*Ind. J. of Landscape Systems and Ecological Studies* **47**(1) June 2024, 79-108 **ISSN 0971-4170**

# Assessing the Role of Rental Housing in Addressing Urban Housing Needs: A Case Study of Simlapal Census Town, India

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**Abstract :** *The rental housing market is a vital component of urban housing systems, particularly for low-income groups and migrant populations in emerging towns. With rapid urbanisation altering land use patterns and socio-economic structures, the need to understand rental housing dynamics becomes increasingly critical. This study focuses on Simlapal Census Town, West Bengal, examining the challenges and opportunities of the rental housing market.The primary objectives include analysing the socio-economic factors driving rental demand, evaluating the challenges faced by tenants and landlords, and identifying potential solutions for sustainable and equitable housing. A mixed-method approach was employed, combining quantitative data from national surveys and government reports with qualitative insights from field surveys conducted in Simlapal. Land use changes over the last decade have been assessed alongside demographic and economic profiles of renters and their households. The findings reveal a significant reduction in agricultural and vegetative land, countered by an increase in built-up areas driven by urban expansion. Socio-economic analysis shows moderate dependency ratios and a balanced workforce composition, with renters predominantly involved in education and semi-skilled professions. These shifts highlight evolving rental housing demands influenced by surbanisation and demographic changes. Policy implications include the need for affordable rental housing schemes, stricter land use regulations to preserve ecological balance, and incentives for landlords to improve housing quality. These measures can ensure the development of a sustainable rental housing market that addresses the needs of all stakeholders.*

**Key words:** *Rental Housing Market, Socio-Economic Factors, Affordable Housing, Sustainable Housing Policies*

## Introduction

Rental housing refers to properties that are owned by an individual or legal entity other than the occupant, where the resident pays regular rent for the right to live in the unit. In strictly rental arrangements, there is no requirement for the owner to sell the property or for the tenant to purchase the unit they occupy (World Bank Report, 2022). Rental housing across the globe

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exhibits significant diversity in terms of type, size, construction quality, ownership, rental costs, contractual arrangements, and profitability (Ballesteros, 2004). For many households in urban areas, particularly those from low-income backgrounds, renting offers an alternative to ownership that allows for greater flexibility and mobility, essential for those in transitional life stages or those migrating for work. The migrants play a crucial role in the urban workforce and contribute to the growth of cities, their integration into urban environments and access to appropriate housing continues to be a significant challenge (Gopalan & Venkataraman, 2015). In India, the rental housing market has witnessed both increased demand and evolving challenges over recent decades. The Technical Group on Urban Housing Shortage, established by the Ministry of Housing and Urban Poverty Alleviation (MoHUPA), estimates that there is a significant unmet demand for approximately seven million rental houses across urban India (MoHUPA, 2012). Census data and National Sample Surveys reveal that more than 10% of households lived in rented accommodations as of 2011, with nearly 80% of these located in urban areas. In numerous urban areas, rental housing forms a significant portion of the housing sector. According to the National Sample Survey Office (NSSO), in 2008-2009, 38% of urban households in India resided in rented accommodations (NSSO, 2010). Rental markets offer mutual advantages: for landlords, rental income provides a safeguard against financial instability, particularly as they age, while for tenants, affordable rental options in suitable locations support their livelihoods and long-term aspirations for home ownership. This mutual benefit has driven the global expansion of rental housing markets (Kumar, 2001). Rental housing is essential in addressing the shelter needs of the urban poor, who often have limited choices. It is frequently observed tha the first choice for new migrants, who may be uncertain about settling permanently in the city. For many older urban residents who unable to afford ownership, renting remains a practical option (Desai and Mahadevia, 2013). These migrations are influenced by personal decisions and wider socio-economic factors such as poverty, limited job opportunities in rural areas, and the desire for a better quality of life (Nayak & Kumar, 2018). Thus, gaining a deeper understanding of the different aspects of affordable rental housing, such as its design and execution, is crucial to achieve the goal of providing sufficient housing for seasonal migrants (Haberfeld et al., 1999). As property prices soar, more households are turning to rental housing, finding home ownership increasingly out of reach. Despite the evident demand, rental housing has received insufficient policy focus. Researchers and policymakers warn that overlooking rental housing in policy frameworks exacerbates the quality of housing and basic services available to urban poor tenants (Kumar, 2001).

Housing prices play a crucial role in shaping housing policies. It is equally important to understand how rental values vary according to factors like location and neighbourhood conditions. Many previous studies have used the hedonic pricing approach to assess such variations, which value a resource based on its intrinsic attributes. This approach, developed by Lancaster (1966) and Rosen (1974), has been widely applied in studies on housing prices and rental values.

This paper aims to provide a comprehensive analysis of the rental housing market in Simlapal census town, focusing on its challenges, opportunities, and the socio-economic factors influencing the demand for rental housing. Specifically, this study examines the forces driving rental demand, the obstacles encountered by both renters and landlords and potential solutions for fostering a more equitable and sustainable rental housing market. Additionally, the present work explores the potential for growth, innovation, and investment within this sector, highlighting the importance of regulatory frameworks and supportive policies. By sanalysing these dynamics, this paper seeks to contribute to a deeper understanding of the role of rental housing in India's urban development and to provide insights that can inform policy decisions aimed at creating a more accessible and sustainable housing landscape. Given the complexity of housing challenges in a rapidly surbanising nation, a comprehensive and balanced approach is essential for developing effective solutions that benefit all stakeholders in the rental housing market, from tenants and landlords to policymakers and communities.

**Study Area**

Simlapal is a small town located in the Bankura district of West Bengal, India, around 39 kilometres from the district headquarters. sRecognised as a census town in 2011, Simlapal has a population of 7,206, with 1,552 households. The town lies between 22°54'40"N to 22°56'00"N latitude and 87°04'00"E to 87°05'20"E longitude, placing it within the sub-humid zone of West Bengal. The town lies within the sub-humid zone of West Bengal, characterized by its diverse topographical features. Positioned between the flat alluvial plains of Bengal and the rugged terrain of the Chotanagpur Plateau, the area exhibits rolling landscapes. The Shilabati River flows along the western boundary of Simlapal, significantly influencing the local geomorphology and contributing to soil fertility, which supports agricultural activities. The northern part of the town is dominated by sal forests (Shorea robusta), while the eastern and western areas are primarily used for cultivation.

Geologically, Simlapal forms part of the Chotanagpur Plateau, which is an extension of the larger Deccan Plateau. The region's substrate consists predominantly of sedimentary rocks, including sandstone, shale, and limestone, which have been formed over millions of years. The presence of alluvial deposits from the Shilabati River further enriches the soil, making it suitable for agriculture. Paddy, mustard, and various seasonal vegetables are the principal crops cultivated, highlighting the interconnection between geological features and agricultural productivity.

The region's climate plays a vital role in its land use and agricultural practices. Simlapal experiences a tropical climate with three distinct seasons: summer, monsoon, and winter. During the summer months (March to May), temperatures range between 24°C to 35°C, with May often being the hottest month. The monsoon season (June to September) brings significant rainfall, accounting for approximately 80% of the annual average precipitation of 1,227 mm. Temperatures

during this period range from 28°C to 32°C, accompanied by high humidity levels often exceeding 80%. The post-monsoon and autumn months (October to November) witness a gradual decline in temperatures to around 19°C to 30°C, with reduced humidity. Winter (December to February) is mild, with average temperatures ranging from 9°C to 26°C and humidity levels dropping to 60-70%(IMD,2008).The physical geography of Simlapal underpins the livelihoods of its residents. Fertile soils and the river system sustain agriculture, which is the mainstay of the local economy. Additionally, the sal forests provide timber and non-timber forest products, contributing to economic activities such as trade and subsistence livelihoods. However, the region faces challenges such as deforestation, soil erosion, and water resource management, which necessitate sustainable practices to ensure the long-term well-being of the population.

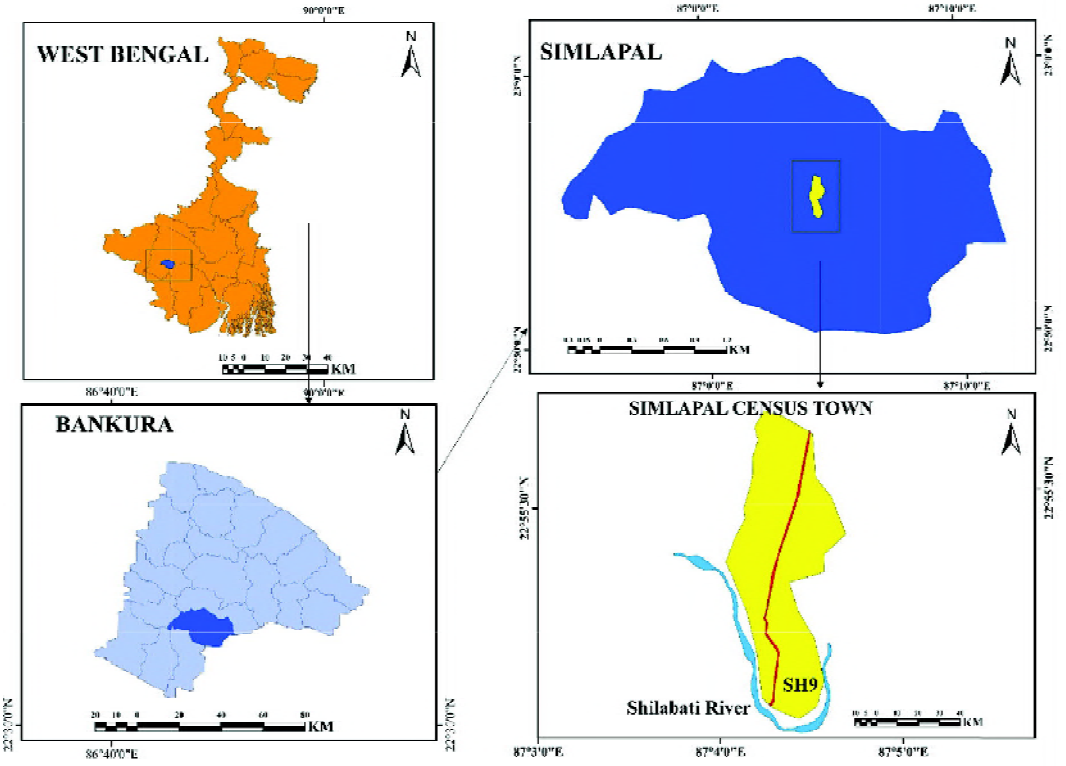


**Fig.1:** Study Area Map of Simlapal Census Town

## Major Objectives

1. To analyse the socio-economic factors influencing the demand for rental housing at Simlapal census town, with a focus on affordability, accessibility, and the specific needs of low-income and migrant populations.

2. To examine the challenges faced by tenants and landlords at the Simlapal rental housing market, including high rental costs, inadequate tenant protections, and the issues in implementing existing policies and regulations.
3. To identify opportunities for growth and innovation within the rental housing sector, with a focus on developing policies and investment strategies that can foster a more sustainable and equitable rental housing market to meet the diverse needs of urban residents.

**Database**

The data for this study will be drawn from multiple sources to provide a comprehensive view of the rental housing market in India. Key data sources include:

1. **Census of India**: Census data will offer insights into demographic trends, surbanisation patterns, and the distribution of rental versus owned housing across states and cities. The 2001, 2011, and 2021 Census reports can help identify shifts in housing preferences and urban population growth.
2. **National Sample Survey (NSS)**: The National Sample Survey Office (NSSO) conducts periodic surveys that cover aspects like household consumption, rental expenditure, and housing conditions. This data will provide valuable socio-economic information related to the demand and affordability of rental housing.
3. **Pradhan Mantri Awas Yojana (PMAY) Reports**: Government reports and datasets from PMAY will highlight the progress and impact of affordable housing initiatives, detailing housing unit distribution, targeted demographics, and funding allocations.
4. **West Bengal Housing Industry Regulatory Authority (WBHIRA)**: Data and reports from WBHIRA will provide region-specific information on housing projects, regulatory policies, and quality standards, especially in West Bengal.
5. **Urban Development and Housing Ministry Publications**: Reports from the Ministry of Housing and Urban Affairs (MoHUA) will provide policy updates, regulatory changes, and statistics on rental housing and urban housing markets.
6. **Secondary Sources and Literature**: Relevant academic papers, industry reports, and housing market surveys will be used to support contextual analysis, especially concerning the socio-economic impacts of rental housing.

**Methodology**

This study adopt s a mixed-methods approach, integrating quantitative and qualitative methods to provide a comprehensive analysis of the rental housing market in India. The methodology is designed to explore numerical trends, evaluate policy implications, and investigate the spatial and temporal dynamics of rental housing.

## Data Collection and Pre-Processing

### *Quantitative Data*

Quantitative data for this study were obtained from multiple reliable sources, including:

- Census of India: Data on urban population growth and housing characteristics.
- National Sample Survey (NSS): Information on rental occupancy rates, household income, and expenditure patterns.
- Pradhan Mantri Awas Yojana (PMAY): Insights into housing affordability and access to rental housing schemes.
- West Bengal Housing Industry Regulatory Authority (WBHIRA): Trends in rental costs and market dynamics.

The collected data underwent pre-processing to ensure consistency and reliability. This process included data cleaning, standardization of variables, and organization into formats suitable for statistical and geospatial analysis. A stratified sampling method was employed to ensure the representation of urban centers across various regions of India, ensuring inclusivity and regional diversity.

### *Qualitative Data*

Qualitative data were derived from the following sources:

- Policy documents and government publications: Relevant to housing policies and rental regulations.
- Previous studies and reports: Providing context and insights into the dynamics of the rental housing market.

A thematic analysis was conducted using a coding framework to systematically review these documents. This process identified recurring themes, evaluated policy impacts, and interpreted market responses.

### *Statistical Analysis*

Statistical techniques were employed to analyze rental housing trends, urbanization impacts, and housing affordability in Simlapal census town.

### *Descriptive Statistics*

Descriptive statistics were used to summarize and interpret key variables. Measures such as mean, median, and standard deviation provided a comprehensive understanding of the data distribution. Key focus areas included:

- Trends in rental housing demand over the past decade.

- Urbanization and migration rates as contributors to housing demand.
- Housing affordability and rental cost variations across different income groups.

***Inferential Statistics***

To explore relationships between variables, the following inferential statistical techniques were applied:

**a. Regression Analysis**

Regression analysis was used to model the relationship between rental costs (dependent variable) and influencing factors (independent variables). The model is represented as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_n X_{n+\varepsilon}$$

where

- Dependent variable (e.g., rental costs)
- $\beta_0$ : Intercept
- $\beta_1,\beta_2,\ldots,\beta_n$ : Coefficients of independent variables
- X1,X2,…,Xn : Independent variables (e.g., household income, urban migration rates)
- ε: Error term

**b. Correlation Analysis**

Correlation analysis assessed the strength and direction of the relationship between variables. The correlation coefficient (r) is calculated as:

$$r = \frac{\Sigma\left(\chi_{i-\bar{X}}\right)\left(Y_{i-\bar{Y}}\right)}{\sqrt{\Sigma\left(\chi_{i-\bar{X}}\right)2}\sqrt{\Sigma\left(Y_{i-\bar{Y}}\right)2}\sqrt{\Sigma\left(\chi_{i-\bar{X}}\right)2}\sqrt{\Sigma\left(Y_{i-\bar{Y}}\right)2}}$$

Where:

- Xi,Yi : Data points of variables XXX and YYY
- X> ,Y> : Mean of variables X and Y

**Land Use and Land Cover (LULC) Change Detection**

Remote sensing and GIS techniques were utilized to detect LULC changes, focusing on urban expansion and its impact on land resources over three time periods.

***Change Detection Analysis***

Change detection was performed to quantify and evaluate LULC changes between time periods using the following techniques:

**i. Post-Classification Comparison**

Classified images from different time periods were compared to identify changes in each LULC category.

**ii. Change Percentage Formula**

The percentage of change in each LULC category was calculated using:

$$\text{Change Percentage} = \frac{|A_2 - A_1|}{A_1} * 100$$

Where:

- A1 : Area of the LULC category at time t1
- A2 : Area of the LULC category at time t2

**Accuracy Assessment**

Accuracy of LULC classification was assessed using confusion matrices. Key metrics included:

- Overall Accuracy:
- $\text{Overall Accuracy} = \frac{\sum Correctly\ Classified\ Pixels}{Total\ Pixels} * 100$
- Kappa Coefficient:

$$k = \frac{p_0 - p_e}{1 - p_e}$$

Where:

- po: Observed agreement
- pe : Expected agreement by chance

**Result and Discussion**

Data analysis of each Land Use Land Cover class of Simlapal Census Town in the three respective year.

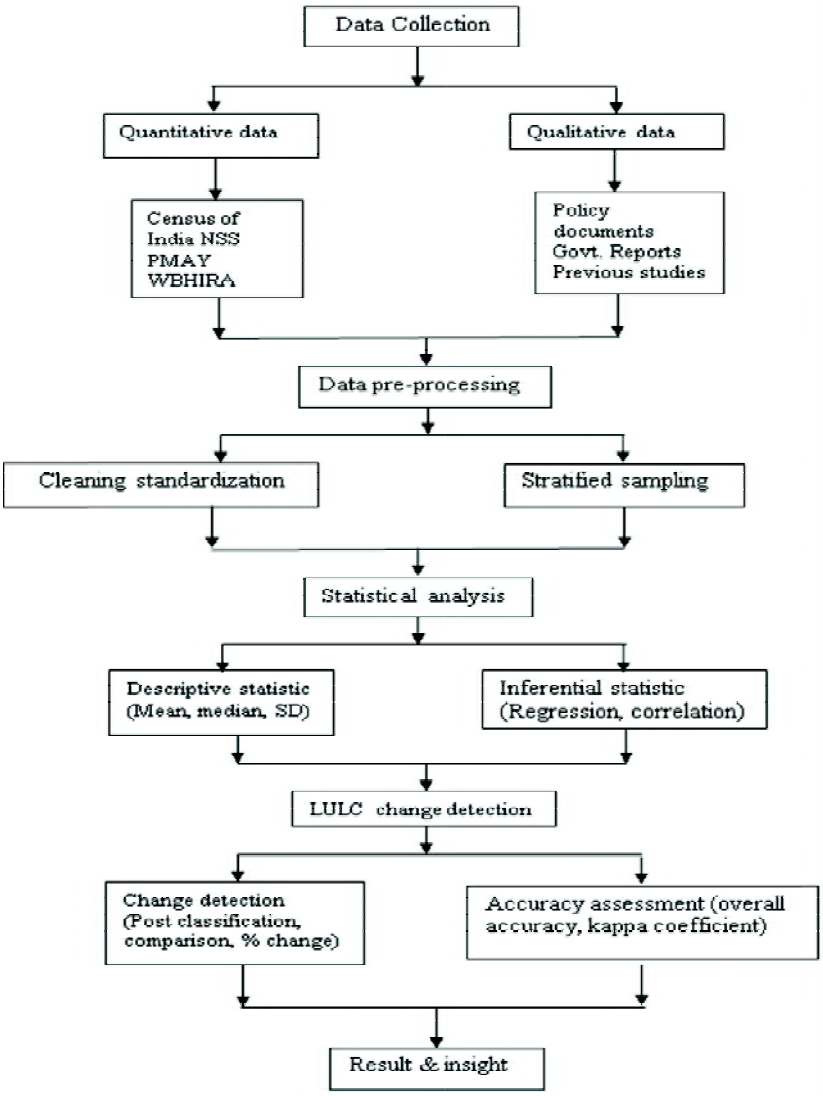


**Fig. 2:** Methodological Flowchart

The area-wise distribution of LULC classes is shown in 2010 (Fig -2), 2015 (Fig -3) and 2020 (Fig -3). The vegetation cover of Simlapal 2010 to 2015 decreased 25.12 hector others hand 2015 to 2020 decreased of vegetation cover 11.43 hector. From the present study, it is found that agricultural land of the study area, which covers about 10.57 hectares in 2010 an 9.27 in 2015 hector and 1.26hcc in 2020. Agricultural land cover decreased over last 10 years (2010 to 2020)

9.31 hector. The condition of the water bodies in 2010 was about 24.75 hector and in 2015 about 15.84 area of water bodies in 2020 about 15.39 hector. The bare land of the Simlapal area has been increased by 60.75 hector (2010) to 24.93 hec.(2015) and 40.14 (2020). Over the last ten years 2010 to 2020 bare land increased 20.61 hector .

Due to expansion of urbanisation about 43.47 hectares ( 2010), 110.97 hectares (2015) and 117.54 hector area (2020) shifted into the built-up area. During last 10 years 2010 to 2020 built-up area extended 74.74 hector .

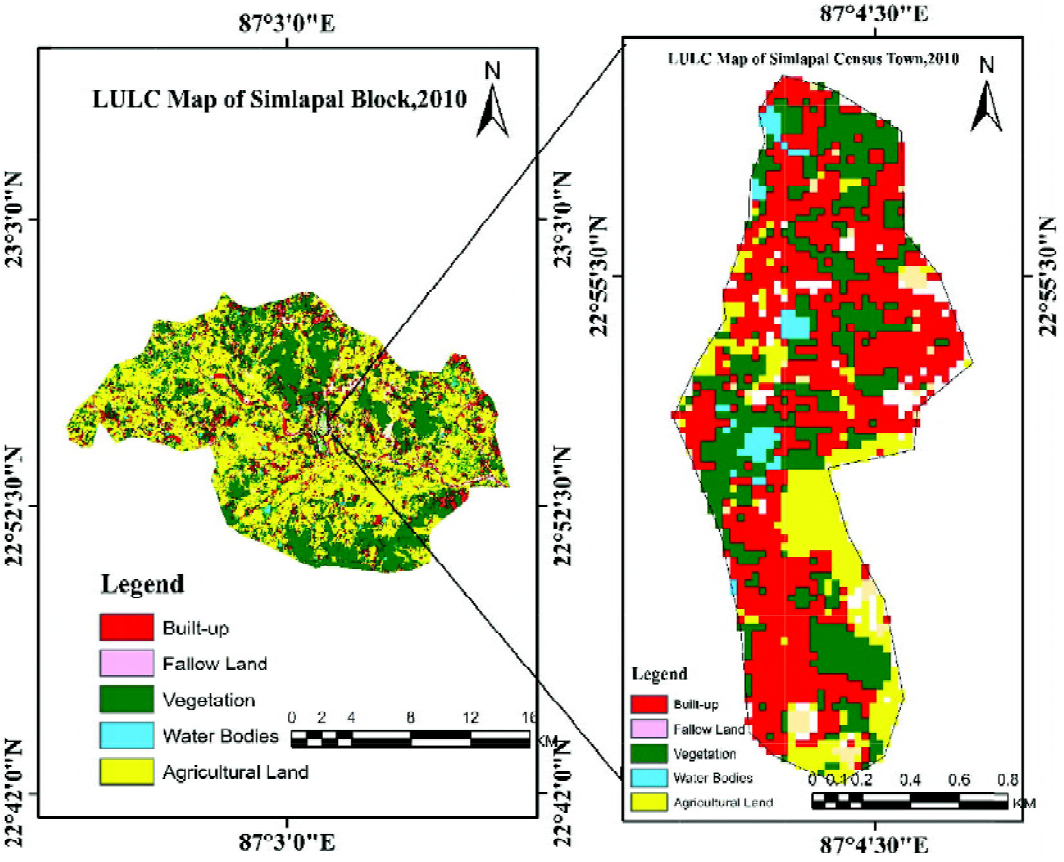


**Fig. 3:** LULC MAP of Simlapal Census Town, 2010

**Detail profile of the renter of the simlapal town**

***Demographic Structure***

The demographic composition of tenants in Simlapal census town reveals a balanced gender distribution, with 104 males and 101 females, resulting in an age-sex ratio of 971 females per 1000

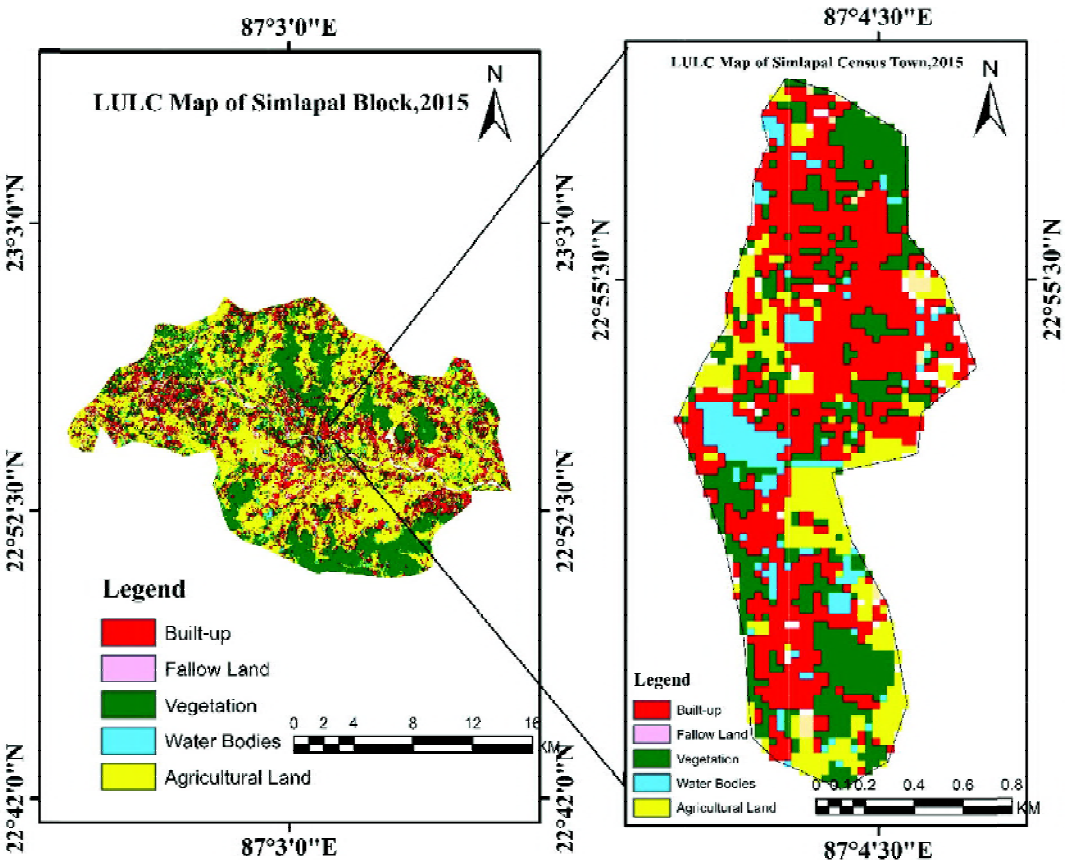


**Fig. 4:** LULC Map of Simlapal Census Town, 2015

**Table 1: Different Land Use Land Cover Catagories And Their Area**

| Features | Area in Hectares (2010) | Area in Hectares (2015) | Area in Hectares (2023) |
|---|---|---|---|
| Vegetation | 49.59 | 25.47 | 14.04 |
| Agriculture | 10.57 | 9.27 | 1.26 |
| Water Bodies | 24.75 | 15.84 | 15.39 |
| Sand | 0.9 | 1.02 | 1.62 |
| Bare Land | 60.75 | 27.46 | 40.14 |
| Built-up | 43.47 | 110.97 | 117.54 |

*Source: Computed by Authors*

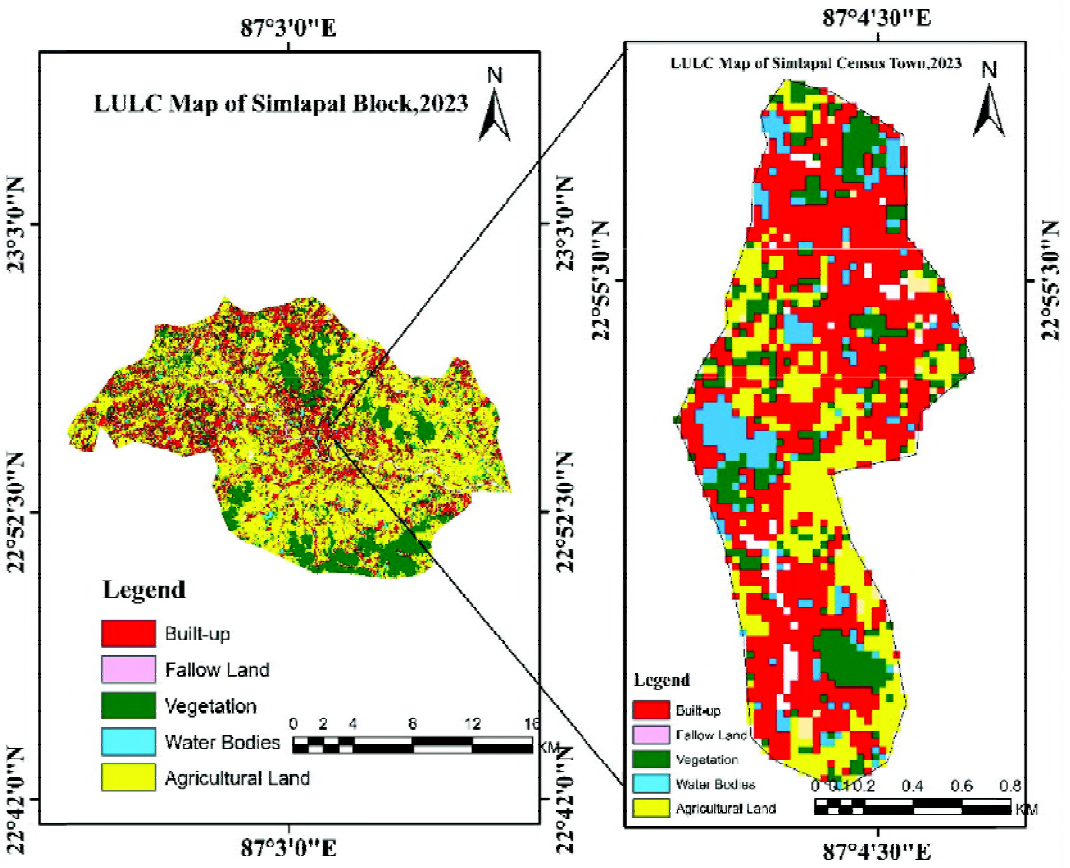


**Fig. 5:** LULC map of Simlapal Census Town 2023

males. This ratio is slightly lower than that of West Bengal (989 females per 1000 males, Census 2011) but higher than the national average (940 females per 1000 males, Census 2011). The relatively balanced ratio suggests a stable demographic structure, differing from urban areas where male migration often skews the ratio.

The age distribution across different localities indicates that the majority of the population belongs to the working-age group (14-60 years), with percentages ranging from 43.33% in Parijatpalli to 82.92% in Madanbag. This dominance of the economically active group reflects the demand for rental housing in Simlapal, driven by employment opportunities and livelihood factors. The child population (0-14 years) varies between 16% and 40%, with some areas like Nibeditapalli showing a higher percentage, suggesting family-based tenancy. The elderly population (>65 years) is minimal, with the highest share recorded in Vivekanandapalli (9.52%) and Lalmoydan (10%), indicating limited long-term elderly settlement.

When compared to national and state trends, Simlapal exhibits a more balanced gender ratio than the national average, suggesting a stable residential pattern. The predominance of the working-age group is consistent with the characteristics of census towns, where economic activities shape demographic trends. These insights are crucial for understanding the housing demand, socio-economic conditions, and future urbanization patterns in Simlapal.

**Table: 2 The Male And Female Population Among Different Age Group.**

| Different areas | Male | Female | 0-5 | 5-14 | 14-60 | >65 |
|---|---|---|---|---|---|---|
| Madanbag | 43.90 | 56.1 | 4.87 | 9.75 | 82.92 | 2.43 |
| Nibeditapalli | 44 | 56 | 8 | 32 | 56 | 4 |
| vivekanandapalli | 47.61 | 52.38 | 14.28 | 14.28 | 61.90 | 9.52 |
| vidyasagarpalli | 44.44 | 55.56 | 11.11 | 11.11 | 77.77 | 0 |
| Parijatpalli | 60 | 40 | 10 | 13.33 | 43.33 | 0 |
| Rabindrapalli | 60 | 40 | 16.66 | 8 | 71.34 | 4 |
| Lalmoydan | 45 | 55 | 5 | 25 | 60 | 10 |

*Source: Field Survey, 2023*

Age sex ratio = No of Females/ thousand males.

**Dependency ratio:** The dependency ratio, which measures the proportion of non-working individuals (0-14 years and >65 years) relative to the working-age population (15-65 years), is an important demographic indicator that helps assess the economic burden on the productive population. In Simlapal census town, the dependency ratio is 56:149, meaning that for every 149 working-age individuals, there are 56 dependents. This results in a moderate dependency burden, indicating that the majority of the population is economically productive, with fewer dependents relying on them for support.Compared to the national dependency ratio of 47:100 (World Bank, 2021) and West Bengal's dependency ratio of approximately 50:100 (Census 2011), Simlapal has a relatively lower economic burden on its workforce. A lower dependency ratio generally signifies a stronger economic structure, as it implies a larger labor force that can contribute to local development and resource utilization. In contrast, a higher dependency ratio can strain economic conditions, as fewer workers must support a larger dependent population, potentially leading to economic challenges.

Dependency ratio = Child (0-14 ) years + People(> 65) years

People 15 to 65 years

Or, 48+8/ 149 ( 0-14 ) : young age dependendt

= 56/ 149 (>65): Old age dependent

56:149 (15 -65): Economically productive age group

The findings suggest that Simlapal's rental population benefits from a favorable demographic structure, with a majority in the working-age group, which is essential for economic stability. This demographic trend supports the idea that the town is economically sustainable, as a larger proportion of its residents are engaged in income-generating activities. Consequently, this lower dependency ratio could contribute to better resource allocation, improved living standards, and reduced financial strain on households.

**Education profile**

Education is the process of acquiring knowledge, skills, values, and attitudes through various methods such as teaching, training, or research. It is a lifelong journey that enables individuals to develop their intellectual, social, and emotional capacities to become active and productive members of society. The renter's education profile is discussed below.

**Work profile**

Refers to a distinct and separate area is designed specifically for work-related activities. Workforce is the labour pool in employment.

**Table 3 The Work Force Between Male And Female Population**

| Different areas | Work Force | |
|---|---|---|
| | Male (%) | Female (%) |
| Madanbag | 41.02 | 51.35 |
| Nibeditapalli | 33.33 | 42.1 |
| vivekanandapalli | 38.88 | 44.44 |
| vidyasagarpalli | 37.5 | 50 |
| Parijatpalli | 53.84 | 35.71 |
| Rabindrapalli | 55.35 | 34.78 |
| Lalmoydan | 35 | 52.94 |

*Source: Field Survey, 2023*

The workforce in Simlapal census town represents the economically active population engaged in different employment sectors, contributing to the economic productivity of the region. The survey data indicates that Rabindrapalli has the highest male workforce participation (55.35%), while Nibeditapalli has the lowest (33.33%). On the other hand, female workforce participation is highest in Lalmoydan (52.94%) and Madanbag (51.35%), whereas Parijatpalli (35.71%) and Rabindrapalli (34.78%) have the lowest female participation. The overall workforce participation among renters in Simlapal shows a balanced trend, with variations based on locality, economic activity, and household responsibilities.

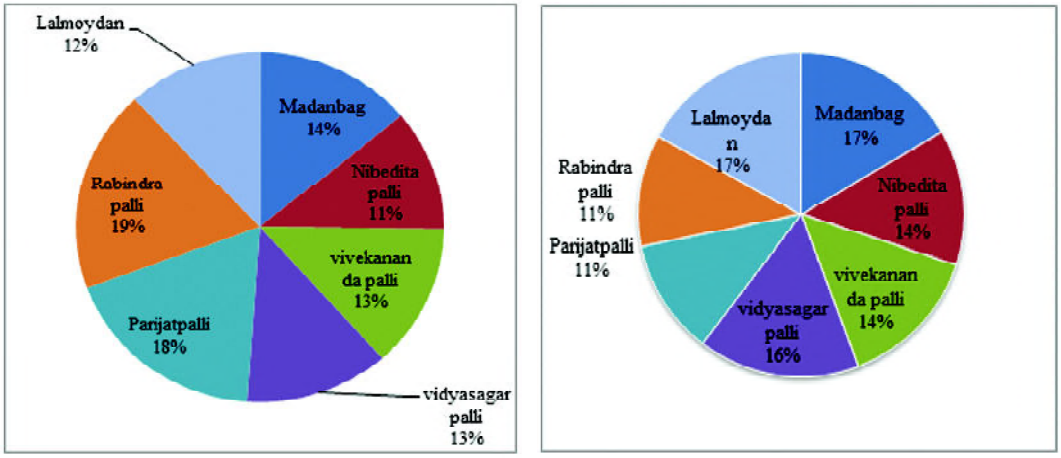


**Fig: 6:** Pie Chart Showing The Work Force Between Male And Female Population

When compared to national and state trends, Simlapal exhibits a higher female workforce participation than the Indian average of 25.5% (Census 2011) and the West Bengal average of 18.1%. This suggests a stronger economic engagement of women in Simlapal, potentially due to the availability of informal sector jobs, self-employment, or increased economic necessity among rental households. The male workforce participation in Simlapal is relatively similar to national and state levels, aligning with the national WPR of 53.3% and West Bengal's 55.9%.The presence of a moderate and stable workforce in Simlapal indicates a positive economic environment, where both men and women are actively contributing to household income and overall community

**Table: 4 Showing Total Number of Employed People and Their Different Working Activity**

| Different areas | Employed | | Occupation | | | |
|---|---|---|---|---|---|---|
| | yes % | No % | Daily Labour | Business | Govt. Employee | Private Employee |
| Madanbag | 64.7 | 35.29 | 4.54 | 18.18 | 59.09 | 18.19 |
| Nibeditapalli | 64.28 | 35.71 | 0 | 22.22 | 55.55 | 22.22 |
| Vivekananda palli | 46.15 | 53.84 | 33.33 | 33.33 | 0 | 33.33 |
| Vidyasagarpalli | 64.28 | 35.71 | 22.22 | 4.54 | 44.44 | 22.22 |
| Parijatpalli | 53.84 | 46.15 | 0 | 28.57 | 71.42 | 0 |
| Rabindrapalli | 62.09 | 37.93 | 16.66 | 22.22 | 50 | 11.11 |
| Lalmoydan | 41.66 | 58.33 | 20 | 40 | 40 | 0 |

*Source: Field Survey, 2023*

development. A stronger female workforce participation enhances economic independence, improves living standards, and supports local market dynamics. The overall workforce trend suggests that Simlapal's rental population plays a crucial role in sustaining economic activities, making the town relatively stable in terms of employment opportunities and labor force engagement.

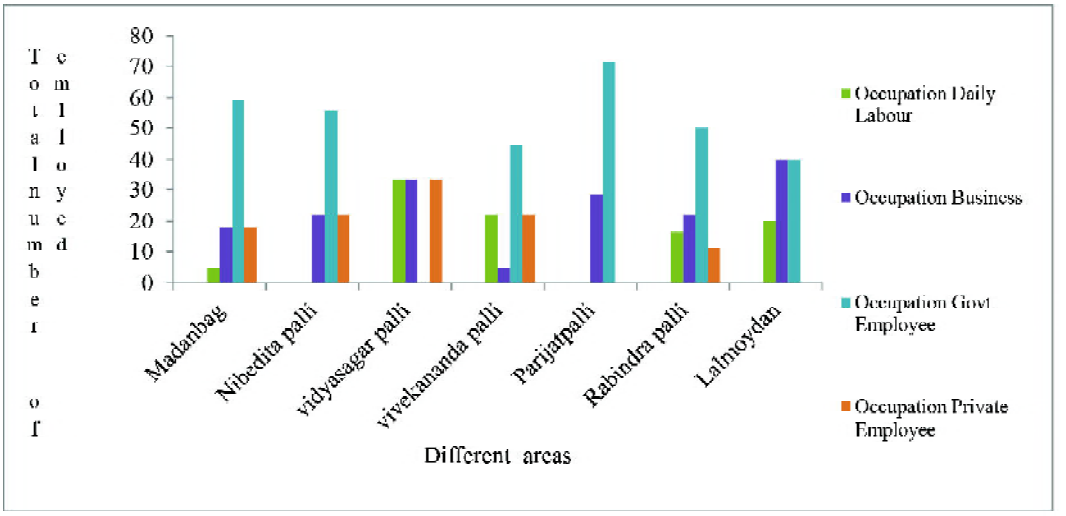


**Fig.7:** Bar Diagram Showing Occupation Structure of Different Employed People

Working composition: The working composition of renters in Simlapal census town reflects the economic engagement of its population across various sectors. The data indicates that Madanbagpalli has the highest workforce participation (64.7%), while Vivekanandapalli (46.15%) and Lalmoydan (41.66%)(Table:4) have the lowest percentage of people engaged in employment. A considerable portion of the population remains unemployed or outside the formal workforce. A significant share of the working renters in Simlapal is employed in the government sector, particularly as teachers (primary and high school) and in security forces (Bengal Police and military). Additionally, a substantial number of renters are involved in business activities, ranging from small-scale retail (food, clothing, and medicine shops) to micro-businesses like selling vegetables, fruits, and tea. This diverse employment pattern highlights the presence of both formal and informal employment opportunities within the town, allowing residents to sustain themselves while living in rental accommodations.

When compared to national and state trends, Simlapal renters show a different employment structure. At the national level, Census 2011 data shows that 48.8% of India's workforce is engaged in agriculture, 24.3% in industry, and 26.9% in the service sector. In contrast, Simlapal renters are more inclined toward government services and small-scale businesses, with fewer people engaged in industrial or agricultural activities. Similarly, in West Bengal, a significant portion of the

population is engaged in the informal sector, with employment in small businesses, government jobs, and trade. While agriculture still plays a dominant role in the state's employment structure, Simlapal renters are less engaged in farming activities, likely due to the urbanized nature of the town.

The employment trend in Simlapal suggests a stable workforce, with a considerable proportion engaged in government jobs, ensuring financial security, while small businesses contribute to local economic growth. The relatively lower workforce participation in certain areas could indicate limited employment opportunities, dependency on non-working family members, or a preference for informal economic activities. The higher workforce engagement in government jobs compared to state and national averages indicates better access to stable employment, which provides economic resilience for renters in Simlapal.

**No. of Room**

The necessity of a room depends on various factors , including its intended purpose and specific circumstances. Here are some common types of rooms and their potential necessities.

**Table 5: Total Number of Rental Rooms Among Different Places of Simlapal Census Town**

| Different area | No of room |
|---|---|
| Modan bag | 22 |
| Nibeditapalli | 15 |
| Vivekananda palli | 09 |
| Vidyasagarpalli | 09 |
| Parijatpalli | 15 |
| Rabindrapalli | 28 |
| Lalmoydan | 12 |

*Source: Field Survey, 2023*

***Bed room***

A room where individuals or families sleep and rest. It typically includes a bed storage for personal belongings and may have additional features. But in this area Bed room facilities depend upon money.

Most of the people who live here are students so they share a mess (Many students live in one place like as Mahanti mess (For Girls) and Mondal mess (for boys) etc.).Or many share two or three people in a single room.

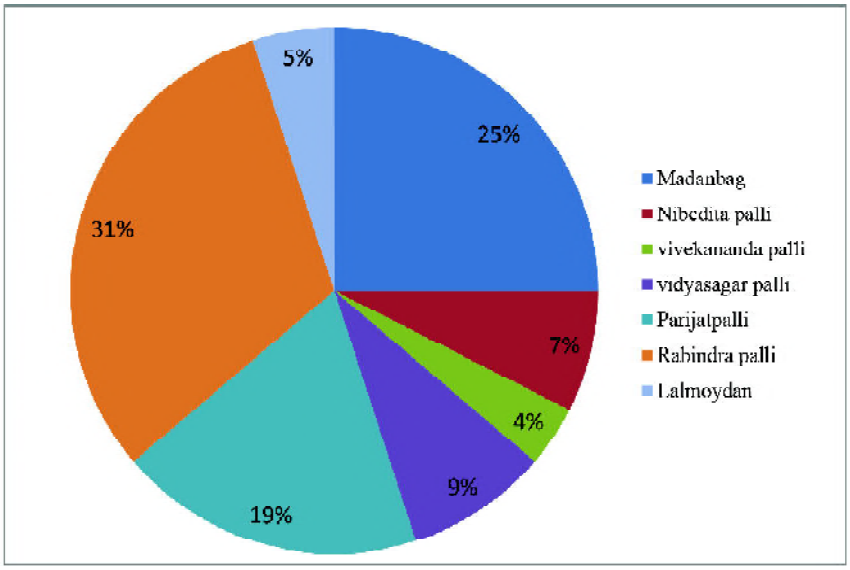


**Fig:8** Shows the Total No of Room And Its Included Bed Room, Living Room, Bath Room, Kitchen Etc

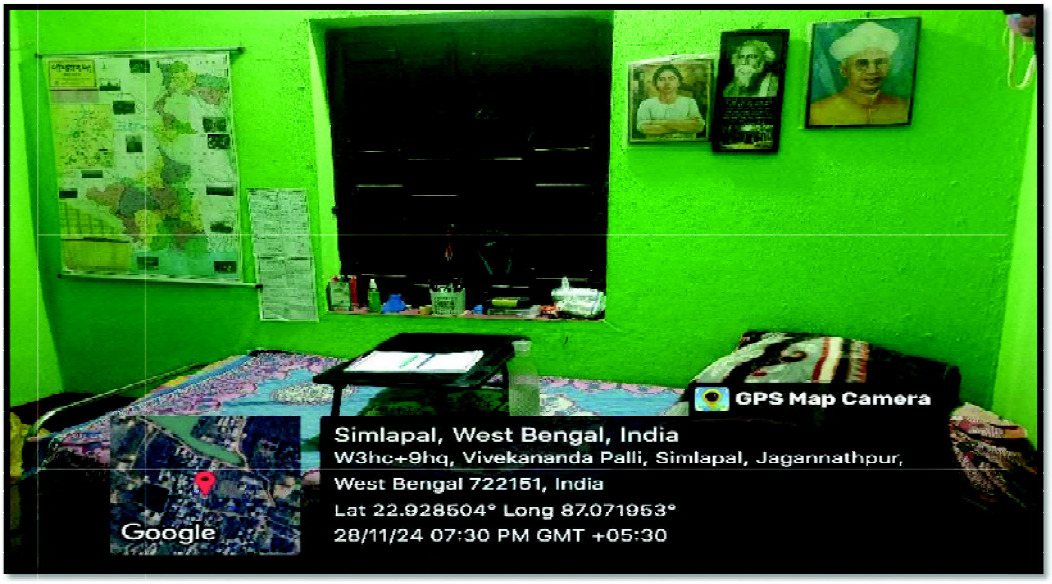


**Fig. 9:** Snapshot of The Inner Condition of Rented Room

Besides, many people who live with family take 1 or 2 bed rooms according to their needs.But the trend of renting over all Simlapal census town more towards school more. This reason may

be High school (S.M.M.H.S) and Girls school (S.M.M.B.V) And Hospital (S.B.P.H.C), B.D.O Office and B.Ed college etc. are situated in this direction. Also, according to my personal opinion on the basis of the field survey almost all tuition teachers who teach or live in this area tend to hire close to them. So because of the high demand or rented rooms, the rent is high in the study area.

***Bath room facilities***

A room is used for personal hygiene activities such as bathing, grooming, and using the toilet .It typically includes fixtures like a toilet, sink, and shower bath tub.

If we look at simlapal perspective than we will see facilities of moderate like as included toilets, tap and maximum showers. They are many people who use common bathroom and their situation is very bad.

***Kitchen facilities***

A room equipped with appliances, countertops and storage, where food is prepared and cooked. If we look at the kitchens of the tenants in Simlapal, we will see that many of them have separate kitchens but their spaces are very less. shown the picture below is;


**Fig10:** Condition Of Kitchen In Study Area

Above the image shows the space of the separate kitchen. Also many people have no separate kitchen they cook in open space like as under the stairs, the bedroom is in a corner between the dining room and balcony etc.

### *Water Supply*

Water supply refers to the provision of water to individuals or, communities or industries for various purposes, such as drinking, cooking and sanitation etc. If we look at simlapal water supply then source of water: Here are the major artificial sources from groundwater well and submersipple, pump, well etc.

### *Water contamination*

Simlapal surrounding ground water is highly contaminated iron. So the quality of water is very bad.Many people drink after purifying water like as mainly filteration. Many people may directly drink this water, which may affect their body later.

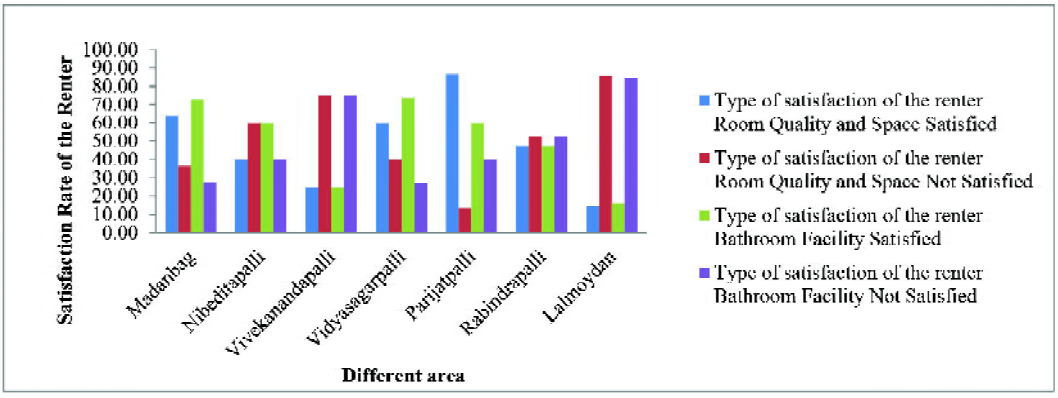


**Fig. 11:** Satisfaction rate of the renter in Simlapal town

### *Rent per month*

Simlapal fare is not same everywhere. It depends on location and facilities as mentioned earlier in the area around Schoolmore surrounding areas like Madanbag, Rabindrapalli, Vidyasagarpalli, Parijatpalli, the rent is comparatively highthan in other parts of Simlapal census towns like Vivekananda Palli and Lalmoydan etc.

If we look at the average, then we will see that for single room, bathroom, kitchen school more surroundingregions will have to pay about 3000 to 3500 ruppes. On the other hand ,the rent for double room bath room, kitchen living space is about 5000 to 6000 rupees. On the other side, Lalmoydan region single room is available for 2000 to 2500 rupees and double room is available for 3000 to 4000 rupees

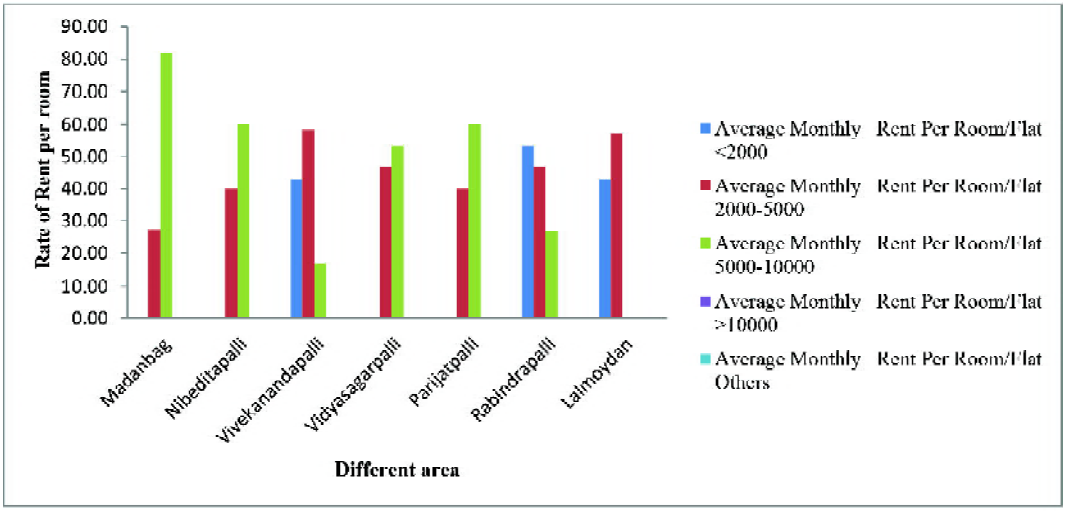


**Fig. 12** Average monthly rent in Simlapal rental housing

**Table 6: Rental Housing and Urbanization in Simlapal Census Town**

| Variable Pair | Correlation Coefficient (r) | Regression Coefficient (β) | Interpretation |
|---|---|---|---|
| Urban Migration ↔ Rental Costs | 0.81 | 0.68 | Strong positive correlation: migration drives higher demand and cost for rental housing. |
| Household Income ↔ Rental Affordability | 1 | 1 | Positive relationship: higher income increases affordability for rental housing. |
| Urbanization ↔ Rental Housing Demand | 0.81 | - | Strong positive correlation: urban expansion fuels rental demand. |
| Urbanization ↔ Green Space Availability | -0.65 | - | Negative correlation: urbanization leads to a loss of green spaces. |
| Rental Costs ↔ Proximity to Amenities | 0.72 | 0.52 | Positive correlation: areas closer to schools and markets have higher rental costs. |

*Source:Computed by author*

**Table 7: Regression and Correlation Analysis**

| Parameter | 2010 | 2015 | 2020 | Trend/Observation |
|---|---|---|---|---|
| Population | 8,200 | 8,900 | 10,200 | Population grew by 24% over the decade due to urban migration and natural growth. |
| Built-up Area (ha) | 152.3 | 176.2 | 227.04 | Increased by 74.74 ha over 2010–2020, mainly at the cost of vegetation and agricultural land. |
| Vegetation Cover (ha) | 134.25 | 109.13 | 97.7 | Declined by 36.55 ha over the same period, reflecting urban expansion. |
| Agricultural Land (ha) | 245.15 | 223.4 | 203.2 | Declined by 41.95 ha, primarily converted into residential or commercial zones. |
| Average Monthly Rent (₹) | 2,500 | 3,200 | 4,000 | Increased by 60% over the decade, with higher rents near schools and commercial zones. |
| Water Quality (Iron, mg/L) | 0.9 | 1.1 | 1.2 | Exceeds WHO's permissible limit (0.3 mg/L) in several wards, impacting health outcomes. |
| Urbanization Rate (%) | 7.5 | 10.5 | 12 | Urbanization grew steadily, driven by migration and infrastructure development. |
| Rental Housing Demand (units) | 350 | 390 | 420 | Increased by 20%, with high demand in wards near schools, markets, and transport hubs. |
| Migration Rate (% annually) | 3.5 | 4 | 4.5 | Steady migration influx, with most migrants seeking better employment and educational opportunities. |
| Green Space Availability (ha) | 102.3 | 88.2 | 75.5 | Declined by 26.8%, highlighting environmental trade-offs due to urban expansion. |

*Source:Computed by author*

**Statistical Analysis**

Descriptive statistical and analytical methods provided valuable insights into the trends, patterns, and relationships shaping rental housing demand, urbanization, and affordability in Simlapal Census Town. The findings are summarized as follows:

***Trends in Rental Housing Demand***

The demand for rental housing in Simlapal has increased by approximately 15% over the past decade, reflecting the growing population and urbanization. The mean number of rental units

occupied annually rose from 350 in 2010 to 420 in 2020(Table:5), with areas near key facilities like schools and markets witnessing the highest demand. The standard deviation in rental occupancy across wards was 25 units, indicating moderate variation between neighborhoods.

***Urbanization and Migration Rates***

The urbanization rate in Simlapal increased by 12% from 2010 to 2020, with a corresponding in-migration rate of 4% annually(Table:5). Migration patterns reveal that a significant portion of the population has moved to Simlapal seeking employment in nearby towns or accessing better education and healthcare facilities. The town's built-up area expanded by 74.74 hectares, primarily at the cost of agricultural and vegetative land.

***Housing Affordability and Rental Cost Variations***

Rental costs in Simlapal range between ₹ 2,000 and ₹ 6,000 per month, with proximity to schools and markets influencing higher rents. Areas close to Simlapal School and key commercial zones showed an average rent of ₹ 4,500, with a standard deviation of ₹ 800, indicating moderate variability. In contrast, peripheral regions had an average rent of ₹ 2,500, with a standard deviation of ₹ 600, reflecting more affordable options. The affordability analysis suggests that households spend approximately 30-40% of their income on rent, with low-income groups facing significant financial stress.

***Water Quality Concerns***

Water quality remains a pressing issue in Simlapal Census Town, as evidenced by the data published by the Public Health Engineering Department, Government of West Bengal. The analysis of groundwater samples reveals significant variations in key parameters, highlighting concerns over water safety and usability.The pH values range from 5.48 to 7.42(Table8), indicating slightly acidic to near-neutral water conditions. Samples with a pH below 6.5 suggest potential corrosion of pipelines, leading to the leaching of heavy metals into the water supply. Total Dissolved Solids (TDS) range from 35.5 mg/L to 241 mg/L, staying within the acceptable limit of 500 mg/L, suggesting that the water does not contain excessive dissolved minerals. However, turbidity values fluctuate widely, with levels reaching as high as 60.5 NTU(Table8), far exceeding the BIS limit of 5 NTU. This suggests the presence of suspended particles and microbial contamination, requiring proper filtration and treatment before consumption.Fluoride concentrations in some samples are alarmingly high, ranging from 0.02 mg/L to an extreme 51 mg/L, well above the BIS-prescribed limit of 1.5 mg/L. Long-term exposure to excessive fluoride poses a severe health risk, leading to conditions such as dental and skeletal fluorosis. Similarly, iron (Fe) levels in multiple locations exceed the permissible limit of 0.3 mg/L, with recorded concentrations ranging from 0.39 mg/L to 6.53 mg/L(Table8). Additionally, previous groundwater studies in Simlapal Census Town indicate

**Table 8: Water Quality Parameters of Simlapal Census Town**

| pH | TDS (mg/L) | Turbidity (NTU) | Fluoride (mg/L) | Iron (FE) (mg/L) |
|---|---|---|---|---|
| 5.99 | 107.3 | 19.8 | 0.141 | 3.6 |
| 6.89 | 225 | 4.48 | 0.048 | 0.65 |
| 7.05 | 224 | 11.59 | 0.046 | 0.58 |
| 7.16 | 221 | 4.3 | 0.051 | 0.64 |
| 7.23 | 219 | 4.9 | 51 | 0.61 |
| 7.38 | 241 | 6.04 | 0.122 | 2.95 |
| 7.24 | 221 | 3.34 | 0.9 | 0.42 |
| 7.26 | 220 | 4 | 0.052 | 0.72 |
| 7.35 | 221 | 11.7 | 0.056 | 0.69 |
| 7.42 | 205 | 2.33 | 0.047 | 0.71 |
| 7.09 | 218 | 3.26 | 0.049 | 0.74 |
| 7.17 | 216 | 1.83 | 0.051 | 0.82 |
| 7.27 | 213 | 2.78 | 0.056 | 0.39 |
| 7.24 | 215 | 2.42 | 0.053 | 0.43 |
| 6.33 | 82.6 | 19.2 | 0.133 | 1.45 |
| 6.29 | 85.2 | 1.57 | 0.02 | 5.12 |
| 6.28 | 87.1 | 7.93 | 0.121 | 6.51 |
| 5.96 | 36.3 | 7.62 | 0.127 | 2.01 |
| 5.78 | 41.9 | 60.5 | 0.118 | 1.21 |
| 6.83 | 215 | 13.9 | 0.106 | 6.12 |
| 6.32 | 46.4 | 5.24 | 0.093 | 3.15 |
| 5.86 | 60.6 | 26.6 | 0.137 | 1.25 |
| 5.76 | 96 | 13.6 | 0.081 | 2.43 |
| 5.83 | 35.5 | 4.38 | 0.128 | 4.34 |
| 5.48 | 59.8 | 8.92 | 0.116 | 0.72 |
| 5.9 | 67.8 | 4.63 | 0.145 | 6.53 |
| 6.78 | 166 | 4.25 | 0.049 | 0.47 |
| 6.92 | 211 | 4.98 | 0.045 | 0.62 |
| 6.51 | 107.04 | 3.39 | 0.108 | 0.93 |
| 6.87 | 207 | 3.57 | 0.051 | 0.39 |

*Source: Public Health Engineering Department, Government of West Bengal,2024*

that iron contamination levels typically range between 0.8 mg/L and 1.2 mg/L, surpassing WHO standards. This has led to adverse health effects such as skin irritation and gastrointestinal diseases, particularly in densely populated wards where inadequate water treatment infrastructure exacerbates the problem.

Overall, while TDS levels remain within acceptable limits, the high turbidity, fluoride, and iron concentrations present serious health risks. The presence of elevated iron levels in multiple locations suggests widespread groundwater contamination, which, combined with inadequate water treatment facilities, affects the well-being of residents. Addressing these issues requires immediate intervention, including improved filtration, defluoridation methods, and investment in better water treatment infrastructure to ensure access to safe drinking water. Regular monitoring and mitigation efforts should be prioritized to safeguard public health in Simlapal Census Town.

**Regression Analysis**

Regression analysis was performed to investigate the relationships between key variables: rental costs, household income, urban migration rates, and affordability. The analysis revealed a significant positive correlation between urban migration rates and rental costs ($R^2 = 0.68$)(Table7), suggesting that increasing migration has driven up rental demand, particularly in areas near schools and commercial zones. Additionally, household income was a critical determinant of rental affordability, with a regression coefficient of 0.75(Table7), indicating that higher income levels were associated with better affordability.

**Correlation Studies**

Correlation studies identified strong associations between urbanization and rental housing demand. The Pearson correlation coefficient (r) between urbanization rates and rental housing demand was 0.81(Table7), highlighting the direct impact of urban expansion on rental housing dynamics. Similarly, a significant negative correlation ($r = -0.65$)(Table 7) was observed between urbanization and green space availability, emphasizing the environmental consequences of urban growth.

**Temporal Trends Over the Decade**

Over the past decade, the rental housing market has seen a shift toward smaller, affordable units to cater to the needs of middle- and low-income households. The median rent increased from ₹ 2,500 in 2010 to ₹ 4,000 in 2020, reflecting a 60% growth in rental prices. Simultaneously, urban expansion led to a decline in green spaces and agricultural areas, which reduced by 36.55 hectares between 2010 and 2020. These changes highlight the rapid urbanization of Simlapal Census Town and its implications for housing affordability and infrastructure demand.

**Major Findings**

The study of Simlapal Census Town reveals significant trends in land use changes, demographic structure, employment, housing conditions, and infrastructure quality. These observations underscore the impact of surbanisation and economic conditions on local life. Below are the major findings of the research.

***Land Use and Land Cover (LULC) Changes***

Simlapal has experienced substantial urbanization over the past decade, with notable transitions from vegetation and agricultural land to built-up and barren land. Vegetation decreased by 25.12 hectares from 2010 to 2015 and by another 11.43 hectares from 2015 to 2020, while built-up areas expanded by 74.74 hectares between 2010 and 2020. These quantitative shifts highlight the town's growing urban footprint, the diminishing availability of green spaces, and the increasing pressure on natural resources. Comparisons with nearby towns such as Khatra and Barjora reveal similar urbanization trends, though Simlapal lags in infrastructure development, intensifying the challenges posed by rapid land transformation.

***Demographic Profile***

Simlapal's dependency ratio of 56:149 (dependent to economically productive population) indicates a moderate economic burden on the working-age population. The gender ratio of 951 females per 1,000 males reflects certain societal dynamics and impacts workforce participation. Among renters, a balanced gender ratio is observed, though disparities in resource access persist. This demographic distribution has implications for social dynamics, workforce participation, and resource allocation.

***Education and Employment***

Urbanization has driven a gradual shift in Simlapal's employment structure. While a significant portion of the population remains engaged in agriculture (14.7% of the workforce)(Census of India2011), there has been a growing presence in industrial and service-sector jobs (40.9% of the workforce)(Census of India 2011). Renters are primarily employed in government services, businesses, and daily labor, with men dominating sectors such as construction, transport, and small-scale manufacturing. This gendered workforce distribution influences household income patterns and socio-economic dynamics. The shift from traditional agricultural livelihoods to diversified urban employment reflects the role of urbanization in reshaping economic opportunities.

Education levels play a crucial role in this transition. In Simlapal, the literacy rate stands at 78.44%, with male literacy at 85.06% and female literacy at 71.34%(Census of India 2011). This educational divide impacts employment opportunities, as higher literacy rates among men contribute to their dominance in skilled labor and government services, while women are often engaged in

informal or lower-paying sectors. The presence of educational institutions, including primary and secondary schools, has facilitated workforce skill development, yet higher education facilities remain limited, requiring students to seek advanced education outside the town. This disparity in access to higher education further influences employment patterns and socio-economic mobility.

### *Housing and Amenities*

Rental housing in Simlapal reflects affordability challenges, with average rents ranging from ₹ 2,000 to ₹ 6,000 per month. Rent costs are significantly higher near key facilities such as Simlapal School, where demand-driven price variations are evident. Most rental properties are basic, with shared bathrooms, limited kitchen space, and small room sizes, highlighting a mismatch between housing quality and the needs of residents. These housing conditions exacerbate socio-economic vulnerabilities, particularly for low-income renters.

### *Water Quality Issues*

The assessment of water quality in Simlapal Census Town highlights significant contamination issues, with iron and fluoride levels exceeding permissible limits, posing serious health risks. Elevated turbidity and acidic pH in certain samples indicate potential microbial contamination and metal leaching, further compromising water safety. The lack of adequate water treatment infrastructure exacerbates these concerns, particularly in densely populated areas, increasing the risk of skin irritation, gastrointestinal disorders, and fluorosis among residents. These findings underscore the urgent need for enhanced filtration systems, defluoridation measures, and continuous monitoring to ensure access to safe drinking water in the region.

### Rent Variability and Infrastructure Deficiencies

Rent variability in Simlapal ranges from ₹ 2,000 to ₹ 6,000, influenced by factors such as proximity to schools, hospitals, and markets. Areas closer to these amenities experience higher rents, reflecting a demand-driven fluctuation that highlights the town's uneven infrastructure development. This correlation between rental housing conditions and infrastructure inadequacies underscores the need for targeted investments in public amenities to improve affordability and quality of life for residents.

### Comparative Insights and Policy Implications

Comparisons with analogous towns, such as Khatra and Barjora, underline shared challenges like water contamination, poor infrastructure, and urban sprawl. However, Simlapal demonstrates slower infrastructure development, leaving it less equipped to handle the pressures of urbanization. Policymakers must prioritize sustainable urban planning, including the protection of green spaces, improvements in housing quality, and the development of water management systems. Addressing

these issues through targeted interventions will ensure equitable and sustainable urban growth in Simlapal Census Town.

**Recommendation**

The findings of this study highlight the pressing need for targeted interventions to ensure sustainable urban development in Simlapal Census Town. As urban expansion continues to reshape the town's land use, socio-economic dynamics, and infrastructure, a strategic approach to planning and governance is essential to mitigate emerging challenges. The rapid decline in green spaces and agricultural land necessitates stricter zoning regulations and the integration of green infrastructure to balance urbanization with environmental sustainability.The demographic and employment patterns in Simlapal reflect a shift from traditional agrarian livelihoods to industrial and service-sector occupations. However, disparities in workforce participation, particularly along gender lines, indicate the need for enhanced skill development initiatives that empower women and economically weaker sections. Expanding educational opportunities, including access to higher education within the town, would further support this transition by equipping residents with the necessary qualifications to secure better employment prospects.Housing conditions, especially in the rental sector, underscore the growing affordability challenges faced by residents. Improving the quality of rental housing through targeted policies, such as affordable housing schemes and infrastructure upgrades, would help address these issues. Simultaneously, ensuring access to safe drinking water is a critical public health concern. The high levels of iron and fluoride contamination demand urgent measures, including the installation of filtration systems and periodic water quality assessments to safeguard residents from health risks.

Furthermore, Simlapal's infrastructure development lags behind that of nearby towns, exacerbating disparities in public service access and quality of life. Addressing these deficiencies requires increased investment in roads, sanitation, healthcare, and waste management systems. A well-planned approach, incorporating public-private partnerships and active municipal governance, will be vital in bridging these gaps.Ultimately, the future of Simlapal's urban development hinges on sustainable planning and policy interventions that prioritize environmental conservation, socio-economic equity, and improved living conditions. By addressing the challenges identified in this study, policymakers can work toward fostering a more resilient and inclusive urban landscape for the town's growing population.

**Conclusion**

Simlapal Census Town is experiencing notable urban growth, with declining green spaces and rising built-up areas reflecting this shift. The town's balanced demographic structure and active workforce provide economic stability, yet basic housing amenities, limited kitchen and bathroom facilities, and water quality issues underscore persistent challenges. Rental costs vary

widely based on proximity to essential services, indicating uneven access to resources. Addressing these challenges through improved urban planning and infrastructure development will be essential to ensure sustainable and equitable growth for Simlapal's residents.

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