidelines and regulations design for Ethiopian cities. The 40:30:30 rules for land use are breached in Gambella city because the majority of ethnic base communities occupy urban territory without permits from the Gambella municipality. To some extent residents meet the municipality for approval or titling. The outcome is that all health settings and infrastructure are inadequately covered. Traditional tukuls in areas of unplanned settlement with subpar standard dwelling forms make up a significant element of the morphology of the city.

Locations where people live are not arranged in a planned way since the bulk of people there are poor. Additionally, the appropriate procedure was hampered by a lackluster budget and political will (KII2 and KII5, 2021). The majority of residents considered their plots in reference to their lineage and God-given land; it is more difficult to follow the city plan. Because of these, the leasing policy failed to have room for many residents, unless for investors. This wreaked havoc on the tax revenue from the city land. The higher government sector organization (KII2, 2021) was also noted for its lack of support for city plan implementation, which led to the allocation of a meager budget and lax enforcement of the law for the implementation of the new structure plan. The city's dependencies give it weak autonomy. That is why the city failed to stage on Kebele structure than moving to sub city.

Furthermore, the city expansion horizontally faced resistance from Anywaa zone and surrounding Gambella Woreda. Suspicious from Anywaa leaders that consider the horizontal expansion a threat to Anywaa zone land, increase the network for resistance. This suspicious also back with the political appointment in careful manner in Anywaa side. It is rare to appoint an Anywaa mayor or manager out of Baro Riverside (Openo Anywaa). Because these groups have a strong sense of resistance to Gambella City expansion, and they are the ones with claims to Gambella City land as their ancestral place.

Ethnic enclave settlement is currently a difficulty for city planners and residents and requires adequate management and care. From the interviewees, new planning model for Gambella

suggested as an import concern. Generally, we found that since the establishment of Gambella in 1907, the city has had a plan, but most of these plans were aligned with the interests of each government system. The existing ethnic enclave was not recognized by the previous planning model and policies developed for the development of Gambella. This had a lot of consequences for the growth of the city. From this line, the planning was like desk planning from central down to Gambella. In most planning models, local planners were not involved in the planning for their city, which magnified a lot of the drawbacks for implements.

Therefore, what makes this study distinct from the past is that it focuses exclusively on ethnic enclave settlement policy and planning models, as opposed to earlier studies that were more broadly concerned with Ethiopia's urban development policy and planning. Due to the tremendous strain of urbanization and ethnic federalism that is not well understood as the best source for development, since Ethiopia as a nation has never had a residential composition and dispersal settlement policy, we need the settlement policy that can discourage the concentration of the same ethnic group in one spatial space and a lack of diversity policy and regulatory laws that can regulate ethnic enclave settlement and maintain its best part, recommended for Gambella. Therefore, Gambella need to develop a new protocol that can integrate, mix, and harmonize the effects of ethnic enclave settlement spatially and none spatially.

CHAPTER FIVE

5. Discussion

This section represents the overall findings of the study based on the four objectives set for this study. These results are pumped as main questions derived from the main objectives results produced in the output. According to their theme, the discussion is narrated as follows.

Research question one: what are the factors associated with the formation of ethnic enclave settlements in Gambella city?

According to feedback from the multinomial logistic regression model, the following thematic category was developed based on their order from the results.

5.1. Factors associated with ethnic enclave settlement

Gambella city is less developed parts of Ethiopia that face opposition from an ethnically oriented settlement pattern that wreaked havoc on its residents' welfare and planning procedures. The most worrying issue and the subject of this study was the topic of how an ethnic enclave came to be and how it affects the city development. In this sense, from the name of the city, “Gambella” is derived from an antagonistic phrase that has several connotations for many ethnic groups in the regional state of Gambella.

Place-making is not new to urban planning according to Jane Jacobs (1961) that provided the vision for place making in “The Death and Life of Great American Cities”, where she advocates for a built form that emphasizes local, neighborhood-level planning that makes the street is vibrant with activities and people. In this type of built form, the proximity to amenities produces walkable streets that help to create vibrant and safe neighborhoods.

Factor associated with enclave settlement from the results of multinomial logical regression indicate that locational preference and individual variables combined, they create the Gambella ethnic enclave settlement. The personal related factors include the natural increase as birth rates rise, sex, marital status, and other personal or demographic factors that make up the basis. In Gambella, Men are especially concerned about ethnic base concentration since they have the authority to choose where their families will live in an urban region. According to UNICEF (2020), the social system in the regional state of Gambella influenced by cultural norms,

customs, and traditions as well as gender stereotypes about women's and men's roles and duties in the home and society. Men who head the family occupy a major position within the family in light of these factors, and they are entirely in charge of choosing where the family should reside in the city. The Gambella has a deeply ingrained patriarchal society, according to UNICEF (2020), in which males dominate both private and public life. This in line with Hulchanski's (2007) study, men made a substantial contribution to municipal operations and decision-making in every area. It is believed that each of these elements played a significant role in the growth of ethnic enclave settlements.

In addition to gender, the occupation and educational status increase play a significant influence on the development of ethnic enclave communities or they contributed to the establishment of enclaves in Gambella City. Ethnicity with Bachelor's degree and above were found to contribute much compared to those who cannot read and write, which countered with Terefe and Yanyi's (2015) theories, which demonstrate that people of the same ethnic origin who live in less densely populated places benefit from access to schools and healthcare services.

Educated residents increase the level of the same ethnic group concentration in urban space because of their potential to educate their lineage and their extended family in the urban pattern of Gambella city. The educated and employed residents have the potential to support own family and extended families, that increase clustering of the same ethnic group and increase the population density. Residents with Bachelor degree and above and employed in public jobs have the potential to accommodate a number of their ethnic group. Moreover, people who had children bound by family ties make many citizens resided in areas where their parents much concentrated. That mean marriage facilitated the formation of ethnic enclaves in Gambella city. According to UNICEF, (2020), in Gambella, women between the ages of 20 and 24 counted for the greatest percentage on early marriage. Young girls seek marriage in early age to cope with financial burden and part of culture (UNICEF, 2020).

Since the marriage took place at locality with homogeneity, they still maximize the enclave level as number of children increase. Not only these, parents they accommodate their first-born grandchildren home. This practices of accommodation from parents with more family size, increase and duplicated the number of the same ethnic origin in the area. Early child marriage resulted in early childbirth that increases the number of households in the city. But as family size

decrease, so does the weak desire to reside in an ethnic neighborhood that highly concentrated from the same ethnic background. That mean single residents have potential to settle where every possible in the city.

The location preference was also found to have influence on residential settlement pattern in the Gambella city. Certain residents from the same ethnic backgrounds lured to live in certain space from attractive and they force either accessibility, compatibility and discomfort for location. From the exiting form of settlement pattern in the city, compared kebele by kebele, while using Kebele 01 as the reference, spatial functions that encourage inhabitants to connect, ethnic concertation focus are seen in Kebele 03, 04, 05 and Kebele 01. In these kebeles residents reside in concentrated manner where majority of them define the same community. They are localities with illegally organized groups that prevent outsiders systematically not to access urban space unless their permit. They seldom admit outsiders to access land in their counted territory unless they have the ability to finance surrounding land. Particularly, the highlanders looking for land for investment, hotel industry and others urban functions, are being marginalized systematically by local indigenous residents. This marked, local indigenous residents accept only people of their own ethnic origin that increase the uniformity for urban space. Nevertheless, failing to do so; raise conflict between ethnic groups. The good example is the conflict arose between the Anywaa in Kebele 04 and that Nuer in “Nuer Mender” that cause life of known residents 2021 still intensified in June –July 2023 in Gambella city.

The Anywaa in these kebeles ban others particularly the Nuer not to access land and related urban activities under their control. While these Nuer residents resisted because the installed properties in the area and they recognize the land is for government. Because the organized Anywaa want to force out the Nuer residing in “Nuer village” by force; the Nuer took the same step; they organize themselves to resist the pressure from the Anywaa and fight back. This makes the area to be count as flashpoint of conflict in Gambella. Consequence, residents live in fear that forced the Anywaa, in Kebele 04 and 05 to maximize their enclave in Komo Sefer and Agnota found in the city western and southwest suburb. This practice also increase protection to Nuer resided in the Nuer Village which is the new side developed after the 2016 Nations Day.

In addition to the previously described personal information and location factor that influence ethnic enclave sentiment, familial ties, geographical concentration of the same community, and the proximity of social development resources were also considered as means for individual preference for settlement in ethnic enclave settlements area. In Gambella, the familial bonding attracts residency preference, which is thought to have contributed to and enticed inhabitants to cluster in geographic space. There is also a gendered component to this association since such a locality cultural related functions are found in number in such a concentrated residential area. It was revealed that others (community and social service) have a close but weak contribution to Gambella's ethnic enclave. As "ethnic enclave" refers to the practice of keeping a site with the distinctive identity of an ethnic group in the host nation, ethnic communities in enclaves. Bakri (2014) stated, enclave have their own traditions and festivities that they commemorate yearly or seasonally. In Gambella, such a celebration of festival of ethnic traditions in every enclave seem unsuccessful, but not at all, signs and symbols mostly the religious related functions marked those area in concentration. Though researchers in Canada indicated, racialized elderly people like to travel to a place where they could access communities speaking the same language as them. They eat specific foods from their local background, places of worship, or cultural places that were not within proximity (Cai, M., & Qian, Y., 2023). Such a practice is also applicable to Gambella but doesn't define the attraction for certain location.

The creation of ethnic enclave communities in Gambella was also considered according to push and pull factors in the city environment. Factors such as religious, political, economic, culture and tradition, safety, and security concerns were the most recognized pull and push factors for Gambella ethnic enclave settlements. From these factors, safety and security concerns and culture and tradition played a significant role for the settlement of Gambella residents in the enclave.

The city's security and safety issues, magnified by criminal behavior and ongoing disputes, were further identified as the consequences behind the establishment of ethnic enclaves in Gambella. Marked from the interviewees, during the downfall of the Dergi in 1991, Gambella was controlled by the Gambella people's Liberation front (GLF), which prioritized killing and murdering "Nuer" and "Highlanders" during the transition period. This group fought Nuer remanences as their majority fled Gambella city for their ancestry rural localities as the change in government occurred. The fear was backed by the leadership during the Dergi era; the Gambella

administrative area was under Guad Thowaath Pal Chay from Nuer. The Anywaa considered this regime as; it marginalized Anywaa to the extreme. From here, the revenge for Nuer raiminent lead by “Chuol Khor and Tharjiath Keat” used to resided in new land area near former Ethiopia Hotel was much revealed. Not only this, they deposed Highlanders from settlement site established for villagization in 1977 during the poverty crisis in Northern Ethiopia. Those settlers settled around today Gambella Zuria and Abobo Woreda were all forced out and established a new resident in Gambella city. Highlanders from “Tefera” the today Jewi Refugees Camp, Abobo menders, Gog and Abol area were forced out from these localities as killing was rampant. The brutality and discriminatory killings of the force, forced Nuer and Highlanders to concentrates in new land area in kebele 01 and Kebele 05 spatial space. This qualified the Bakri et al. (2014) idea, stated the majority of ethnic enclave communities emerged as a result of the host country's segregation, discrimination, and exclusion of the others. From here, there is strong mindset of indigenous residents that count immigration as a danger to their safety, health, work opportunities, and religious beliefs. This makes the discrimination and harsh practices against the newcomers that forced for clustering. In addition to this, institutional policies that systematically restrict access to land in particular areas and corruption in city leadership encourage inhabitants to settle in enclaves.

Inhabitants of the same ethnic origin may interact with one another by engaging in events that benefit their larger space. They strengthening the family unit, existing cultural and religious customs, and economic support. In Gambella, religious functions magnified how Gambellians concentrated and celebrated. For example: Highlanders and Anywaa enclaved celebrate in number the Orthodox Church Christmas and Islamic festivals, and Nuer celebrated Christmas in good terms based on their tradition. It might be argued that an ethnic enclave becomes noteworthy and a tourist attraction center due to many ethnic communities' strong desire to maintain their culture (Bakri, 2014). In this way, we can argue that culture is essential and crucial in many aspects of our lives when an ethnic enclave is regarded as a cultural center. It also enhances lives by fostering a sense of identity in individuals.

However, though the Gambellians have rich and distinctive traditions that might add to tourist appeal rather than clustering, the issue is made worse by the limited development of cultural functions in Gambella. From here, the Gambella enclave was pronounced the cause of the weak

city's development as the potential of ethnic enclave settlement is hindered by underutilization of ethnic base settlement. The best cultures of the city are being replaced by enclave-adopted new cultures that practice murder, theft, and robbery. While years ago, these practices were bad parts of Gambellians culture that was most disregarded cultural practices. As of today, an ethnic enclave settlement dominated in Gambella, haters, suspicion, murders and segregation puffed up the new inventory of harming one another strategically as enclaves favored the deed.

Many scholars throughout the globe believe that the creation of ethnic enclaves also happens from an economic perspective. The concentration of highlanders in Gambella in Kebele 02, 03, and 05 is mostly related to doing business. The Gambella Highlanders form a group and search for a place that is advantageous and secure for conducting business so they may establish and protect their capitals and achieve their objectives of being in Gambella City. According to this, a highlander's enclave involuntarily formed a distorted version of Bakri et al.'s (2014) theory, which stated that an ethnic enclave's identity and sense of belonging in the city are provided by physical and cultural traits. Economic sector in Gambella city mostly by chance in the hands of few highlanders' residents which is also counted by local indigenous as harmful practice to their being. But without highlanders enclaves the city economic and business practice cannot be. Doing business has a lot to contribute in the same ethnic concentration.

Contrary, the development of enclave in Malaysia was from the new plantation enterprises, particularly the rubber sector, trade expansion, and the building of transportation infrastructure, which made the settlement concentrated as workers clustered (Sandhu, 1993). In Gambella, the procedures for Gambella's inhabitants to congregate in particular areas of the city; ethnic group are more influenced by security concern and family bondage than the establishment of industrial institutions. we recognized that cultural and heritage functions attract residents to the place in a low-face manner, unless family kinship and safety and security issues arise in Gambella with strong ties. This marked how the ethnic enclave formation in Gambella differed from the Malaysian settlement customs.

From the findings, the factors associated with ethnic enclave settlement in Gambella City include personal factors (gender, age, marital status, household size, education, and occupation level), and location (kebele) preference, and family bondage. Moreover, push and pull factors that influence ethnic enclave settlement were also found to be safety and security, culture and

tradition have strong voices but the political, economic, and religious factors took the least share. These results lend credence to the claims made by Nas PJM (1984) and Sieverts (2003) that stated the social life and activities may affect location, space, and the development of cities in any nation.

Research question two: what is the implication of ethnic enclave settlement on sociospatial, economic, environmental, and infrastructure development in Gambella city?

5.2. The implication of ethnic enclave settlement on development spectra

The growth of the economy, society, environment, and infrastructure of the city of Gambella was examined and analyzed using SEM to determine and explain the relationship between ethnic enclave settlement and development. The CFA-SEM results show that each factor's variable categories are interconnected and have a significant impact of 1 percent on their variance to development spectrums. In this manner, the relationship observed between the ethnic enclave and development spectrums has both favorable and unfavorable implications for the growth of Gambella City.

In this way, the settlement patterns within ethnic enclaves were discovered to have an effect on the sociospatial, economic, environmental, and infrastructure functions that are visible in the city. The association between the ethnic enclave and development spectrum accounted for a cumulative effect of 72 percent risky that has a harmful effect on city development.

The weak development of Gambella City is highlighted by mismatches between the four growth spectra and the ethnic enclave settlement. The consequences of the Gambella ethnic enclave's expansion appear to be in agreement with the 1960s Chinatowns of North America and Europe that were pronounced as being full of crime, sickness, and blight (Light & Wong, 1975). Since the situation in Gambella City highlighted the importance of the enclave and illustrated how much of the city's current sluggish development may be attributed to it. Overall, the Gambella ethnic enclaves undermine the enormous advantages that city growth may bring about when it is effectively utilized. Since the establishment of enclaves, weak development patterns have unfairly replaced the positive impacts of progress that could be achieved when ethnic enclaves dominated the system. The situation in Gambella magnified Cameron's (2011) theory that was cited in Ang, I. (2016), stated politicians view an "ethnic enclave settlement" as undesirable since it prevents minorities from integrating and increases their sense of alienation from the majority.

This in line with the implication of ethnic enclave that defined the connection of ethnic enclave settlement and development spectrums in Gambella city. Since many residents, politician and professional perceived ethnic enclave as a cause than a potential resource to Gambella city. In detail, the contribution of each spectrum was all illustrated in the following sections.

5.2.1. Ethnic Enclave on Sociospatial Trajectories

The socio-spatial term refers to interaction between people with space they reside for them to satisfy their needs, meaning and an attempt to manage space as the site of the interaction (Wibawa, DNG, 2014). The sociospatial trajectory was reflected by several means that occurred in the city. Figure 4.11 shows that every factor—aside from the one with the smallest and greatest contribution—contributes to the subpar growth of Gambella City. We all believe that territorial makeup, which is the drive to locate and occupancy of space, is a fundamental and enduring need, according to Rapoport (1969).

According to the results, the most important factor that contributed to the weak development of Gambella was the socio-spatial concentration of the same ethnic group from ethnic enclave. This concentration of residents from the same ethnic community maximizes the disparity of residents from the sociospatial prospective by 96.4 percent from the intensity of inter-ethnic conflicts has the strong voice among all influential factors, followed by demand for junk of urban land that increased the ethnic group competition of urban land. This practice scattered the city spatially in concentration manner and has increased horizontal growth to rural nearby suburb. Such a settlement pattern easily escalated a small or slight conflict that can easily occurred between ethnic groups in the city. It exaggerates in simple terms and makes everything in the city stop functioning as fear increased. This conceded with a critical examination of the new links that are being found between enclavization and insecurity, demonstrating the continuum that exists between the causes and effects of enclaves, insecurity, and violence (Kaker, S. A., 2014). Illegal gatherings, grouping, contributions, and criminal acts and designs to harm counter-ethnic groups marked the Gambella ethnic enclave settlement. From this perspective, the sociospatial disorganization in Gambella increased, that marked Strauss's 21 statements “there is a relationship between residents' spatial and social behavior and group configuration”. These practices are widely observed in space, and they reflect the social structure of the residents.

The sociospatial activities in Gambella had a devastating impact, as the establishment of the ethnic enclave settlement in the town puffed up the social and spatial-related problems that dictated the wellbeing of residents. Agreed with Gold (2015), spatial concentration lower salaries and restrict access to government assistance, safe spaces, and high-quality education. Even though the constitution of Ethiopia in Article 14 states, “Rights to life, the Security of Person and Liberty” states, “Every person has the inviolable and inalienable right to life, the security of person and liberty.” So, as the ethnic enclave settlement expands in Gambella city, it has a detrimental effect on the city development. They have strong effect today and still if not handled, it will have the long-term sociospatial effect in the town. This produced immoral results as conflict and denials of municipal service, illegal land market and competition, disputes all intensified as ethnic enclave settlement ranges. This finding supports the notion that a neighborhood's ethnic diversity might have a detrimental impact on its residents by fostering competitiveness and conflict among groups (Glikman and Semyonov, 2012). The presence of such a situation, which resulted in unfavorable sociospatial disparity, reduced the effect of social cohesion and coexistence in the town.

Not only that, but it also has an impact on the city's morphology. Architecturally, no matter how far the Gambella built part does not vary that much from one place to another enclave, as there are high inequalities among residents spatially, the sociospatial disparity still maximize. More or less, certain spaces with favorable economic functions created a valuable atmosphere structurally. For enclaves with low economic standards, their structure still follows the traditional housing typology. This in line with Ischak et al. (2018), the relationship between the constructed shapes of the city and social organization demands two different spatial order formulations that include architectural identity and pattern arrangement forms of settlement. In this context, we have connections between space and social life, or residents in the settlement area, where both positive and negative consequences are observed. The Gambella city sociospatial needs further arraignment for its livability since it magnifies space and social effects from the same ethnic concentration in one locality.

5.2.2. Ethnic enclave on the economy development in Gambella City

The ethnical enclave agreement in Gambella City set up contributed to the city's poor profitable growth. In this way, a concentrated ethnical community demonstrated a 49 percent difference in

Gambella city economy. This difference, maximized by the attention of profitable in the hands of many ethnical groups; the findings demonstrated, Highlanders' enclave, greatly influences the profitable sector in Gambella City in favorable way.

However, the practice is anti-to others in negative form. It was set up that the highlander's enclave was in charge of the profitable sphere. This trend, however, has had adverse goods on bordering communities; this magnified a profitable monopoly through the agglomeration of one race. On the one hand, ethnical enclaves increase labor request competition between emigrants and maturity population members. Suspiciousness and fear increase profitable sector control and protection among enclaves. From the findings, enclave counted as it disadvantages indigenous people from doing business. From then, two opposing passions were magnified from the Gambella ethnical enclave agreement economically.

Consequently, ethnical enclaves were set up to be an occasion for duty payers who aren't responsible citizens; they use enclaves as a source of protection and don't expose their position of income. They no way expose their gains as per profit laws. From this perspective, profit sources from the request drop. Not only had these, suspicious to save tycoon in the bank also contributed among enclave residents that force them not to go for saving. Enclaves increase the protections handed to businesses in the area. From the close circle, the price of goods is determined. The protection in the enclave also has a line- up on how they run the business and the means of getting support from fiscal institutions. In the same tone, the weak access to fiscal institutions that can educate enclave residents how to save and get a loan was also among the influential profitable factors. Not matter least their donation is on the megacity frugality growth. The absence of these institutions in the near enclave constrained the plutocrat rotation that affected the frugality. In Gambella, the fiscal sector is concentrated in the main megacity core, where highlanders are frequently set up. This is an occasion for highlanders to enclave; they fluently have access as they're close to services within walking distance; also, because the fiscal institutions are in the hands of people analogous to them, they also fluently cut the goods and related services. No matter how weak their fiscal capacity is, through their inner circle, for any businessmen in need of plutocrat to adopt in the bank, they help each other by transferring plutocrat from one account to another as a means for upgrading the banking balance that magnifies the fiscal capital of the individual looking for a loan. This is substantially rehearsed by highlander enclaves that make the enclave benefit.

In real term, an ethnical enclave agreement has both a positive and negative influence on the megacity's profitable growth. Enclaves can increase profitable competition if there's proper business playing ground. But when this absent, enclave will be cause to megacity frugality decline from aggravated profitable crime. No matter how Portes, A. (1987) stated through the ethnical enclave prudence, residents from the same ethnical background get jobs because business possessors employ further people from their ethnical backgrounds than others. The Gambella enclave profitable practices appear affable and unwelcome. From the observation, co-ethnic employment is important observed among the dealer in every enclave. Despite the fact that enclave agreement can best help the megacity frugality grounded on the nature of trade or business operations, the conservativity of dealers and groups control on the sector, wrong comprehensions and corruption in the business sector all magnify the bad practices of ethnical enclaves. In Gambella, dealers with capacity employed their own co-ethnic group, the practice increased the profitable difference among indigenous and none indigenous residents. This marked the haters between residents defined themselves as true owners of the city and others counted as new comers but have the potential in the city economy.

5.2.3. Ethnic Enclave on Environmental Pollutions

There are significant environmental concerns in Gambella city, with a 17% increase in a number of wastes, pollution, and deforestation from reckless of enclave residents. Strong environmental pollution and incompatibility in residential areas to waste collection and disposal were all found an ethnic enclave poor city capacity to handle it waste management. The Gambella Town Municipality's waste collection system is weak and inefficient as certain enclaves being ignored. Consequence, waste in Gambella city is found everywhere in the city that marked the city with colorful of hazardous wastes.

The practice is a common challenge for local governments, as poor waste management increases in every enclave, it increases health risks and environmental degradation that clogged main city drainages, Baro and JabJabe stream. Irresponsible ethnic enclave resident also increases air pollution from the disposal of odor with bad smell in the nearby open space in the city neighborhood. However, the findings indicated, if the waste management system improves and residents in every enclave become more aware and responsible of their city nearby environments. They should segregate wastes and disposal in responsible way. This will reduce the hazardous

waste that polluted the city environment. Furthermore, the invasion and succession of certain ethnic groups in suburbs has also led to a change in the city's residential texture. These are all resulted from conflicts, distrust, and denials of urban services that led to forced displacement and the creation of pure ethnic enclave as the displaced residents look for new urban suburb that mark their protection and increase their ethnic majority environment.

5.2.4. Ethnic Enclave on Infrastructure Development

The city of Gambella is situated on a gentle topography sloping towards the Baro River. According to the results of the SEM analysis, there is a 17% variation in infrastructure development happened because the city is settled in enclave. All liquid and solid waste flows into rivers through various streams that lead to the Baro River in all directions. Therefore, it is essential to have proper drainage and sewerage lines. However, the current drainage systems are mainly located on the city's main roads, underutilized, and misused by residents. Drainage in the city is deteriorated, and it is full of already used material that clogs the drainage system, leading to flooding and damaging the city's main asphalt roads. Moreover, the majority of enclaves in the residential areas lack proper drainage coverage due to weak access to roads.

The need for shared recreational centers in each locality was found to have the most significant contribution to infrastructure development in every enclave. The recreational center development can contribute significantly to enriching the socio-spatial and economic development if they are properly installed in Gambella city. Because the majority of city residents are young and they like to enjoy a luxurious lifestyle. Creating more recreational areas for them can have a considerable impact on the city's development. However, failing to do so will exaggerates certain haphazard environment.

Overall, infrastructure development in Gambella has a weak and minimal benefit due to the enclave settlement, which contributes to its weak coverage and distribution in the town. In Gambella access to potable water, electric city and proper roads networks were all found in deem light for every enclave in the city. Which in line with and maximized by urban planning group in Ethiopia (2018) stated the central challenge for the Ethiopian Government is making sure that metropolises are suitable places to work and live, while fostering urbanization that is supported by proper growth of infrastructure development. As ethnic enclaves keep growing, it will be challenging for a city like Gambella to handle the increased demand for water, power, roads, and

drainage sewerage systems. Therefore, an increase in investment in infrastructure in every enclave may increase the level of development in Gambella city. But, if the enclave is considered a cause, intervention will be demanded as competition may segregates.

5.3. The planning domain on the impact of ethnic enclave settlement on four development axes

As we can see from the findings, the ethnic enclave settlement in Gambella devastated the city development but few benefits. From here, some planning intervention area is discussed under each development chosen as a variable for this study.

5.3.1. Ethnic enclave settlement and socio-spatial development as a planning concern

Sociospatial development is an important component for Gambella City's upgrade. However, ethnic concentration has intensified problems that need planning interventions. Ethnic enclave settlements produce weak access to social services situated in Gambella's spatial space. The ethnic concentration of major ethnic groups dictates school and health service allocations that hinder other minorities' access. Weak inter-ethnic marriages sensitize social disparity and fragmentation among city dwellers, while an inter-ethnic marriage can enrich social cohesion and habitation.

Lack of clear exposure and intimacy among the various ethnicities comprise the city's sociospatial disparity as an ethnic enclave range. Since planning is an important tool that regulates city function, particularly land use and social being, regulated by urban planning, the fragmentation observed in Gambella needs an urban planning model. According to the findings, the demand for individuals (group) to own land in Gambella was escalated by the ethnic enclave settlement. No matter how the Ethiopian Constitution (1995) stated the land is for peoples, the government of Ethiopia, an ethnic enclave in Gambella, failed to recognize this matter. Ethnic enclaves increase malpractice on urban land as groups and individuals organize themselves based on their ethnicities; they control the land, distribute it to co-ethnics, and sell it accordingly.

This practice made the legalization of plots weak since they considered the land in their enclave as group land or God-given land that should not be controlled by anyone. Consequentially, conflicts and weak revenue payments were highly revealed. An ethnic enclave settlement in Gambella demands planning since the sociospatial separation fosters mistrust, crimes,

contrabands, conflict, and other sociospatial-related problems. The small conflict in Gambella City was highly intensified by the spatial separation of residents from the enclave. In every enclave, illegal gatherings, discussions, and donations on how to harm other ethnicities are prevalent and most practiced by Nuer, Anywaa, and Highlanders in their enclaves. Therefore, all these sociospatial-related problems overwhelmed the social well-being of residents and the city's prosperous growth. Similarly, they increased spatial separation and hampered the best development that could be in space, as investors, tourists, residents, and related stakeholders felt the incompatibility of a slew of spatial developments in space. This also magnified ECSU (2018), Ethiopian metropolises run the threat of getting less seductive places for people and profitable exertion. Since the previous spatial and social planning in Gambella city failed to respond to these problems, a new urban planning model that can revisit the existing sociospatial-related problems in Gambella is highly demanded.

5.3.2. Ethnic enclave settlement and economic development as planning concern

Gambella City has a lot of potential for economic activities due to its natural, cultural, and historical foundation. The city was once a trading enclave, but it has since shifted its focus to an ethnic enclave, which has caused the economy to decrease. Despite this, the economy has not been affected as much as in other Ethiopian cities that are developing. However, the agglomeration of the city's economy in the hands of certain ethnicities that are conservative to city development is a concern. To balance economic growth and intervene for the enclave economy to develop properly, planning that uproots the manmade and natural resources is essential. The unplanned, unorganized market center and the accessibility of the marketplace to many residents are major concerns. The city only has one market center located in Kebele 3, which is not well-organized and has a high exposure to danger. Therefore, planning is necessary to modernize the market system in an ethnic enclave city. An ethnic enclave settlement magnified business protection and monopolized the market system with high segregation.

An ethnocentric enclave settlement increases the separation of residents from financial institutions that can finance the business sector and introduce residents to savings and loans. An ethnic enclave settlement hinders the city's economy because illegal businesses take over the normal process in each enclave. Traders in the enclave are conservative in their role and never feel free to pay tax as per their market gains. To develop the Gambella enclave's economy,

planning is necessary to uproot all its resources. Resources like the nearby Baro River, fish, wild animals in the Baro and nearby swamp area, and fertile land for agricultural development should all be uprooted as city natural resources for economic development. For the Gambella economy to grow, the plan must consider natural resources that most indigenous people can easily use for exchange and the start of a small business that does not require a large investment.

5.3.3. Ethnic enclave settlement and environmental development planning

Waste management practices in Gambella from households to the city in general are still in their traditional form rather than being modernized, the demand for planning as an ethnic enclave settlement affects the Gambella urban environment is important. Waste, whether solid or liquid, is disposed of in every spatial space in Gambella City. The waste disposal failed to be compatible with the city's health environment. Environmental pollution, compatibility concern (invasion and succession), and deforestation in green urban spaces were magnified.

Ethnic enclave settlement depleted good natural resources that are indigenous and useful with Gambella weather conditions. From this sense, the planning is demanded from the prospective on weak sense of city ownership. The sense of ownership of the city's residents over their environment is a major concern. Residents in every enclave failed to define their role in the protection of the city safe environment. Ethnic enclave settler's weak knowledge of environmental safety and negligence completely polluted the Gambella city. There is attitude that every urban function in the urban sector should be taken care of by a government-responsible body leaves the city environment in a dilemma and more conservative. Carelessness of residents made the main drainage which is the only one and manholes on the main asphalt roads clogged from the waste disposed of everywhere in the city. As a result, if this practice is not addressed immediately, residents' irresponsibility will make the city environment less conducive to living with consequences on resident's health and safety.

Reducing excessive migration within the city as invasion and succession that are influenced by interest in the ethnic majority area, feeling insecure about the locality of being a minority, conflict, economic capacity, and illegality toward nearby suburbs are some of the planning concerns. No matter, how the homogeneity can play a great role in a safe and healthy city environment, the practices in Gambella failed to match the context of other countries. Ethnic enclaves introduced city with no owner that magnified high pollution to the city environment due

to poor waste management. Citizens' recklessness and lack of ownership among residents overwhelmed the city environment as attitudes, introverts and thinking that every activity in the urban center should be done by the government need to shape. This leads to a weak transformation from rural thinking to urban ways of life. Since ethnic enclave divided the city and introduced the city with a less common understanding, absence of a common agenda for the city makes the city residents disrespect their surroundings. Through environmental planning, we need to reduce the impact of ethnic enclave settlements on the Gambella city environment.

5.3.4. Ethnic enclave settlement and infrastructure development planning issues

Weak infrastructure development and high demand are concerns in Gambella. Ethnic enclaves contributed a lot to many city challenges in relation to infrastructure development that needed planning. In Gambella, though recreational areas seem to play a significant role, there is still a high absence of public gathering institutions, a public square, and a public library. Additional recreational centers like parks, a cultural center, a practice center, and a cinema in the city center and suburbs are lagging. Weak access to potable water supply leads to poor health conditions, narrow local roads, a lack of street lights and houses connected to power, and poor liquid waste management due to the lack of proper drainage and sewerage lines in the city.

These entire infrastructures' weak coverage is all the result of residents' residential competition and separation from the ethnic enclave. Moreover, the existed infrastructure poor standard also devastated the situation. The greater the spatial separation from enclave, the greater the competition for infrastructure. These all have a planning implication, as the existing city plan failed to meet the needs of enclave settlers. The more the city plans for infrastructure, the more it reduces social and spatial disparity, and competition that may increases social cohabitation. Infrastructure planning will enable a stronger means of communal learning between residents to enable more diverse and active citizenship. As ethnic enclaves became more prevalent, the demand for infrastructure increased, as did competition among enclaves. In this manner, infrastructure development can enhance Gambella city development if enclave settlement is utilized in a proper manner. However, when current trends continue, ethnic enclave settlement will be viewed as a curse to city development as the demand for proper growth and competition on the infrastructure demand will proceed. Because the enclave settlement will continue to develop a patchwork on the city suburb that demands regulating the city spatial structure through

new planning.

The Gambella city, in general, requires new development in its planning because ethnic enclave settlements in the city have challenged all development spectrums. For Gambella to be livable, proper, and competitive and to utilize its natural resources effectively, planners and policymakers need to develop new planning models, strategies, and policies that will match the social and economic environment and increase access to infrastructure development. It will also serve as a tool for understanding ethnic enclave settlement, which can have both positive and negative consequences for the city if properly managed or not.

5.4. Theory and Implications of the Ethnic Enclave Settlement in Gambella City Planning

In the previous section, we focused on the policy and planning concerns in relation to Gambella City. However, in this section, we focus on theories in relation to findings on the implications of ethnic enclave settlement in Gambella city. Urban planning models have significant implications for the development and social dynamics of regions like Gambella in Ethiopia, an area known for its diverse ethnic composition. Research indicates that factors such as age, gender, marital status, family size, and education level can influence ethnic concentration in urban spaces.

In Gambella, the historical trade activities with neighboring regions and the subsequent formation of ethnic enclaves have shaped the city's development. These enclaves can lead to a mismatch in development sectors, with some studies suggesting up to a 72 percent disparity due to the enclave structure. For policymakers and urban planners, these findings underscore the importance of inclusive city planning that addresses the needs of diverse populations, promotes gender equality, and leverages local knowledge and entrepreneurship for sustainable development. Such approaches could transform ethnic enclaves from areas of division to resources that contribute to the city's prosperity and cohesion.

Place attachment: According to Morgan (2010), a location has a significant influence on a person's sense of self; they become emotionally connected to it and feel a sense of belonging. In Gambella City, familial ties, traditional-related events, and economic potential on space draw many inhabitants to congregate in their geographic area of residence. Since Place attachment is an effective bond or link between people and specific places, and it is the tendency of the

individual to maintain closeness to such a place (Hidalgo M. et al., 2001). Findings revealed that the establishment of ethnic enclave communities in Gambella was influenced by political institutional roles and worries about safety and security concerns facing every resident of the city. All these shaped the emotions of residents toward clustering in certain spatial spaces in Gambella City. As Shumaker and Taylor (1983) stated, place attachment is a positive affective bond or association between individuals and their residential environment'. The culture and tradition, religious and economic attract many residents to enclave area has a lot of gains. Additionally, the Hummon (1992) considers place attachment as 'emotional involvement with places. From this perspective, the Gambella enclave settlement is from the attraction of residents coming from the emotion of residents due to family and cultural bondage and foci that regulate residents from their proper social being. Furthermore, the feeling of insecure on the place of residents forced for major concentrated land use from the same ethnic communities. From the findings, we recognize that this theory is in line with ethnic enclave settlements established in Gambella City. Since the enclave settlement happened because of the force and attractive functions found within certain spatial spaces in Gambella city.

It was discovered that the Gambella city plan failed to regulate the city's human settlement pattern as ethnic enclave. Ethnicity interests override the planning interests that weaken the city's functions for development. The bulk of socio-spatial, economic, environmental, and infrastructure concerns were left unresolved since planning had failed to regulate and oversee the city's type of settlement. From the urban planning and Development theory, we recognize New Urbanism and Just Theory. These theories have the potential to enrich ethnic enclave settlement negative and positive effects. From the New Urbanism perspective, the theory has the ability effortlessly separate social conditions from physical form; its urban design incorporates a range of building types, mixed uses, mixed-income housing, and a strong emphasis on the public realm (Espinoza-Kulick et al., 2021). This makes new urbanism the potent theory for the Gambella City ethnic enclave settlement as it can separates all sociospatial related problems and enriched them in planning. In line with the Just theory, this focuses on the creation of an urban vision that includes material well-being but also depends on a more pluralistic, cooperative, and decentralized form of welfare provision (Espinoza-Kulick et al., 2021). Since the Gambella ethnic enclave fragments the city in many prospective, many residents from minorities are facing a lot of challenges as they are not included in any city planning system. Therefore, both New

Urbanism and Just Theory are crucial for Gambella ethnic enclave, as findings revealed. From the urban planning perspective, the Gambella city demand these planning models to harmonize both spatial and none spatial setting problem and proposed the urban solution.

Multicultural theory: The philosophy of multiculturalism was developed long ago, and it is today embedded in public and political discourse in many countries receiving Immigrants (Sandercock and Brock, 2009). Multiculturalism is a normative theory considered as an ideology that protects indigenous peoples, sub-state national groups, and immigrant groups in many western countries (Kymlicka, 2010). From this theory, to integrates different cultures and socioeconomic background residing in the city demand proper urban planning practices. From Gambella enclave city that received different nation and nationalities coming from different corners of the country marked the demand for new planning model as ethnicity interest drive every function in the city. It was discovered that there is a high misunderstanding between ethnic enclave settlement in Gambella and city development. Ethnic enclave settlement affected the city sociospatial, economic, environmental, and infrastructure activities that demand new urban planning model for proper growth of city. Planning model that brings the sense of ownership to city, introduce residents with tolerance, integrity, and solidarity for them to live in harmony in the inclusive spatial space. Applying a multicultural planning model that considered a mix of Salad bowl and melting pot is very important for Gambella city. This model will have the potential to harmonize the diverse interests spatially and non-spatially. This theory will enrich ethnic enclave theory and magnify how an ethnic enclave settlement effects the development of the city if enclave settlement is not properly managed.

In general terms, place attachment, just theory, and multicultural planning where melting pot and Salad Bowl theory were found to be important theories in relation to implication of ethnic enclave settlement on the development of the Gambella city. They managed the potential on the cause-and-effect relationship and apply a model that regulates the negative effects of the ethnic enclave settlement, as previously revealed from the four objectives findings. They were recognized to maximize the important of ethnic enclave as they are from normative point of views and they can enrich city unregulated settlement form for both planned and unplanned settlement city like Gambella.

CHAPTER SIX

6. Conclusion and Recommendations

This chapter discusses the major findings of the research and the recommendations possible for each finding. It sheds light on the implications of ethnic enclave settlement on development trajectories and creates a policy and planning model that corresponds with the ethnic enclave settlement in Gambella City. All the findings and their implications were summarized. The misalignment between ethnic enclave settlements and urban planning guiding principles was exposed. The recommendations based on each finding and the areas of future research were all briefly forwarded.

6.1. Conclusion

The conclusion is the last chapter that displays the general overview of the paper. It shows the way forward by recommending important policy and planning concerns by introducing a proper planning model for ethnic enclave cities to curb the devastating effect of ethnic enclave settlement. The chapter also further the study by indicated future research areas. Ethnic enclaves are everywhere on the globe. The terms "spaces of cultural identity," "community of choices and "ethnic economies" are frequently used in the literature to describe ethnic enclaves (Hiebert, 2015; Bakri et al., 2014). Nevertheless, ethnic enclave settlement is not new to many nations however, since than ethnic enclave in the Ethiopia context was not recognized. The cause of ethnic enclave settlement and what it contributes to city were not much known. Particularly, in Gambella city, the shift of trade enclave to an ethnic enclave and it effect never receives much attention to many scholars.

The Gambella ethnic enclave settlement weaken the city development from the different texture of city functions. Change in sociospatial, economic, environment and Infrastructure that happened from ethnic enclave contributed a lot to weak city development. Ethnic concentration increases weak economic growth, distrust, smuggling, robber, land grab, killing and murders, pollution, weak access to physical and social infrastructure, high level of segregation. To maximize the case, observed the planning practice that was in used since the establishment of Gambella city in 1907 was given main focus. However, failures of the policy and planning model in hand brought the study ethnic enclave settlement into effect and its implication to

development was forefront for this study.

According to feedback and findings, the factors associated with ethnic enclave residential settlement formation have many dimensions while keeping others contesting. Personal characteristics, socioeconomic, tradition and custom, religious functions, political, and safety and security concerns are among the most significant factors for this study that was associated with ethnic enclave settlements in Gambella City. The implication of ethnic enclave settlement in the development spectrum was also revealed in the form of economic, sociospatial, environmental, and infrastructure factors. Further, the extent of ethnic segregation in Gambella city was determined based on the elasticity of change in economic, spatial, social, and political factors, all of which were identified as major contributors to the observed ethnic segregation in Gambella city, Ethiopia. Sequentially, the associated factors, the implications of ethnic enclaves, the level of segregation due to enclave settlement, and the planning models that were used for Gambella City were all summarized as the conclusion chapter in this study.

Ethnic enclaves, which are settlements with absorptions of the same-minded ethnicity in one geographic location; have been found to be significantly influenced by socioeconomic and demographic characteristics. Kebele's choice, sex and age, personal education and job, marriage, and increased family size were the demographic and socioeconomic factors that contributed to the creation of the ethnic enclave settlement in Gambella city. In the same manner, the discovery also indicated that location preference was magnified by family bondage as close to family members increase the level of the same ethnic group settlement in spatial space. Long with the above findings, data supported by security and safety concerns; cultural, political, economic, and religious factors. They were among the most attractive and forceful factors for clustering of residents in the enclave in Gambella city. Above all the factors, force and pull factors that attract residents have the uniform contributions for residents to settle in the ethnic enclave. That means the personal-related factors, individual preference are outweighed by push and pull factors observed in Gambella city.

On the other hand, an ethnic enclave settlement in relation to development spectrums; the ethnic enclave settlement produced both positive and negative consequences from the variation observed. The implication of ethnic enclaves according to CFA-SEM results on economic, sociospatial, environmental, and infrastructure has a 1 percent significant level that can have

either positive or negative influence on the development of Gambella city both spatially and non-spatially.

From the covariance that define the relationship between two latent variables, the relationship between the economic and environmental issues was found to have a positive relationship. However, there is less likely on sociospatial and infrastructure development when ethnic enclave is the only form of settlement.

From the SEM discover on the implication of ethnic enclave settlement on the development spectrums in Gambella city; it produced a 72 percent significant discrepancy between ethnic enclave settlement and the four development spectrums in Gambella city. According to their strengths, an ethnic enclave settlement was discovered as it has high impact on socio-spatial and economic activity, followed by the environmental and infrastructural expansion when 1percent increase in ethnic enclave demonstrated. These findings demonstrated that ethnic-based settlements harmed the excellent benefits that can be obtained from the town's ethnic base expansion. That mean, the best benefits from the enclave are depleted by unequal benefits as a result of the incorrect use of ethnic enclave settlements. This happened because of the variations observed in economic, sociospatial, environmental, and infrastructure development.

In this regard, malpractices on market center from business protection, land grabs, inter-ethnic conflicts, illegality and high crime practices mark the ethnic enclave settlement implication in Gambella city. Moreover, the environment pollution from irresponsiveness of enclave residents that increases high pollutions that deteriorates the city drainage and clog the proper flow of water runway with consequence in flooding. From the results, the negative consequences of enclaves outweighed the positive ones as sociospatial, environmental, and economic activities in enclaves hindered both spatial and none spatial status of the city. High fragmentation on access and distribution of resource availability. As ethnic enclave settlement ranged; competitions that cause conflicts on resource magnified an ethnic enclave settlement empirical evidence in Gambella city. From all these findings, they highlight a green light for policymakers and urban planners to look deep into problem of enclave as practice that devalue the city growth that need special interventions. This mark them design and develop new planning models either to maintain ethnic enclave settlement good practices or replaces the bad ones with best practices from other countries that have experienced enclave as a valuable resource for their city's growth.

Ethnic enclaves in Gambella face a range of challenges that stem from the region's complex socio-political dynamics. One of the primary issues is the rise in housing prices, which can be attributed to increased economic activity and demand within certain ethnicities. This economic disparity often leads to social tensions and cultural clashes, as different groups vie for resources and opportunities. Additionally, the region has experienced issues with smuggling and thefts, which can disrupt local economies and contribute to a sense of insecurity among residents. The political landscape also presents challenges, with ethnic-based party establishments and conflicts leading to divisions and a decrease in unity and cooperation among the city's inhabitants. Furthermore, the area has been torn apart by ethnic violence and neglect, resulting in death, destruction, and displacement, which exacerbates the struggle for a peaceful coexistence. Addressing these challenges requires a multifaceted approach that includes clarity, transparency, and accountable leadership to bridge the region's divisions and promote a harmonious environment.

For Gambella City to be good enough for diverse settlement, the establishment of public institutions that draw and unite a large number of citizens, a spatial setting design that may bring an integrated form of settlement and a mix of residents in a diversified form, inclusively, a political system that gives all residents of Gambella city a sense of belonging, rather than focusing on indigenous people are very crucial. From this study, the city is defined as an identity where every human has the right to ownership of it to reside. It is locality defined by the people who live there rather than by nations and nationalities in the region. An environment that fosters ignorance, neglect, and poor working conditions in the business sector, must be transformed by developing a new way to adapt the work culture for proper economic growth. A sense of ownership, accessibility, and control over resources should be implemented in order to reduce the disclosed type of ethnic segregation in Gambella City. All of these things are transformed when a resident-centered design policy is implemented, and new spirits of development and livability emerge in the city.

Methodologically, the ethnic enclave settlement used mixed forms of data collection and analysis. All were analyzed using RStudio (2020 and 2021) as a tool. The study utilized multinomial logistic regression analysis and multiple regression analysis models, narration and contents analysis for both quantitative and qualitative means. It visually utilized spatial pattern

with the use of GIS 10.4.; mapped and visualized the concentration of ethnicities in certain spatial spaces in the city by displaying the land inventory data and making a map for the Gambella City ethnic enclave settlement. The data was presented in frequency tables, percentages, boxplots, jitter, and mapping forms. However, the only distinction observed in this study from the previous one is that we did not use the usual form of calculating enclave settlement distributions measurement indices because we don't have data for neighborhood and census trace from the CSA (2007) of Ethiopia.

Moreover, since the city is not well planned, there is no clear block representation, plots and the data for each neighborhood was not properly recorded. From the existing city structure settlement pattern as the main reference, the data in hands, the survey linked with Land use inventory in Gambella (2016), and observed settlement form that defined the concentration of each ethnic group in every kebele; were pronounced as enclaves for each ethnicity. In addition to these, market place, schools, hospital and recreational area were also observed as they can confirm the concentration of the same ethnicity in the city spatial space.

The level of planning and policy that had been in place since the establishment of Gambella in 1907 was also observed from the trend of planning; first sketch plan to present structural planning model of Gambella was design by Anglo Sudan. However, the modern planning model for Gambella started by emperor regime in 1967. No matter how the Ethiopian urban planning practices are recognized by embedding and adopting the European style of urban planning model. Many cities, including Addis Ababa, considered urban planning models that were masterplans that last for 20 years of implementation. However, through time, failure of such a plan to meet the demand of socialist era and developmental state, mark the introduction of integrated development plan (IDP) that was implemented in many Ethiopian cities after consultation with donor stakeholder groups.

South Africa used an integrated development plan for cities to reduce the 20-year plan to 10 years for them to curb the fast growth challenges. As Ethiopia was in fast urbanization and high demand for speedy development, the application of the integrated development plan (IDP) become imminence and the then the city structural plan which is flexible, which is broken down into a five-year local (neighborhood) development plan (L/NDP).

No matter how all these planning models were developed for Ethiopian cities including Gambella, all these plans were underutilized and the concern of ethnic enclave settlement receives less effort in planning. Residents, planners, and policymakers in Gambella are in confusion, some still discussing the master plan, as the same to IDP or the structural plan. This confusion marked the poor understanding on the city plan in use for Gambella city. This makes all the plans for Gambella city appear to be on the technical side of the desk where its inclusivity is lagging. From the interviewees and literatures, all of the planning strategies are primarily concerned with physical planning and city form. Slight secondary emphasis on socioeconomics development, plural city development with less on residential settlement patterns. These planning models also failed to respond to the diversity of residents coming to cities as they overlooked ethnicity, which is politicized that disturbed the proper social being of residents.

Gambella city is pressurized by settlers equipped, shaped with ethnic identity, feelings, and attitudes. This poses a big challenge to city social beings and spatial places as their concentration increases day and night with the demand to segregate others. The old or recent planning strategies failed to cover the real practice of indigenous culture among Gambella residents. Most of the plans seem to have been adopted from the central core interests that led to the failures marked as the contributed factor for weak implementation the IDPs in 2007 -2016. In addition to this, the urban planning ignores the weak capacity of the city municipality staffs and its inhabitants. Therefore, the discovery indicated that the capital city of the Gambella regional state is facing big challenges from ethnic enclave settlement. Since this practice failed to get a response from existing urban planning models, regulations, and guidelines in the region, in addition to those prepared by the minister of urban development and infrastructure in Ethiopia; the study looks in-depth to the problems and develop another protocol that can handle the situation of ethnic enclave settlement in Gambella.

Therefore, the multiculturalism and diversity observed in Ethiopian cities as rapid urbanization is underway; the practice was not used as an opportunity in Gambella City. This makes the enclave settlement count as a cause of weak city development. For Gambella ethnic enclave settlement to be used as a resource for city growth, it is mandatory for policymakers and urban planners to look deeply into planning models that can fit cities that are enclaved, unplanned, and settled in traditional form. For Ethiopian cities like Gambella to accommodate the potential of their diverse residents, new regulations, laws, and planning guidelines are required. Inclusive Multicultural

city planning, like in other cities around the world, can help divert the negative effects of ethnic enclave settlement in Gambella. Adopting planning models like inclusive multicultural planning strategy and methods in order to balance urban development can modernize the bad effects of ethnic enclave settlement in Gambella city (Talen's, 2012). This inclusive multicultural city planning can benefit the city in terms of socioeconomics, the environment, and infrastructural development. The negative consequences of the ethnic enclave settlement that devastated Gambella City can be lessened or perhaps eliminated with the use of this method. For the city of Gambella to be a livable, competitive city with other Ethiopian cities and rising cities worldwide, multicultural city planning is much more favorable, as it has both spatial and non-spatial strategies that can change the adverse negative effects of ethnic enclave settlement.

6.2. Recommendations

Ethiopia's urban planning practice seems to be much irrelevant to ethnic enclave settlement planning. Many planners and institutions on urban sectors most of the time focus on a previously adopted plan of developed nations. This also still preceded and adopted as a practice in Ethiopia between big cities and emerging cities. Many planning models in Ethiopia marked by top-down approaches that spend a small time in plan preparation for diversity. The planning failed to consider the sociocultural, historical formation, topography, and residents' full participation in the plan preparation as citizens, resources, and they failed to consider the capacity of the municipality that will implement the plan.

The Gambella city found to receive the majority of above-mentioned gaps extremely happened from ethnic enclave settlement. For Gambella city curb all these problems, instead of just developing a ten-year structural plan for cities, policymakers and city planners, plus the science of planning, need to revisit for the city to accommodate the diverse functions and dynamics, fast growth of cities in Ethiopia. From ethnic enclave perspective, we need to create a new planning model that fits the city's capacity in all prospective for its to cope with the pressures in the city day. Cities need to have a proactive plan that is based on regular inventory using updated technological means and tools for development. People-centeredness, city limits, and up-to-date data on population growth, resource availability, and urban interconnections between cities and their hinterlands should all be considered in this planning.

Full decentralization for cities should be in place and most. Cities should be given full authority to negotiate with their nearby rural communities directly; they should sell out their development strategy to rural suburban urban farmers as the city expands, rather than relying on other government third parties. The interaction between the two organs will enrich and decrease malpractice on the market. This will also define the land as being for the government and people. The role of the central government, regional government, and concerned zonal government structures should be to the set standard that benefits both urban and rural communities, as land compensation and access to rural agricultural products should flow smoothly. Laws that restrict unlawful acts should also be developed by higher government organs but on operation they should pause. Therefore, considering all suggestions above and in the following paragraphs in details, the concerns to make sociospatial, economic, infrastructure, and environmental activities developed in a sustainable way, full decentralized city administration system should be underway and clearly stated for the city to uproot it resource and develop its nearby rural communities.

Therefore, the Gambella city's future development from the present form of ethnic base settlement, to either revisited the plan, upgrade or renovate the existing city form of settlement, special focus should be on the existing topography of the city, its social composition, the economic situation according to hub on flow and access to human needs, compatibility of land use, and other attractive factors that can pull investors to come to the city and invest; all these should be given much attention. In this regard, for Gambella City to be a residential area that accommodates its human diversity, human-made resources, and natural resources, the city needs to revise all its previous trends fully.

It is the mandate and responsibility of planners and concerned regional and city administrations to develop new policies and planning models that can revisit and harmonize the situation. This will give the city a new spirit of development, and make it competitive with other cities in Ethiopia. To achieve rationality in this context, the following guiding principles as the most important guiding principles and functions that should alleviate the severity of ethnic enclaves and make the city prosperous, secure, healthy, viable, equitable, sustainable, and productive—a city that accommodates and transforms its diversity as a potential for development in unity. In this vein, Gambella City's narrow vision, as stated in the 2018 structural plan document, "to see Gambella Town as livable and the center of an agro-industrial and tourist destination by 2021,"

must be reconsidered and expanded. Here are some specific planning and policy recommendations for Gambella City in addressing ethnic enclave settlements:

Inclusive Zoning: Designate areas for mixed-use development that encourage interaction between different ethnic groups while preserving cultural identity. Inclusive zoning promotes social cohesion and prevents excessive segregation.

Community Engagement: Involve enclave residents in decision-making processes related to urban planning. Engaged communities contribute to better-informed policies and sustainable development.

Conflict Resolution Mechanisms: Establish mechanisms to address inter-ethnic tensions and promote dialogue. Conflict can hinder development, so proactive resolution is essential.

Cultural Preservation Programs: Support initiatives that celebrate and preserve the cultural heritage of different ethnic groups. Cultural diversity enriches the city and contributes to its vibrancy.

Livelihoods and Waste Management:

Waste-Picker Cooperatives: Establish cooperatives in Gambella to improve waste management practices, provide livelihood opportunities, and integrate waste pickers into the formal economy.

Green Spaces and Active Living:

Riverfront Development: Along the Baro River and JabJabe stream, design green spaces that integrate with public transit. Create walkable paths, parks, and recreational areas accessible to all residents.

Promote Active Lifestyles: Encourage physical activity through well-designed public spaces, cycling lanes, and pedestrian-friendly infrastructure.

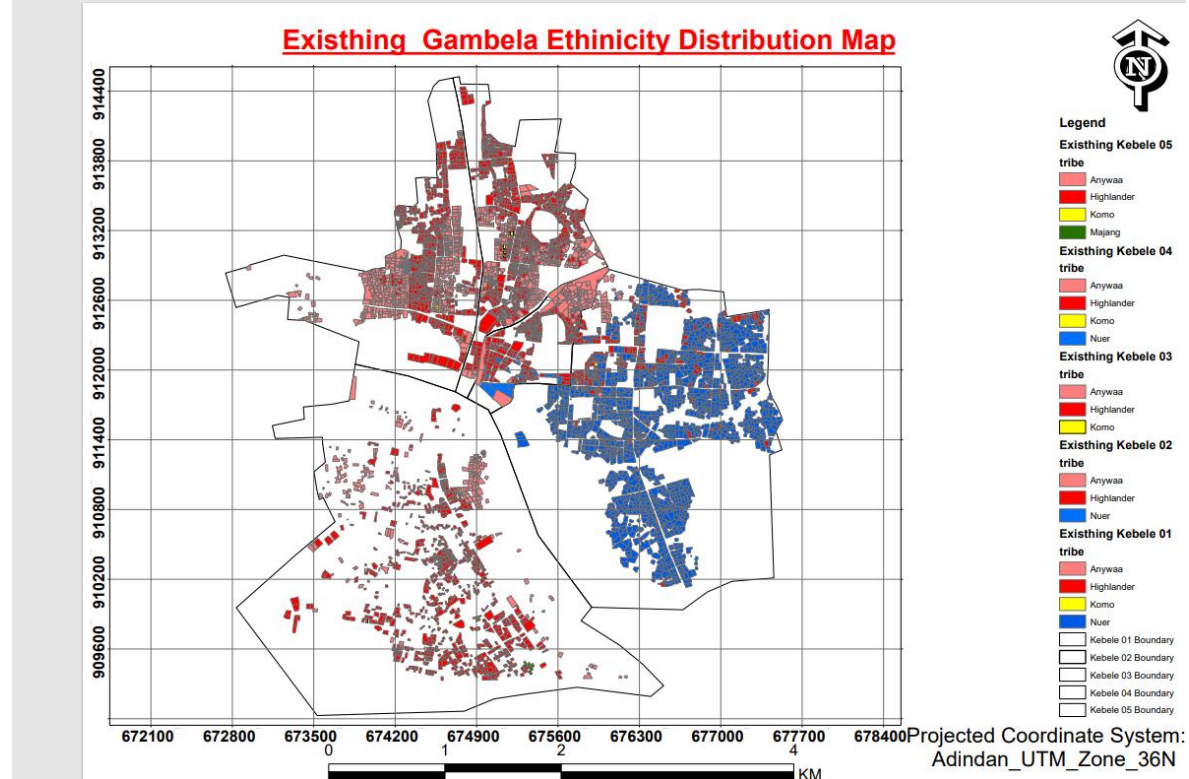
Equitable Infrastructure Investment:

Prioritize infrastructure development in ethnic enclaves to reduce disparities. Uneven infrastructure can hinder overall city development and exacerbate inequalities.

From the above recommendations, we recommend the Gambella current city ethnic enclave settlements to shift from existing pure enclave settlement to mixed enclave and applied “Kuajang corn” planning Model for Gambella ethnic enclave city. This will have the potential to regulates

ethnic base settlement problems as the proposed side will be more favorable for mixed forms of settlement and apply the new development model to accommodate diversity where every resident has the right for the city.

Figure 5.1: A Gambella city map of ethnic enclave settlement



Source: LUI (2016)

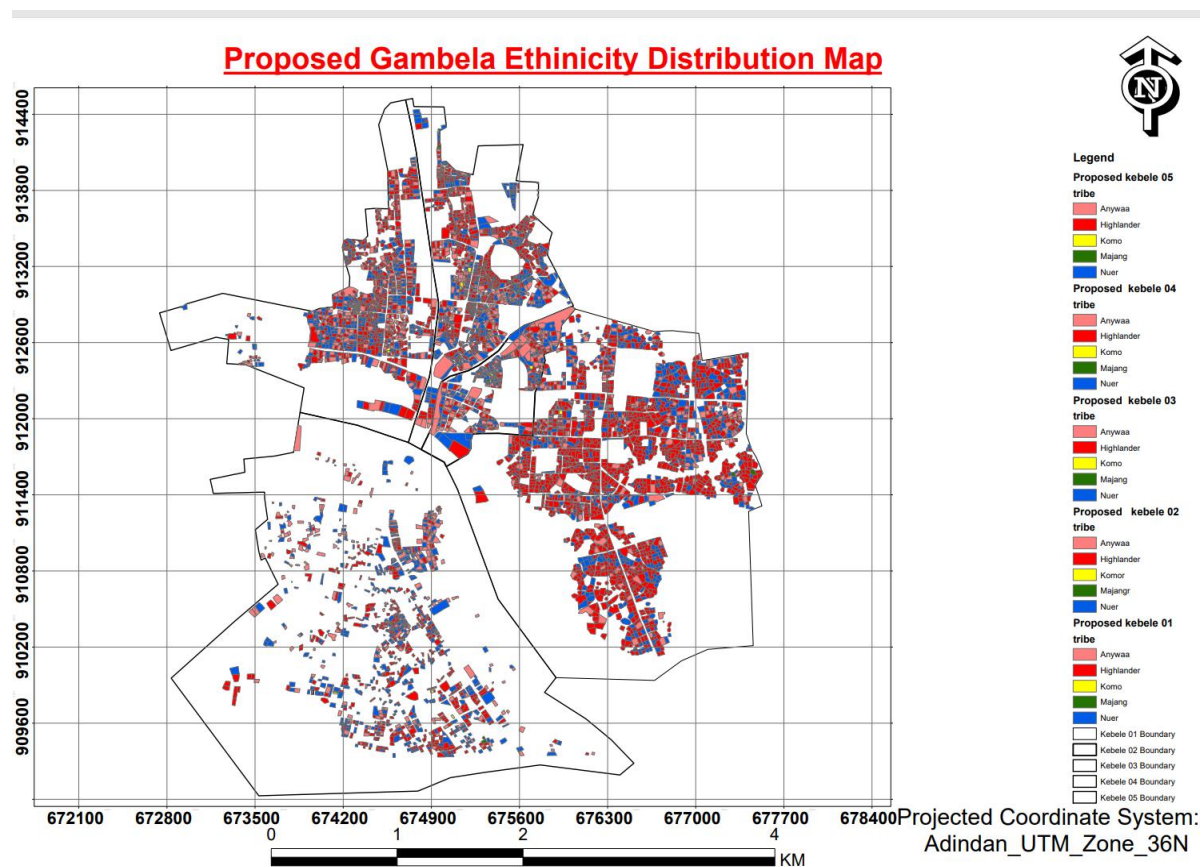
For Gambella ethnic enclave settlement to be a mixed form of settlement that integrates every function; a model that mix residents to one place. This enclave can be changed by planning model that keep residents aside in the same neighborhood. The model that fit for Gambella ethnic enclave settlement is considered as Kuajang planning model; This model considered the city as free space where all residents have the right to settle in every urban space. From the data in hands, we develop a new settlement that disperse and mix residents from different background of ethnic groups. The below map is developed from GIS 10.4 based on the below table created.

Table 5.1: The proposed ethnic group distribution for Gambella City

Kebele	Tribe	Existing population		Proposal population	
		No. Population	percent	No. Population	percent
01	Anywak	38	1.73	400	18.17
	Highlander	279	12.68	560	25.44
	Komo	6	0.27	350	15.90
	Nuer	1,878	85.32	605	27.49
	Majang	-	0.00	286	12.99
Total		2,201	100	2,201	100
02	Anywaa	90	19.35	100	21.51
	Highlander	336	72.26	120	25.81
	Komo	39	8.39	85	18.28
	Nuer	0	0.00	70	15.05
	Majang	0	0.00	90	19.35
Total		465	100	465	100
03	Anywak	353	24.50	306	21.24
	Highlander	1083	75.16	350	24.29
	Komo	5	0.35	250	17.35
	Nuer	0	0.00	260	18.04
	Majang	0	0.00	275	19.08
Total		1,441	100	1,441	100
04	Anywak	546	44.10	284	22.94
	Highlander	683	55.17	310	25.04
	Komo	3	0.24	230	18.58
	Nuer	6	0.48	242	19.55

	Majang	0	0.00	172	13.89
Total		1,238	100	1,238	100
05	Anywak	235	19.65	235	19.65
	Highlander	953	79.68	255	21.32
	Komo	1	0.08	229	19.15
	Nuer	0	0.00	226	18.90
	Majang	7	0.59	251	20.99
Total		1,196	100	1,196	100

Figure 5.2: The proposed residential planning model for Gambella ethnic enclave city



Source: Own model (2024).

6.3. Areas of future research

Ethnic enclaves are commonplace in numerous countries that ethnicities entering as freshman to their metropolises. In Ethiopia the precedence of ethnical enclave settlement didn't admit echo interest nationwide, as per the Ethiopian urban structure. The blame of ethnical enclave on the development of Gambella did not admit attention among the policymakers and civic specialists.

- Explore the dynamics of ethnic enclave formation and their long-term effects.
- Investigate policy adjustments and planning strategies to promote balanced development.
- The civic adaptability and sociospatial variation to plan and unplanned ethnical enclave settlement regions like Gambella City.

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Annex-I

The Descriptions of the Relationships between Ethnic Enclave Settlement with the **Socio-Spatial, Economic, Environmental, and Infrastructure Development**

Variable	Codes	Descriptions	indicators	Coding measurement
Ethnics	Ethnic	The All-Ethnic Enclave Settlement in Gambella Town	Concentration of one ethnic group in one locality	Ethnic: 1 = Anywa, 2 = Nuer, 3 = Highlanders, 4 = Komo, 5 = Majang, 6 = Oppo
Anywaa	AnY	The Anywaa's Ethnic Enclave Settlement in Gambella Town	Concentration of Anywaa in one spatial space	AnY: 0 = Otherwise, 1 = Yes
Nuer	NuE	The Nuer's Ethnic Enclave Settlement in Gambella Town	Concentration of Anywaa in one spatial space	NuE: 0 = Otherwise, 1 = Yes
Highlander	H_Land	The Highlanders' Enclave Settlement in Gambella Town	Concentration of Anywaa in one spatial space	H_Lan: 0 = Otherwise, 1 = Yes
Komo	KoM	The Komo's Ethnic Enclave Settlement in Gambella Town	Concentration of Anywaa in one spatial space	KoM: 0 = Otherwise, 1 = Yes
Majang	Maj	The Majang's Ethnic Enclave Settlement in Gambella Town	Concentration of Anywaa in one spatial space	MaJ: 0 = Otherwise, 1 = Yes
Oppo	OpP	The Oppo's Ethnic Enclave Settlement in Gambella Town	Concentration of Anywaa in one	OpP: 0 = Otherwise, 1 = Yes

Variable	Codes	Descriptions	indicators	Coding measurement
			spatial space	
Economics	EcoN	The Economics activities This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 15 being the highest. It assists us in determining the level of development by expanding economic activities in the areas.	Level of economic function the city development	EcoN: Scales from 1:15
Market	EcoN1	Is there any market center in your locality? Shared market center This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 15 being the highest. It assists us in determining the level of development by expanding economic activities in the areas.	Access to market center	Market: 0 = Otherwise, 1 = Yes
Finance	EcoN2	Is there any financial institution that provide loan near to your locality?	Access to saving and loan	Finance: 0 = Otherwise, 1 = Yes
Econom	EcoN3	In Gambella city, many businesses protected by their	Level of protection to	Econom: 0 = Strongly Agreed, 1 = Agreed, 2

Variable	Codes	Descriptions	indicators	Coding measurement
		own functions against based on co-ethnicity line (Business Protection) This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 15 being the highest. It assists us in determining the level of development by expanding economic activities in the areas.	business community	= I Don't Agree, 3 = Strongly Disagreed, 4 = None
Income	EcoN4	What is source of your income This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 15 being the highest. It assists us in determining the level of development by expanding economic activities in the areas.	Level of financial source poured to market	Income: 1 = Government/NGOs, 2 = Private, 3 = Remittances/Diaspora, 4 = None
Employees	EcoN5	In Gambella city, many business center employees only their close relatives. This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and	Extend of proximity to the same ethnic community that own the business	Employees: 0 = Strongly Agreed, 1 = Agreed, 2 = It Seem Like, 3 = Disagreed, 4 = Strongly Disagreed

Variable	Codes	Descriptions	indicators	Coding measurement
		15 being the highest. It assists us in determining the level of development by expanding economic activities in the areas.		
Weak	EcoN6	Unorganized and non-modernized business practice much observed in indigenous Ethnic enclave settlement area. This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 15 being the highest. It assists us in determining the level of development by expanding economic activities in the areas.	Weak revenue source and income level	Weak: 0 = Strongly Agreed, 1 = Agreed, 2 = It Seem, 3 = Disagreed, 4 = Strongly Disagreed
Socio-Spatial	SocioP	The Socio-Spatial Trajectories. This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 14 being the highest. It assists us in determining the level of development by reducing sociospatial trajectory in the	Reduce social and spatial related function that polluted city wellbeing	SocioP: Scales from 1:14

Variable	Codes	Descriptions	indicators	Coding measurement
		areas.		
School	SocS1	Is there any school near to your locality? Shared schools This variable is measured on a contingency scale of 1 to 14, with 1 being the lowest and 14being the highest. It assists us in determining the level of development by expanding social and spatial in the areas.	Increasing access to schooling	School: 0 = Public School, 1 = Private School, 2 = None
Health	SocS2	Is there any health facility near to your locality? Shared health institution This variable is measured on a contingency scale of 1 to 14, with 1 being the lowest and 14being the highest. It assists us in determining the level of development by expanding share social and spatial related functions in the areas.	Accessibility of health institution	Health: 0 = Otherwise, 1 = Yes
Marriage	SocS3	In Gambella city, resident of different ethnic background doesn't easily get married to one another This variable is measured on a	Level of exposure to one another through marriage	Marriage: 0 = Strongly Agreed, 1 = Agreed, 2 = Disagreed, 3 = Strongly Disagreed

Variable	Codes	Descriptions	indicators	Coding measurement
		contingency scale of 1 to 15, with 1 being the lowest and 14 being the highest. It assists us in determining the level of development by expanding social and spatial relationship in the areas.		
Ownership	SocS4	Land in Gambella city is owned by individual or ethnic group This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 14 being the highest. It assists us in determining the level of development by expanding the city sociospatial space in the areas.	Increase of land demand controlled by individual or group member in the city that increase city horizontal expansion.	Ownership: 0 = Strongly Agreed, 1 = Agreed, 2 = Maybe, 3 = Disagreed, 4 = Strongly Disagreed
Conflict	SocS5	Land is a source of conflict in Gambella city This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 14 being the highest. It assists us in determining the level of conflicts that hinder development by expanding	How often conflicts in relation to urban land in city spatial space	Conflict: 0 = Strongly Agreed, 1 = Agreed, 2 = Disagreed, 3 = Strongly Disagreed

Variable	Codes	Descriptions	indicators	Coding measurement
		social and spatial disintegration in the areas.		
Community (Land)	SocS6	Ethnic base settlement in Gambella city has much contribution to weak land legalization that count land as community land and reduced the revenue source. This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 14 being the highest. It assists us in determining the level of development by reducing the malpractice on social and spatial related land activities in the areas.	Level Malpractices on the city land	Community: 0 = Strongly Agreed, 1 = Agreed, 2 = Disagreed, 3 = Strongly Disagreed
Intensity	SocS7	Ethnic line settlement in Gambella city, Intensified conflicts in Gambella city This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 14 being the highest. It assists us in determining the level of development by reducing the social and spatial activities	How many time conflicts happen in the city	Intensity: 0 = Strongly Agreed, 1 = Agreed, 2 = Disagreed, 3 = Strongly Disagreed

Variable	Codes	Descriptions	indicators	Coding measurement
		lead to conflict in the areas.		
Environment	Envi	The Environmental Activities This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 10 being the highest. It assists us in determining the level of development by expanding environmental activities in the areas.	Harsh environment for living as pollution range in the city	Envi: Scales from 1:10
Collection (waste mgt)	EnV1	Is your resident waste collected by Municipality? The establishment of waste collection system This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 10 being the highest. It assists us in determining the level of development by expanding environmental safety in the areas.	How often wastes collected by municipality	Collection: 0 = Otherwise, 1 = Yes
Prevent	EnV2	irresponsibility of resident in city reduces the ownership of residents This variable is measured on a	Disposal of urban waste recklessly everywhere in	Prevent: 0 = Strongly Agreed, 1 = Agreed, 2 = Maybe, 3 = Disagreed, 4 = Strongly

Variable	Codes	Descriptions	indicators	Coding measurement
		contingency scale of 1 to 15, with 1 being the lowest and 10 being the highest. It assists us in determining the level of development by reducing wastes that pollute the city environmental in the areas.	the city	Disagreed
Deforestation	EnV3	The Uncontrolled ethnic base settlement contributed to demolishing of city nearby forest land This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 10 being the highest. It assists us in determining the level of development by reducing the city expansion toward city suburbs.	Reducing the new residential settlement in the nearby city green area	Deforestation: 0 = Strongly Agreed, 1 = Agreed, 2 = Disagreed, 3 = Strongly Disagreed
Ranking	EnV4	Weak ownership of resident on the city environment increase pollution on Baro river and JabJabe stream water source. This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and	level of knowledge and attitude residents toward safe environment and water source	Ranking: 0 = Strongly Agreed, 1 = Agreed, 2 = Neutral, 3 = Disagreed, 4 = Strongly Disagreed

Variable	Codes	Descriptions	indicators	Coding measurement
		10 being the highest. It assists us in determining the level of development by reducing the level of pollution toward Baro and JabJabe by expanding best environmental model in the areas.		
Succession	EnV5	Ethnic line settlement came with high invasions and succession in Gambella city This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 15 being the highest. It assists us in determining the level of development by reducing the incompatibility on the city environment.	Increase in number of displaced people in the city	Success: 0 = Strongly Agreed, 1 = Agreed, 2 = Disagreed, 3 = Strongly Disagreed
Infrastructures	Infus	The Expansion and Availability of Infrastructures	Accessibility to use of infrastructure	Infus: Scales from 1:6
Recreation	InF1	Is there any recreation area near to your locality? The shared recreation This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and	Regular use of playing ground or parks	Recreation: 0 = Otherwise, 1 = Yes

Variable	Codes	Descriptions	indicators	Coding measurement
		6being the highest. It assists us in determining the level of development by expanding infrastructure functions in the areas.		
Street light	InF2	Is there any streetlight in your locality? This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 6 being the highest. It assists us in determining the level of development by expanding infrastructure activities in the areas.	Accessibility of street light every night	streetlight: 0 = Otherwise, 1 = Yes
Electric	InF3	Does your resident have electricity connection in your home? This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 6 being the highest. It assists us in determining the level of development by expanding infrastructure activities in the areas.	Use of electricity for lightening and consumption goods	Electric: 0 = Otherwise, 1 = Yes

Variable	Codes	Descriptions	indicators	Coding measurement
Road	InF4	Is there any road network to your resident? This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 6being the highest. It assists us in determining the level of development by expanding infrastructure activities in the areas.	Access to road network in the city	H2O: 0 = Otherwise, 1 = Yes
H2O	InF5	Do you have potable water connection in your home? This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 6 being the highest. It assists us in determining the level of development by expanding infrastructure activities in the areas.	access to private or public tape water regularly in the city	Road: 0 = Otherwise, 1 = Yes
Road	InF6	In your residential area, is there any road network to your resident? This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 6being the highest. It assists	Access to road network in the city	H2O: 0 = Otherwise, 1 = Yes

Variable	Codes	Descriptions	indicators	Coding measurement
		us in determining the level of development by expanding infrastructure activities in the areas.		
Sewerage	InF6	Is there any drainage or sewerage line connection in your residential area? This variable is measured on a contingency scale of 1 to 15, with 1 being the lowest and 6 being the highest. It assists us in determining the level of development by expanding infrastructure functions in the areas.	Absent of liquid and solid wastes disposal size in the area	Sewerage: 0 = Otherwise, 1 = Yes

Source: Own survey (2021)



Annex-II

Data capturing instruments

The data capturing instrument for this study are questionnaire, those includes multiple choice, short answering, fill in the blank space. This is done by categorizing questionnaire into four parts for getting information from the concerned body (Government official and Experts, Education and Health sector, Residents, and Private institutions and well-known business men). For each part there is clear instruction given that will guide every respondent to give possible answer to the question.

My special thanks to you for your will to be part of my interview and focus group discussion as on the topic entitled: ***The quest for planning models to Ethnic Enclave Gambella city, Ethiopia.***

Please feel free the questionnaires are for academic purpose only.

Part I

Personal information of key informants: circle based on what fit your answer

Your resident location

Kebele -01 ☐

Kebele -02 ☐

Kebele -03 ☐

Kebele -04 ☐

Kebele -05 ☐

Gender:

Male ☐

Female ☐

Age

18-22	
23-27	
28-32	
33-37	
38-42	
43-47	
48above	

Education background:

No schooling,	
Grades (1-4)	
Grade (5-8)	
Grade (9-10)	
Grade (11-12),	
College diploma	
Bachelor /master /PhD Degree	

Occupation	
Housewife	
Public sector	
Private sector	
unemployed	
urban farmers	
retired	
specified if others	

Marital status

Married

Single

Widow

Divorce

Household size

Ethnicity: Highlander, Anywaa, Nuer, Komo, Majang, Opo

Interview and Focus Group discussions

Government official (KII1, 2,3,4)

1. From where does the term Gambella come from? What's its meaning?
2. Is the existing form of settlement good for you or bad?
3. Is there any policy in place that made for placing city residents in certain spatial space?
4. What factors do you think contributed to this ethnic base settlement?
5. What problems faced by your office and your family from ethnic base settlement in Gambella city?

Experts & Education (KII6)

6. Is the existing form of settlement good for you or bad?
7. Do you think the Gambella city has settlement plan that can accommodate or disperse the same ethnic concentration?
8. Does the existing planning recognize ethnic concentration in Gambella?
9. What was your role in the last city plan preparation?
10. What are the reasons behind weak plan implementation in Gambella?
11. Do you think the land in Gambella is in the hand of municipality?
12. As a housing department expert do you have policy of placing residents from different background residing in one neighborhood?

13. Why do you allocate officials to localities where their ethnic majority are residing?
14. What challenges facing you in your work place?
15. What factors do you think make residents to clusters in Gambella city?
16. Why in this school we have only one ethnic group in majority?
17. What kind of focus does education institution have on your school?
18. Can you mention some challenges facing your school administration?
19. What can you suggest for Gambella city proper development?

Residents and Kebele (KII5)

1. How do you see the Gambella residential settlement is it good or bad?
2. How do you feel your residential or working area?
3. Why do you live where you people are more in number?
4. Are there any problems you face in this location?
5. What kind of support do you get from government?
6. Do you feel segregated in Gambella?
7. What do you suggest for Gambella to be good city in the future?

Traders and Elder (KII7)

1. From where does the term Gambella come from?
2. Is existed form of settlement good for you or bad?
3. What factors make many people to settle where their ethnic majority are?
4. Do you think the weak development have relationship this kind of settlement?
5. What can you suggest for this city to develop well?

Thank you for your time!!

Policemen & Kebele Administrative)

1. Do you know Gambella city is much settled based on ethnic origin?

2. What factor behind this form of settlement?
3. What kind of influence does ethnic settlement has on your work place?
4. How many crimes you encounter on your work place and residential area?
5. What should you suggest to curb the effect of ethnic enclave settlement in Gambella city?
6. Thank you for your time!!

Annex-III

Survey QUESTIONNAIR

I would like to thank you for your interest to be part of my SURVEY QUESTIONNAIRE on a **PhD** paper titled as: “*The quest for planning models for an Ethnic Enclave Gambella city, Ethiopia*”. Please feel free the questionnaires are for academic purpose only.

Part I

Demographic information of key informants: circle based on what fit your answer

A. Your resident location

- Kebele -01 ☐
- Kebele -02 ☐
- Kebele -03 ☐
- Kebele -04 ☐
- Kebele -05 ☐

B. Gender:

- Male ☐
- Female ☐

C. Age

- 18-22 ☐
- 23-27 ☐
- 28-32 ☐

- 33-37
- 38-42
- 43-47
- 48above

D. Education background:

- No schooling,
- Grades (1-4)
- Grade (5-8)
- Grade (9-10)
- Grade (11-12),
- College diploma
- Bachelor /master /PhD Degree

E. Occupation

- Housewife
- Public sector
- Private sector
- unemployed
- urban farmers
- retired
- specified if others

F. Marital status

- Married
- Single
- Widow

➤ Divorce

G. Household size

H. **Ethnicity**: Highlander, Anywaa, Nuer, Komo, Majang, Opo

Remark: **Highlander** (Oromo, Tigrian, Amhara, Kambata, Gurage, Keffa----etc.)

Part-II

Survey question: As expert or resident in Gambella. Please select the one that fit your answer and write your feeling based on your knowledge as you like.

Part II: Residential area settlement formation

1. What is the term “Gambella” stand for and who create it? -----
2. Why do you prefer to reside in this location?
 - A. My relative and Family are here B. Majority of our peoples are found here C. Access to school and health services D. None
3. Which factor influence you to stay where your ethnicity is much found?
 - A. Access to Religious practice B. security and safety concern C. access to Culture and tradition practices D. political and Institution influence E. access to business center

Part III: economic and basic service in each locality

4. Is there any market center near to your location? A, Yes B. No
5. Is there any financial service near to your locality? A. Yes B. No
6. Many businesses are under their ethnic group protection based on co-ethnic line in Gambella.
 - A. Strongly agreed B. Agreed C. It seems D. Disagreed E. Strongly disagreed
7. What is source of your income?
 - A. Government or NGOs B. Private C. Remittance D. None
8. Majority of business center in Gambella city employ only their co-ethnic group workers.
 - B. Strongly agreed B. Agreed C. It seems D. Disagreed E. Strongly disagreed

9. Unorganized and modernized business practice indigenous settlement area in Gambella contributed mostly weak revenue source and income level.

A. Strongly Agreed B Agreed C It Seem, D. Disagreed, E. Strongly Disagreed

Part IV, Sociospatial economic and basic service in each locality

10. Is there any school near to your locality?

A. Yes B. No

11. Is there any health center near to your resident? A. Yes B. No

12. In Gambella, there is weak inter-ethnic marriage among diverse ethnic group residing.

A. Strongly agreed B. Agree C. Disagreed D. Strongly disagreed

13. Land in Gambella city is owned by individual or ethnic groups

A. Strongly agreed B. Agreed C. seems like D. I don't agreed E. strongly disagreed

14. Land is a source of conflict in Gambella city.

A. Strongly agreed B. Agree C. Disagreed D. Strongly disagreed

15. Ethnic base settlement is the one contributed to weak legalization of personal plot that reduce city revenue.

A. Strongly agreed B. Agree C. Disagreed D. Strongly disagreed

16. The same ethnic concentrations intensified inter- ethnic conflicts in Gambella city.

A. Strongly agreed B. Agree C. Disagreed D. Strongly disagreed

Part VI: Waste management and related Environment condition

17. Do your resident wastes collect by municipality? A. Yes B. No C. some time

18. Irresponsiveness of resident increase waste disposal anywhere in the city.

A. Strongly agreed B. Agreed C. May be D. Don't agreed E. Strongly disagreed

19. The uncontrolled ethnic based settlement increases suburb deforestation in Gambella city.

A. Strongly agreed B. Agreed C. Dis agreed D. Strongly disagreed

20. Weak ownership of resident on the city environment increase pollution on Baro river and JabJabe stream water source.

A. Strongly agreed B. Agreed C. Neutral D. Dis agreed E. Strongly disagreed

21. An ethnic concentration increases the incompatibility of the place resulted in invasion and succession in Gambella city.

A. Strongly agreed B. Agreed C. Dis agreed D. Strongly disagreed

Part V: Housing and infrastructure condition in your locality

22. Is there any recreation center in your locality? A. Yes B. No

23. Do you have access to street light in your locality? A. Yes B. No

24. Do you have connection of electricity power in your house? A. Yes B. No

25. Is your residential area connected to roads network by Municipality? A. Yes B. No

26. Do you have access to potable water connected to your house? A. Yes B. No

27. Is there any sewerage or drainage line connected to your resident? A. Yes B. No

Part V: Ethnic segregations in Gambella city

Annex-2 QUESTIONNAIR

I would like to thank you for your interest to be part of my SURVEY QUESTIONNAIRE filled by all residents found in the 2016 land use inventory. A **PhD** paper titled as: “***The quest for planning models for an Ethnic Enclave Gambella city, Ethiopia***”. Please feel free the questionnaires are for academic purpose only.

Part I

Demographic information of key informants: circle based on what fit your answer

I. Your resident location

➤ Kebele -01

➤ Kebele -02 ☐

➤ Kebele -03 ☐
☐

➤ Kebele -04

➤ Kebele -05

J. Gender:

➤ Male

➤ Female

K. Age

➤ 18-22

➤ 23-27

➤ 28-32

➤ 33-37

➤ 38-42

➤ 43-47

➤ 48above

L. Education background:

➤ No schooling,

➤ Grades (1-4)

➤ Grade (5-8)

➤ Grade (9-10)

➤ Grade (11-12),

➤ College diploma

➤ Bachelor /master /PhD Degree

M. Occupation

➤ Housewife

➤ Public sector

- Private sector
- unemployed
- urban farmers
- retired
- specified if others

N. Marital status

- Married
- Single
- Widow
- Divorce

O. Household size

P. **Ethnicity:** Highlander, Anywaa, Nuer, Komo, Majang, Opo

Remark: **Highlander** (Oromo, Tigrian, Amhara, Kambata, Gurage, Keffa----etc.)

Q. Plot number from Land use Inventory-----

28. score by order based the most contributed factor on Gambella city segregation (1-5)

Characteristics	✓ Rank				
	5	4	3	2	1
Demand to own land					
Absence of Trust among residents					
Proximity to Market					

Outlets					
The Existence of Financial Institutions					
Being Employed					
Being Citizen					
Political Participations					
Influence to the Community					

29. Rank based on their intensity on spatial space segregations.

Characteristics	✓ Rank				
	5	4	3	2	1
Absent of trust					
Concentration of Ganges in neighborhood					
Conflict					
Demand for land					

30. Which one is contributed most to Gambella economic segregation? Rank by order

Characteristics	✓ Rank				
	5	4	3	2	1
Proximity to market center					
Access to financial service					
Income level					
Employment					

31. The political segregation in Gambella is mostly influenced by---

Characteristics	✓ Rank				
	5	4	3	2	1
Citizenship issue					
Weak political participation					
Influence to residential area					

--	--	--	--	--	--

32. Tick or rank based on their influence on Gambella social segregation

Characteristics	✓ Rank				
	5	4	3	2	1
Proximity to school					
Proximity to health facilities					
Weak inter-ethnic marriage					
Number of family size					

Part VII: Planning and policy questions

33. Is your resident located in a planned settlement land use? A. Yes B. No

34. Why Gambella city plan failed to have mixed residential area? -----

35. Please how do you feel the present Gambella city form of settlement -----

Thank you for your time!

Publications

The Genesis of Gambella enclave and factors associated its formation in Ethiopia

<https://webology.org/> Vol 20 No 3 2023

The effect of Anywaa, Nuer and highlander's ethnic enclave concentration in Gambella city spatial space

<https://Twist journal.net/>

The implication of ethnic enclave settlement on socio-spatial, economic, environmental and infrastructure development in Gambella city, Ethiopia.

The Relationship between ethnic enclave settlements with Development spectrum in Gambella city, Ethiopia

DOI: <https://doi.org/>

The effect of spatial, social, political and economic activities on the ethnic segregation in Gambella city, Ethiopia.

IJAMR, ISSN 2643-9670 Vol 6 Issue 9 Sept, 2022.

Scrutinizing the policy and planning model for ethnic enclave Gambella city, Ethiopia.

Doi, 10.21065/2505986.8/