



## Assessment of Housing Condition as a Measure of Quality of Rural Life: A Comparative Study of Humgarh and Amkopa Villages of Garbeta-II Block, Paschim Medinipur District, West Bengal

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### Abstract

The quality of housing comprises many housing facilities in the microenvironment of house structure such as house type, electricity, drinking water, sanitation, etc. The Study of housing quality is necessary to measure the quality of life and technological advancement of society. The major objectives of the present study are to analyze the internal variation of the selected indicators across the CD Blocks (Community Development) of Paschim Medinipur district, to examine the regional disparity in housing quality at the block level of the concerned district, to analyze the housing quality in Garbeta-II block at village level, to analyze the relationship between the size class villages and quality of housing, indicator-wise of the concerned block and to explore the differentials in socio-economic condition and quality of housing of two sample villages under Garbeta-II block of Paschim Medinipur district. The entire study is based on both primary and secondary sources of data. Different indicators to measure the housing quality have been fixed and different statistical techniques like Deprivation Index, Composite Score, One-way ANOVA, Simple Percentage Calculation, rates, and ratios are applied here. Thus, the study reveals that among the 29 blocks, Garbeta-II is the only Jungle Mahal area under Medinipur sub-division, which records a high level of inequality in housing quality with 264 villages. The relationship between the size class of villages and accessibility of good housing quality (indicator-wise) is highly significant for the seven indicators. However, for the remaining, the relationship between them is insignificant. There are huge differences between two villages namely Amkopa and Humgarh in terms of housing quality. The socio-economic condition and quality of housing of Humgarh village are remarkably higher than Amkopa village.

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### Introduction

Quality of life (QoL) is a complex abstract and multi-dimensional concept. Therefore, different conceptual and operational definitions have been used in QoL studies (Carta, 2008). QoL should not be confused with the concept of standard of living, which is primarily based on income and employment status. Instead, standard indicators of QoL include not only these dimensions but also the built environment, physical and mental health, education, recreation and leisure time and social belonging (Bazzichi, et al. 2005). A country is not rated as developed by its economic achievements and rapid progress of development alone, but the quality of life and well-being of its people play also a significant role. QoL measurement is an important method for acquiring knowledge on the well-being of an individual or a society. As QoL covers a wide range of

context, there are a number of QoL studies that apply several ways to measure it. Therefore, from the above, it can be said that along with other dimensions, quality of housing as a built environment is an important measure of the quality of life. There is a popular Hindi phrase 'Roti, Kapda aur Makaan' or 'Bread, Clothing and House' are the three basic needs of human life. Among these houses provides prime shelter and security and is considered as fundamental development process in which the built environment is created, used, and maintained for the physical, social, and economic well-being (Lawrence, 2004). The concept of housing has a broader meaning than a house because it includes the physical structure with essential basic amenities and services (Sharma, 2017).

The study of housing quality is necessary because it is a yardstick to measure the quality of life and technological



advancement of society. The quality of housing comprises many housing facilities and conditions like house type, electricity, drinking water, sanitation, etc. The housing quality of a region is the net outcome of the interaction of socio-economic, political, and environmental factors. Therefore, there is a stark difference in the quality of housing between the urban and rural areas in India. Rural areas are such part of a society that is generally bypassed from the adequate provision and development of basic amenities and services due to socio-economic backwardness, lack of investment and proper channelization of Governmental fund, lack of consciousness about Government Schemes, which ultimately lowers down the rural housing as well as the quality of life. The poor rural housing quality is common in India and found at different administrative levels. But none has been done on micro level in West Bengal. A number of quality literature relating to this has been referenced, e.g. Ogu (1994), Idris et al (2016), Sharma and Singh (2017).

### Objectives

The specific objectives of the present study are as follows:

- i. To analyze the internal variation of the selected indicators across the CD Blocks of Paschim Medinipur district.
- ii. To examine the regional disparity in housing quality at the block level of the concerned district.
- iii. To analyze the housing quality in Garbeta-II block at the village level.
- iv. To analyze the relationship between the size class villages and quality of housing, indicator-wise of the concerned block.
- v. To explore the differentials in socio-economic condition and quality of housing of two sample villages under Garbeta-II block of Paschim Medinipur district.

### Research Questions

Based on the objectives the research questions of the study are:

- i. What is the overall scenario of rural housing quality of the concerned district, block-wise/ village-wise of the particular block?
- ii. Is there any relationship between the size class of villages and quality of housing, indicator-wise in Garbeta-II block?
- iii. What are the differences in demographic, socio-economic profile and quality of housing between the two sample villages?
- iv. How many changes occur in the quality of housing of the two-sample villages from Census 2011 to the present situation (2018)?

### Hypothesis

The relationship between the size class villages and quality of housing, indicator-wise is significant in Garbeta-II block.

### Database

The present paper is based on both primary and secondary sources of data. In order to attain the main objective of the study, the Household Survey approach has been adopted to generate the primary data. Primary data has been collected from Amkopa Village and Humgarh village under Piasala Gram Panchayet of Garbeta-II block. Data are collected with the help of well structured scheduled cum questionnaire through a door-to-door

survey. The secondary data has been collected from the Houselisting and Housing Census, West Bengal, 2011; District Census Handbook, 2011 of West Bengal (electronic format). Besides this, little information has been collected from Piasala Gram Panchayet through oral discussion.

### Methodology

A systematic methodological principle has been followed in this study to select the villages for the field study. This can be explained as follows:

**i. Pre-field Study:** At first, the regional disparity in housing quality across the Community Development Blocks of Paschim Medinipur district has been calculated using Deprivation Index. It has been analyzed that Garbeta-II block is the only Jungle Mahal Area under Medinipur sub-division of the district, which records a high level of inequality in housing quality. Therefore, Garbeta-II block has been chosen for the village level analysis regarding housing quality. In this context, Composite Score has been used to examine the housing quality at village level of the concerned block. Therefore, all the villages are grouped into five categories. From the very high-level group of housing quality, the Humgarh village on one hand and Amkopa village from a very low-level group of housing quality on another hand have been selected for primary survey to verify the ground truth.

**ii. Field Study:** The primary data has been generated by interviewing people of the Amkopa and Humgarh villages under Piasala Gram Panchayet of Garbeta-II block with the help of well structured scheduled through the door-to-door survey. The total numbers of households in Humgarh and Amkopa villages are 278 and 24 respectively. The number of households for sample survey (N) has been computed from:

$$N = \frac{n}{1 + n \cdot e^z}$$

where 'n' is a total number of households of each village as per 2011 Census (i.e. the total number of households 278 and 24 of each one) and 'e' is .05 (confidence level), the outcome number comes for Humgarh and Amkopa villages are 164 and 23 respectively. Rounding off these figures, it is decided to study 160 and 24 number of households randomly from the two villages respectively. The study has been done very carefully to evaluate the quality of housing in these villages.

**iii. Post-field Study:** Data and other information collected during the field survey are compiled. The compiled data is analyzed and interpreted precisely to explore the differentials in the socio-economic condition and housing quality between Humgarh and Amkopa villages. Simple rates, ratios, and percentage calculation are used for the analysis of the primary data. Different Cartographic techniques are used to represent the analyzed data. While examining the disparity in the level of quality of housing across the blocks of Paschim Medinipur district, the deprivation index (DI) has been worked out using the following formula:

**Deprivation Index,** 
$$DI = \frac{M_{xi} - O_{ij}}{M_{xi} - N_{xi}}$$

Where  $M_{xi}$  and  $M_{ni}$  are the largest and smallest value of the



indicators among all the blocks and  $O_{ij}$  is the value of the  $i^{th}$  indicator in  $j^{th}$  block

To calculate the internal variation among the different selected indicators across the blocks of the concerned district, coefficient of variation (CV) has been used:

$$CV = \frac{\sigma}{\bar{x}} \times 100$$

Where " $\sigma$ " and " $\bar{x}$ " are the value of standard deviation and mean of the concerned indicator.

To measure the quality of housing of the villages of the concerned block, standard score (Zij) has been used:

$$Z_{ij} = \frac{x_{ij} - \bar{x}}{\sigma}$$

where  $x_{ij}$  = observed value of indicator  $i$  in village  $j$ ,  $\bar{x}$  = mean value of indicator  $i$  in all villages,  $\sigma$  = standard deviation of variable  $i$  in all villages.

The village-wise Z-Scores of all indicators have been added and the average has been taken out to compute the composite score (CS) for each village of the concerned bloc:  $CS = Z_{ij}/N$

where,  $N$  = number of indicators. The more the value of CS, the higher the level of housing quality and vice versa.

Finally, to examine the relationship between the size class villages and quality of housing, indicator-wise ANOVA has been done. The indicators considered are: the percentage share of households with well conditioned census houses, owned housing status, permanent house structure, three dwelling rooms, LPG/PNG connection as fuel used for cooking, safe drinking water sources (tap water collected from treated and untreated sources), separate kitchen facility inside the houses, electricity as the main lighting source, septic tanks connected to flush/pour flush latrine, and drainage connection (closed and open both).

### The Study Area

Lying between 21d36m35sN - 22d57m35sN latitudes and 86d33m50sE - 88d12m40sE longitudes, Paschim Medinipur district is one of the backward districts in West Bengal, It comprises four sub-divisions (Kharagpur, Medinipur Sadar, Ghatal and Jhargram) and 29 CD Blocks of which Garbeta-II is the one that belongs to the 'Jungle Mahal' area of Medinipur sub-division. There are 264 inhabited villages covering 10 Gram Panchayats in this block and of these, Humgarh and Amkopa of Piasala Gram Panchayat form the study area. Humgarh is a medium-size village with 1301 population and Amkopa is a small village with only 114 population (2011). The total area of the two villages are 92.20 and 60.42 ha respectively (Fig 1).

### Results and Discussion

The condition of HHs is not very good because the share of HHs in most of the indicators is below 20% except the share of HHs having good, owned housing condition as well as the availability of safe drinking water and electricity as a major source of lighting. The indicators-wise regional imbalance is measured through CV across the CD blocks and it shows that the internal variation is highest in case of accessibility of safe drinking water (81.79%). On the other hand, there is very low internal variation among the HHs across the blocks regarding owned housing status (below 1% CV value).

Based on the DI, it is found that about 21 CD Blocks are

experiencing a high level of inequality in terms of housing quality and 5 blocks are experiencing a low level of inequality and the remaining 3 blocks report the medium level of inequality in housing quality (Fig 2).

The CS shows that there is a wide range of variations in housing quality, which varies from the highest of 1.54 score in Amdiha village to lowest of -1.00 score in Rangametia village (Table -1). Humgarh village is experiencing very high-level housing quality (CS = 1.32) than Amkopa village (CS = -0.70) (2011). The 264 villages have been grouped into three categories of population size viz. small (< 500), medium (501-2000), and large (2001 to 5000) as per 2011 Census. Excepting two indicators ( $X_7$  and  $X_8$ ), the calculated values of F are much higher than the critical value at 5% significant level with d.f. being  $v_1=2$  and  $v_2=261$  for the remaining 8 indicators. Hence, the null hypothesis is rejected, i.e. the size class of villages is the important determining factor for the quality of housing, indicator-wise. The seven indicators are unevenly distributed across the 264 villages to measure the quality of housing and it is significant. However, for the  $X_7$  and  $X_8$  indicators, the relationship between the two factors is insignificant (Table-2).

### A Comparative Micro-Level Analysis of Socio-Economic Condition and Housing Quality between Humgarh and Amkopa

In order to get an insight into the prevailing factors responsible for the difference in housing quality between the above two villages, a detailed household survey has been carried out. Salient features of these two are discussed below:

#### Demographic and Socio-Economic Characteristics

**Caste Composition:** In India, caste exerts its influence on social structure. Caste in India is a heredity group (Sen, 2007). In both the villages, the inhabitants are of Hindu religion. There is a huge difference in caste composition between the two villages. Out of 24 households in Amkopa village, almost 80% belongs to Scheduled Tribe (ST) category. On the other hand, in Humgarh about 70% of households belong to the general category (Fig. 3).

**Age-Sex Composition:** In Amkopa, the sex ratio is 1231 females/'000 males. The child sex ratio is about 666 girls/'000 boys. The working females (age group:15 - 59 years) are higher than the male population under the group. Contrary to this, the sex ratio is 945females/'000 males in Humgarh. The child sex ratio is 700 girls/'000 boys. There is little difference between the male (279) and female population (277) under the working age group.

**Level of Education:** In India, a person aged 7 years and above, who can both read and write with understanding any language is taken as 'literate'. A literate person may not have any educational status. Illiteracy in a society primarily is an obstacle to peaceful and friendly international relations and to democratic processes within a country (Hassan, 2005). In Amkopa the share of the illiterate population is 27% out of total 116-sample size population, where female illiteracy is higher than the male illiteracy. The total effective literacy rate is 80.10%. The male literacy rate is 95.65%. The female literacy rate is 68.33%,



which is much lower than the average literacy rate of the village. The female illiteracy (35.93%) is much higher than the male illiteracy (15.38%). The formal educational attainment is also high for the male population (84%) than the female population (64%). However, for both the share of the population decreases with the increase in the level of education.

The share of the illiterate population in Humgarh village is 13.25%, where again female illiteracy is higher than male illiteracy. The effective literacy rate in this village is 91.78%. The literacy rates both for male and female are satisfactory though the male literacy rate is higher (99.43%) than female literacy rate (89.77%). Here, female illiteracy is also higher than male illiteracy. In this village, the educational attainment in the formal institution is also continuously decreasing for both male and as well as female (Fig 4).

**Occupational and Income Status:** The occupation of an individual refers to his profession type of work. It has a great relationship with the social structure of a society. The work participation rate in Amkopa village is about 45%. Among them, 50% are engaged as agricultural labour, followed by 34% as cultivators and rest 16% fall under other working category (Business). Out of 24 HHs, 37.50% HHs falls under the income group of Rs. 2001-4000/month followed by less than Rs. 2000/month (29.17%), Rs. 4000 - 6000/month (20.83%) and above Rs. 6000/month (12.50%). Therefore, most of the people are cultivators and agricultural labourers with a low wage rate and are economically very poor, which affects their standard of living and as well as their educational status. The dependency ratio in this village is very low about 21% approximately. On the other hand, the work participation rate in Humgarh is 51.97%. Here 28.79% of inhabitants are engaged in cultivation, followed by service (27.77%), business (24.50%), and agricultural labour (10.10%) and lastly labour (8.84%). As here the people are not solely dependent on primary activities, the income level is also higher than the Amkopa village. About 41.87% of rural dwellers belong to the highest income group i.e. Rs.>14000/month, followed by Rs.4001-6000/month (15.04%), Rs.12001-14000/month (12.50%) and so on. The dependency ratio of the village is 22.50% (Table-3).

### Housing Quality

**Housing Condition:** Rural home is one of the main and complex forms of residuals human settlement, because of its varied role as like as rest room, production place, storing and saving role in rural families. Most of the rural people in India live in an inadequate and low standard living condition that causes poor health status (Ghidari, et. al., 2015). In Amkopa, all households are residential and owned in nature. In this village, most of the households are in livable condition (54.16%) followed by good (33.33%) and dilapidated (12.5%). In Humgarh, about 91.25% of households are owned and the remaining 8.75% are rented based on ownership status. About 86% of households are residential and rest 14% of households are used for residential cum other purpose. In the village, the situation is totally reverse i.e. about 76.87% of households are good in condition, followed by livable (18.13%) and dilapidated (5%).

In Amkopa village, 94.50% of households have used tin as a predominant building material for roof. Out of 24 households,

79.17% of households have earthen floor and 83.33% of households used clay as predominant material for wall construction. On the other hand, in Humgarh, about 86.25% of households have concrete roof, 73.75% of households cemented floor and 78.25% of households mud wall (Table -4). Out of 24 HHs, about 38% HHs have one dwelling room, which makes over congestion and unhealthy living condition within the house, followed by three rooms (29.17%), two rooms (25%), and four rooms (8.33%). Most of the inhabitant's household size is 5 (29.17%) and the lowest is 2 (4.17%) in Amkopa village. On the contrary, to this, 36.25% of households live in two dwelling rooms, followed by one dwelling room (24.37% HHs) and so on in Humgarh. Most of the inhabitant's household size is 4 (35.62%), followed by 5 (31.87% HHs), 3 (21.25% HHs) and so on in the village.

**Basic Amenities:** The housing quality also depends on the accessibility of basic amenities. There is no individual indoor tap as the main source of drinking water in Amkopa village. As it is a very small-clustered village, there is only 5 tap water sources near premises and 7 boreholes within the village. One tube well is present here but it is not working properly. The tap water is used for domestic purpose but the water from the borehole is used for both domestic as well as an agricultural purpose. About 80% of households collect tap water from treated sources and 20% from the borehole. More than half of the total households have responded that the quality of the water from tap and borehole is good. The iron content is the main problem of water quality. The villagers face difficulties to get the minimum requirement of water during summer due to frequent power cut. Most of the HHs do not use water purifier for drinking purpose. On the other hand, in Humgarh about 66.88% of households have sources of drinking water within premises and the remaining 33.12% utilize the sources of drinking water near premises.

In Humgarh, most of the households (about 71%) use tap water from treated source for collecting drinking water, followed by 15.12% households from a hand pump, 9.30% from tube well/borehole and lastly 4.65% households collect drinking water from covered well (Table -5). More than 70% of the total households are satisfied with water quality. Even 36.87% of households have responded that the water quality is very good. Few households are not satisfied with water quality due to the existence of iron content. The water availability becomes a big challenge during the summer season, which hampers the daily livelihood of the villagers. Near about 70% of villagers do not purify the drinking water collected from different sources of water. About 30% of households use a water filter and less than 2% of households use an aqua guard for purification of drinking water.

There is no individual latrine in the households of the Amkopa village. Under the Mission Nirmal Bangla, few public latrines have been constructed with no lighting and water connection. Therefore, only 15% HHs use the public latrine and remaining HHs are compelled to practice open defecation. Most of the public latrines either have become abundant or villagers use the latrines for other purpose. There is no drainage connection in the village.

The residents of the Humgarh village are much more concern



about their health and hygienic. Therefore, about 86% of households have built their own/individual latrine facility and the remaining 14% of households use the public latrine, constructed by the State Government under Mission Nirmal Bangla Scheme. The good sign is that no villagers of this village practice the open defecation out of 160 sample households. Panchayet provides approximately 70 common latrines in the village under the scheme. There is a big open drainage system across the village. Beside this, only 48.10% households have open drainage connection as wastewater outlet i.e. more than 70% households do not have drainage connection for the discharge of the wastewater, which is not a good instance for the environment.

The main source of light in Amkopa village is electricity (about 80% HHs) and only 20% of HHs have no electric connection. They use kerosene as a source of lighting. A frequent power cut is the main problem in the village. About 66% HHs use firewood as fuel for cooking purpose and the rest number of HHs use LPG/PNG as cooking fuel. Electricity is the main source of lighting in the Humgarh village (96.25% HHs also). The very negligible proportion of total households does not have access to the electric connection. Kerosene is the main source of light for them. Therefore, frequent power cut, especially in summer and the rainy season, is the main problem of this village. About 67.5% of households use LPG/PNG as cooking fuel in the village. The remaining 32.5% of households use firewood as cooking fuel. There is a stark change in the condition of housing quality between secondary data obtained from Census 2011 and primary data, 2018 (Table-6).

### Major Findings and Conclusion

Adequate housing is an important component in the overall growth and development of an individual wherewith he can enjoy both mental and physical health and live in a state of security, peace, and dignity. Rural areas are in great distress today because of continued apathy and neglect from the policymakers that affected the rural housing sector. Together with a housing shortage, the condition of housing and availability of basic amenities in rural areas are far behind that in urban areas.

The Paschim Medinipur district of West Bengal is a backward district and is also deprived off getting better housing quality in rural sectors. The regional imbalance is higher in access to safe drinking water facility across the blocks. Among the 29 rural blocks, 21 blocks record high inequality in housing quality except for northern and central part of the district. Among the blocks, Garbeta-II records a high level of inequality in housing quality within its 264 villages. About 45% of villages are experiencing a low level of housing quality. The relationship between the size class of villages and accessibility of good housing quality (indicator-wise) is highly significant for the seven indicators. But for the remaining, the relationship between them is insignificant. The socio-economic condition of Humgarh village is better than Amkopa village. The households of Amkopa village are characterized by high illiteracy, low dependency ratio, low educational attainment, predominant agricultural activity with low wage and poor economy. On the other side, the households of Humgarh village is characterized by low illiteracy, high dependency ratio, high educational

attainment, the predominance of agricultural and other activities with high wage and high-income level than the former village. The housing quality is also better in Humgarh village than the Amkopa village because the socio-economic condition exerts its impact on the housing quality of the two villages. A number of schools, offices, bank, post office, and easy transport facility are favorable factors for the development of Humgarh village than the Amkopa. Except for drainage and accessibility of sanitation facility (Amkopa), as a whole, there is a satisfactory improvement in the present status of the housing quality in both of the villages (especially in Amkopa village) than the situation recorded in 2011 Census. Different types of Governmental initiatives viz. Pradhan Mantri Awas Yojana Gramin (PMAYG) Scheme, Nirmal Bangla Mission, Ujjwala Yojana, Backward Region Grant Fund (BRGF), Lokdweep Scheme are some of the important schemes, which ensure the substantial development of the rural housing quality in the backward districts of West Bengal including the above two villages.

Socio-economic backwardness, lack of awareness, cultural rigidity are some of the barriers of the standard quality of housing as well as the quality of life. So, to overcome the problems behind the low quality of housing, few recommendations have been made for better well-being as follows:

- 1) Campaigning from pre-primary School by the Integrated Child Development Service (ICDS).
- 2) Roadshow by the school students in the village.
- 3) Meeting with the mother of the family by Accredited Social Health Activity (ASHA) Workers at Panchayet level.
- 4) Investigation monitoring of the proper implementation of the different type of Schemes.
- 5) Electrification and water connection in community latrine.
- 6) Employment generation among the rural communities, which will raise the socio-economic condition. The improve socio-economic condition will enhance the housing quality as well as the quality of life.
- 7) The campaign against the alcoholism, which will save the money as well as the manpower of an individual. Thus, it will improve the well-being of a rural family.
- 8) Lastly, Gram Panchayat can engage some educated and active people (especially females/Self Help Group) from the block for the identification of the village communities from the school level, who are less conscious about the hygiene. They will select some villagers from each village (who are more conscious) to collect the progress report about the implementation of the Government Schemes and social attitude of the villagers towards the utilization and consumption of the facilities (sanitation and safe drinking water especially). Thus, the active participation of rural communities as a whole can improve the standard of their quality of life in a wide range by breaking cultural taboos/psychological rigidity/wrong perception about their life.

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## References

1. Carta M. G, Hardoy M. C, and Pilu A, et al. (2008): Improving Physical Quality of Life with Group Physical Activity in the Adjunctive Treatment of Major Depressive Disorder. *Clin Pract Epidemiol Ment Health*. <https://doi.10.1186/1745-0179-4-1>.
2. Bazzichi L, Marsler J, and Piccini A, et al. (2005): Quality of Life in Rheumatoid Arthritis: Impact of Disability and Lifetime Depressive Spectrum Symptomatology, *Clin Exp Rheumatol*, 23(6), pp 783-788.
3. Lawrence, R. J (2004): Housing and Health: From Interdisciplinary Principles to Trans-disciplinary Research and Practice. *Futures*, 36, pp 487-502.
4. Sharma, D. D, and Singh, V (2017): Quality of Housing in the Himalayan State of India: A Tehsil Level Analysis, *Indian Journal of Regional Science*, 49(2), pp 101-111.
5. Sen, J (2007): *A Text Book of Social and Culture Geography*, Kalyani Publishers, New Delhi.
6. Hassan, M. I (2005): *Population Geography*, Rawat Publication, New Delhi.
7. Ghidari H. S, Sadeqlu, T and Mahmoodi, H (2015): Assessment and Analysis of House Quality in Rural Area (Case study: Kennist Dehestan of Mashhad Country), *Journal of Research and Rural Planning*, 4(1), pp 39-42.
8. Idris K, et al., (2016): Quality of Life in Rural communities: Residents living near to Tembeling, Pahang and Muar rivers, Malaysia. *PLoS One*. <https://10.1371/journal.pone.0150741>.
9. Ogu, V. I (1994): Rural Housing Quality in Nigeria: A Case Study from Imo State, *Elsevier*, 18(3), pp 53-65.

Table - 1: Housing Quality: Distribution of Villages under Garbeta-II Block in Different Categories of Composite Score

Categories	Composite Score	No. of Villages with Percent	Name of the Villages
Very High	1.01 and above	09 (3.41)	Amdiha, Mahalisai, Balibandh, Bandhi, Amlasuli, Puinchharabara, Puinchharachhota, Humgarh, Nagdipara
High	0.51 to 1	22 (8.33)	Keshia, Goaltore, Kuchlasuli, Pingbani, Erimara, Teskona, Jungalbarikupageria, Lakshiabad, Shirishdanga, Rijband, Jharnadanga, Agarband, Chunpara, Alui, Kayabad, Chandabila, Metaldoba, Tangasol, Shutkujuri, Piasala, Bagdangra, Bagridi
Medium	0 to 0.50	88 (33.33)	Jamdahara, Domahani, Krishnasol, Harimara, Kalabati, Amjor, Gachh Upa, Adalia, Shyamsundarpur, Sarengagar Mayna, Patharpara, Shitalpur, Parashia, Bisharbandh, Bablapani, Kharkata Bhururbani, Sundargere, Murakati, Kadasol, Daldali, Pinrasuli, Betjharia Baranakdana, Kushtara, Dumardiha, Gorabari, Chengsol, Dudpatri, Kadamdih, Nangalmura, Shiyarbani, Kumari, Barakadra, Chamtabad, Keshia, Gotsol, Panrdaha, Saltora, Kenja, Lakshiapal, Kakurara, Barashalgeria, Barabolbandi, Shitalpur Naya Bankati, Dolderia, Pat Tentul, Jaypur, Kontore, Bhatmaudi, Penchamura Malibandi, Khanapar, Padurbankati, Deriapur, Rajadali, Manikdipabara, Shuknakhali, Salgeria, Dhobani Chatra, Banribot, Baramasia, Kalabati, Suthanrar, Chakbindu, Dubda, Deulkala, Chemia, Gohaldanga, Birpathari, Barabagpichhla, Metyala, Umrpata, Kiamacha, Agaya Ichharia, Madnapur, Harigeria, Patasol
Low	-0.50 to -0.01	118 (44.70)	Chechuria, Makli, Karanji, Bhalukbasabara, Rengtia, Keshia, Kadambandi, Ruparghagra, Bankati, Khajrabara, Nenguria Bara, Kunarpur, Hathimasan, Amdiha, Kadma, Peruabad, Nayabankati, Bhuniasol, Dobati, Bhandarpur, Amlachati, Metyal, Parakanali, Chhota Dharampur, Pitli, Nischintapur, Bulanpur, Hatia, Singla, Chhota Patasol, Nischintapur, Kenkanali, Dubrajpur, Benachapra, Bathantor, Dumuria, Chhagalia, Jirapara, Betjharia, Bhedya, Kerumara, Karasai, Kewakol, Nimkata, Dharampur, Shankhabhanga, Kankrisol, Gopinathpur, Subalbandi, Shirs, Hirasol, Gangaduari, Gotshingla, Dhamchia, Karasol, Dhekineja, Lagiluari, Kusumdanga, Jamira, Thakurpara, Khasjanganl Nischintapur, Hatibari, Chhotashalgeria, Junsol, Baglada, Aulia, Shuribanka, Babudanga, Chhota Chengsol, Barachengsol, Garduara, Naya Bankait, Bhama, Kupageria, Amakonda, Jharia, Panduri, Dhanghori, ashargram, Kankdaha, Dhitingi, Chhatardanga, Kamilakon, Bhalukkulia, Sarbot, Taldanga, Ghagra, Arabari, Bankati, Mayna, Sitarampur, Talbandi, Jangalabadi, Baulara, Chekuasol, Dhobasol, Shiromonipur, Lalitpur, Basudebpur, Kurkutbandi, Jagardanga, Baranagara, Shalband, patharberia, Indkuri, Moldanga, Chhotapichhla, Dhepua, Hamargora, Ukhla, Bargiutra, Birbandi, Dubrajpur, Darikanchror, Raghunathbari, Kundra Kantapal, Gopalnagar, Kanchror, Chotadharka
Very Low	-1 to -0.51	27 (10.23)	Baishnabsol, Chhotaborobari, Balikhunia, Bandrisol, Bankisol, Sirisbani, Andharia, Chhota Nakdana, Khapribhanga, Bara Chauli, Anusol, Kushkati, Chatrakhulia, Ekaria, Baraelageria, Chhotaelageria, Dhajuri, Ghusingdanga, Amkopa, Ashnasholi, Barasol, Patharmari, Rangameta, Bankumari, Amjor, Peruajol, Bhandar Bandh
Total		264	

Source: Calculated by the author based on Houselisting and Housing Census, West Bengal, India, 2011.



Table - 2: One-way ANOVA-Size Class Categories of Villages (Large, Medium, and Small) as Independent Variable, House Type, and Basic Amenities as Dependent Variable

Dependent Variables	Source of Variation	Sum of Squares	Degree of Freedom (d.f.)	Mean Square	F-ratio	Significance
$X_1$	Between groups	1442.231	2	721.115	0.945	0.390
	Within groups	199112.109	261	762.882		
	Total	200554.339	263			
$X_2$	Between groups	39.869	2	19.934	3.308	0.038
	Within groups	1572.598	261	6.025		
	Total	1612.467	263			
$X_3$	Between groups	2990.873	2	1495.437	7.426	0.001
	Within groups	52562.826	261	201.390		
	Total	55553.700	263			
$X_4$	Between groups	291.138	2	145.569	4.795	0.009
	Within groups	7923.437	261	30.358		
	Total	8214.574	263			
$X_5$	Between groups	1463.000	2	731.500	61.504	0.000
	Within groups	3104.203	261	11.893		
	Total	4567.203	263			
$X_6$	Between groups	1285.377	2	642.688	1.336	0.265
	Within groups	125522.157	261	480.928		
	Total	126807.534	263			
$X_7$	Between groups	838.063	2	419.031	0.398	0.672
	Within groups	274664.333	261	1052.354		
	Total	275502.396	263			
$X_8$	Between groups	730.594	2	365.297	0.400	0.670
	Within groups	238081.657	261	912.190		
	Total	238812.251	263			
$X_9$	Between groups	3249.027	2	1624.514	24.827	0.000
	Within groups	17078.152	261	65.434		
	Total	20327.179	263			
$X_{10}$	Between groups	3428.265	2	1714.133	5.738	0.004
	Within groups	77972.193	261	298.744		
	Total	81400.458	263			

Source: Computed by the author from District Census Handbook, Census of India, West Bengal, 2011; Houselisting and Housing Census, West Bengal, 2011.

Notes:  $X_1$  Good,  $X_2$  Owned,  $X_3$  Permanent,  $X_4$  Three Rooms,  $X_5$  LPG/PNG,  $X_6$  Safe Drinking Water,  $X_7$  Separate Kitchen inside the House,  $X_8$  Electricity,  $X_9$  Septic Tank connected to Latrine Facility,  $X_{10}$  Drainage Connectivity. Between Groups ( $v_1$ ), Within Groups ( $v_2$ )

Table - 3: Income Structure of the Two Selected Villages, Garbeta-II Block

Amkopa		Humgarh	
Income group (Rs/-per month)	Percentage of HHs	Income group (Rs/-per month)	Percentage of HHs
<2000	29.17	<2000	4.37
2001-4000	37.50	2001-4000	8.75
4001-6000	20.83	4001-6000	15.04
>6000	12.50	6001-8000	5.60
Total	100	8001-10000	9.37
		10001-12000	2.50
		12001-14000	12.50
		>14000	41.87
		Total	100

Source: Field Survey, 2018

Table - 4: Predominant Building Materials of the Two Selected Villages, Garbeta-II Block

Amkopa			Humgarh		
	Building materials	Percentage of HHs		Building materials	Percentage of HHs
Roof	Plastic/Polythene/Tin	94.50	Roof	Plastic/Polythene/Tin	3.75
	Machine Made Tiles	-		Machine Made Tiles	10
	Asbestos/Grass/Thatch/Bamboo/Concrete	5.50		Asbestos/Grass/Thatch/Bamboo/Concrete	86.25
Floor	Earthen	79.17	Floor	Earthen	26.25
	Cemented	20.83		Cemented	73.75
Wall	Mud/Unburnt Bricks	83.33	Wall	Mud/Unburnt Bricks	21.25
	Brunt Bricks	16.67		Brunt Bricks	78.75

Source: Field Survey, 2018

Table - 5: Sources of Drinking Water of the Two Selected Villages, Garbeta-II Block

Amkopa		Humgarh	
Sources of drinking water	Percentage of HHs	Sources of drinking water	Percentage of HHs
Tap water from treated sources	80	Tap water from treated sources	70.93
Covered well	-	Covered well	4.65
Hand pump	-	Hand pump	15.12
Tube well/Borehole	20	Tube well/Borehole	9.30

Source: Field Survey, 2018.

Table - 6: Major Changes in Housing Quality between 2011 To 2018

Indicators	Amkopa (% of HHs)		Humgarh (% of HHs)	
	Census 2011	Survey 2018	Census 2011	Survey 2018
Good	-	33.33	45	76.87
Owned	91.7	100	85.1	91.25
Three rooms	-	29.17	11	18.75
Safe drinking water	54.2	80	0.14	70.93
Electricity	-	79.17	75.2	96.25
Septic tank (public plus individual)	-	15	45.7	100
Separate kitchen inside the house	29.2	38.11	41.5	72.46
LPG/PNG	-	33.33	29.1	67.5
Drainage Connection	-	-	45.4	48.10

Source: i. *Houselisting and Housing Census, West Bengal, India, 2011.*  
ii. *Field Survey, 2018*

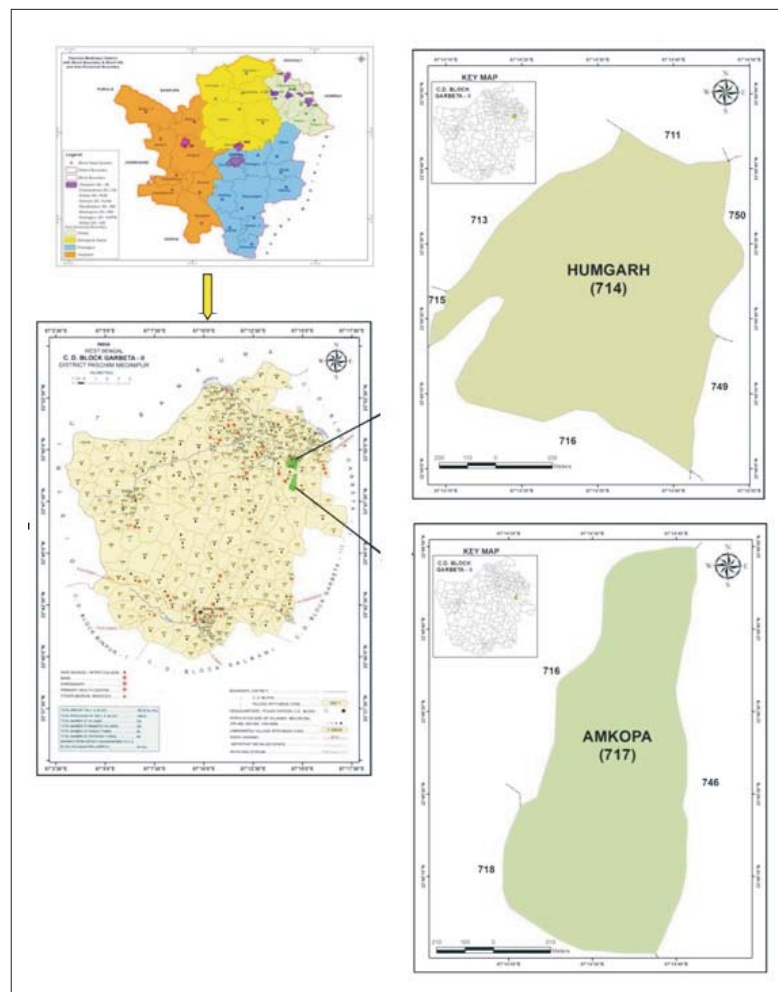


Fig 1: Location Map of Study Area



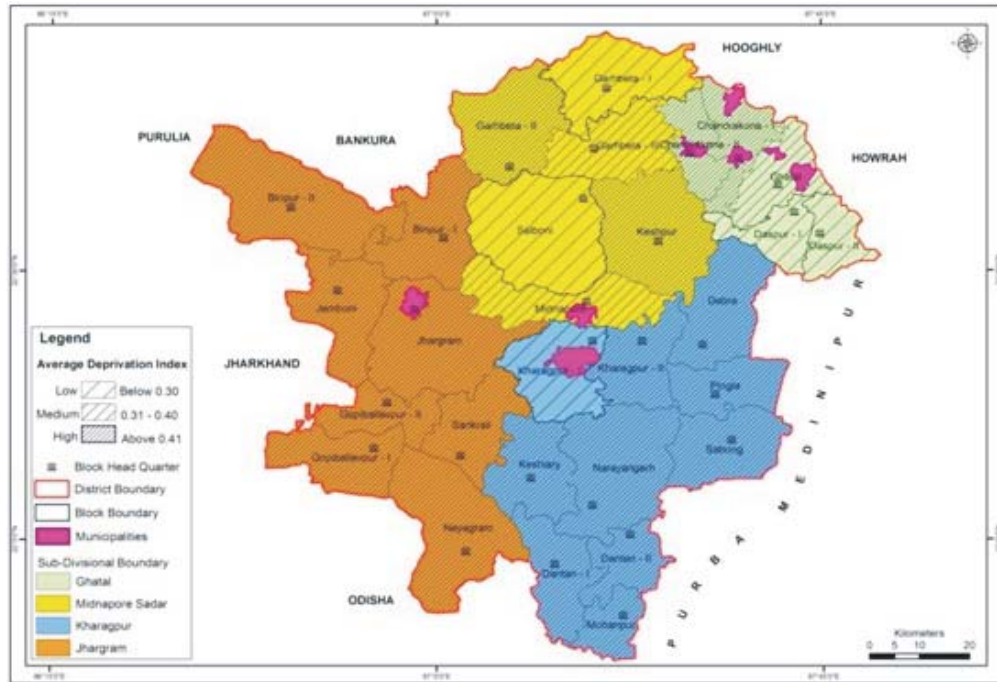


Fig 2: Regional Disparity in Housing Quality, CD Block-Wise, West Bengal, 2011

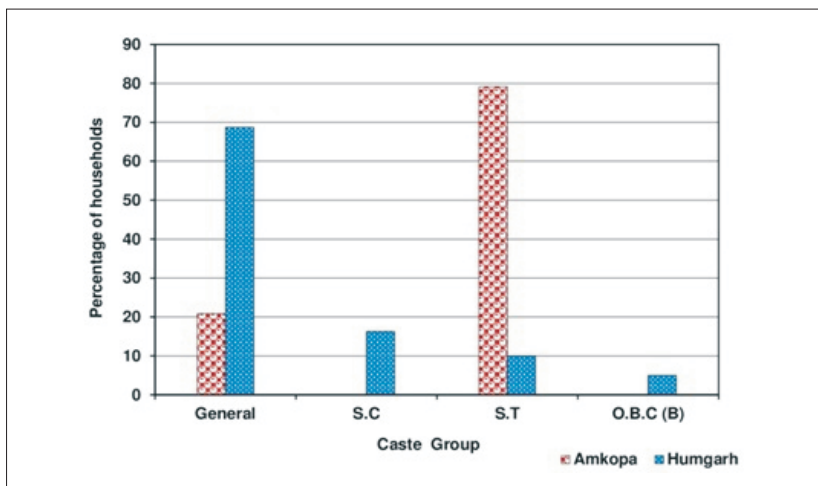


Fig.3: Caste Composition of the Two Selected Villages, Garbeta-II Block

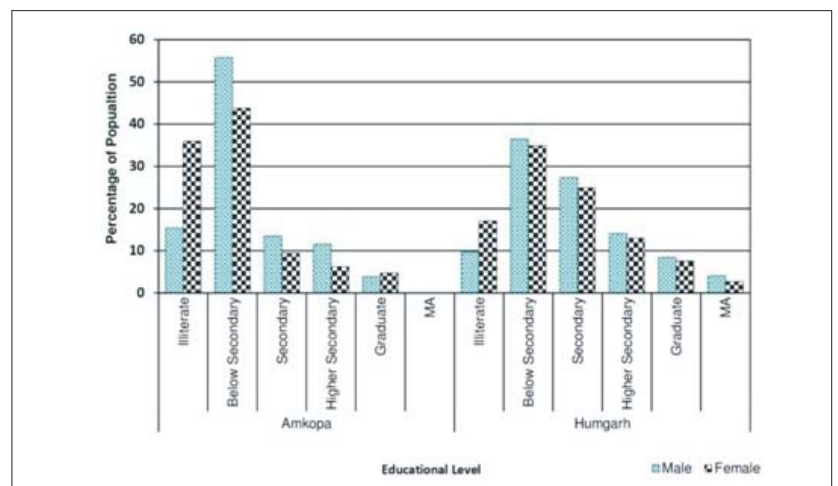


Fig 4: Level of Education of the Two Selected Villages, Garbeta-II Block



Fig 5: Good Housing Condition, Amkopa

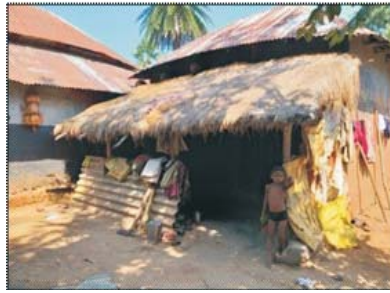


Fig 6: Dilapidated Housing, Amkopa



Fig 7: Sishu Siksha Kendra, Amkopa



Fig. 8: Safe Drinking Water, Amkopa



Fig 9: Electricity, Amkopa



Fig 10: Public Latrine (Abandoned), Amkopa



Fig.11: Good Housing Condition, Humgarh



Fig 12: Dilapidated Housing, Humgarh



Fig.13: H.S. School (Girls'), Humgarh



Fig. 14: Safe Drinking Water, Humgarh



Fig 15: Public Latrine, Humgarh



Fig 16: Open Drainage, Humgarh



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