

A Comparative Assessment of Household Quality of Living of Overall and Scheduled Caste Population of West Bengal, India

¹Shantanu Paul, ²Goutam Mandal, ³Biswajit Das and ⁴Lamhu Dolma Tamang

^{1,2}M.A in Geography, Department of Geography and Applied Geography, University of North Bengal, Darjeeling, West Bengal

^{3,4}Research Scholar, Department of Geography and Applied Geography, University of North Bengal, Darjeeling, West Bengal

ARTICLE DETAILS

Article History

Published Online: 20 January 2019

Keywords

Household environment, household quality of living, basic need, rural-urban difference

ABSTRACT

Housing is one of the main indices of a society's socio-economic growth. It is a difficult challenge to quantify living conditions and their impact on the well-being of residents because there are very few comparative metrics. The Household Quality of Living Index (HQLI) applies to three general aspects, including the state of accommodation, facilities and land. Based on 2011 Census results, the research is an attempt to investigate regional variation of the Districts of West Bengal in terms of HQLI. The primary aim of this research is to explain the pattern of space the standard of life of households with regard to the position of West Bengal among the district and the difference between overall and scheduled caste population. Composite index and Z -score is constructed based on seventeen selective variables categorized under three distinctive indices to calculate HQLI. Four major high zones are found in and around the surrounding areas of Kolkata, Darjeeling, Howrah and North 24 Pargana for overall households and Kolkata, Darjeeling, North 24 Pargana for Scheduled Caste households. Three districts namely Bankura, Uttar and Dakshin Dinajpur (15.79%) are under the very low HQLI category for overall households, while only two districts i.e., Birbhum and Bankura are under the very low HQLI category for SC households. Rests 21.05% of all districts are under moderate HQLI for both households. Therefore, it can be expressed that urban areas impair the standard of life of households in peripheral rural areas. The government should promote urbanization in those areas where the HQLI values are low to very low like Cooch Behar, Uttar & Dakshin Dinajpur, Maldah, Murshidabad, Bankura, Birbhum, and Purba Medinipur respectively. The paper introduces the idea of housing dimension evaluation in the Index of quality of life and the key metrics related to this quality of life dimension.

1. Introduction

A house is one of the most basic human needs and it is the first primary unit of human habitation (Nurdini & Harun, 2012; Kurian & Thampuran, 2001). Housing is also one of the main indicators of socio-economic development of a society. Housing is regarded as an important social determinant of physical and mental health and well-being (Streimikiene, 2014). The concept of housing quality varies widely according to the viewpoints of the people. A good habitat requires sufficient space, separate rooms for different purposes and sufficient privacy, good weather conditions such as sufficient sunlight, free air passage and nearby water availability, well drainage system and sanitation. The term of quality of life is used in a wide range of contexts, including the fields of international development, healthcare, environment and politics. Quality of life should not be mixed with the concept of standard of living, which is based primarily on income (Dolan, Peasgood & White, 2010; Helliwell & Barrington, 2010). Demand for measurement of quality of living was started in the beginning of 1960s with the purpose of enhancing the livelihood quality of people through policy implementation (Vitale, 2008). In the Fifth Five Year Plan (1974–79), the Minimum Need Program (MNP) was introduced to ensure a basic minimum standard of living for all parts of citizens especially living in the country's rural areas. Initially GDP (Gross Domestic Product) was considered as the commonly used indicator for assessing the quality of living and

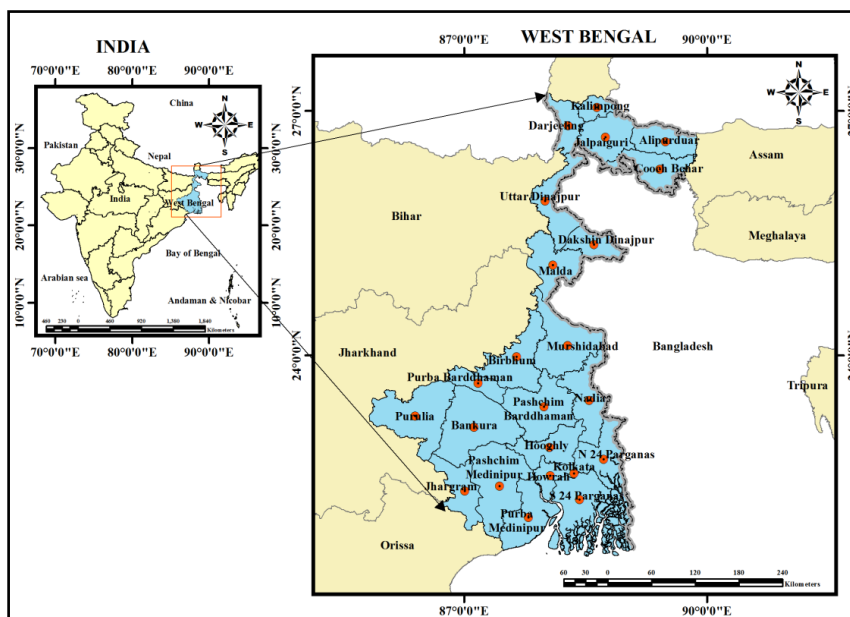
material wealth development of people within a region (Berenger & Audrey, 2007; Behera, 2016; Aggarwal, 2015; Stiglitz, Sen & Fitoussi, 2009). But only economic development is merely one dimension of quality of living. Quality of living comprises of many indicators and it's a multidimensional phenomenon which needs to be dealt with holistic approach (Kironji, 2008). Recent studies on quality of living have shown that the people's relation to their living environment is a key issue in their quality of life (Botteldooren, Dekoninck & Gillis, 2011; roller & Piccoli, 2010; Wen & Hawkey, 2006; Camargo, Ramirez & Fermio, 2017; Lestan, Erzen & Golobic, 2014) and improve housing condition has been identified as an important factor for promoting quality of life (Evans, Kantrowitz & Eshelman, 2002). In this study, the quality of living is measured with three essential elements of life, i.e., housing, basic amenities and asset possession of the households. Access to housing facilities, is a basic human need, next only to food and clothing. A comparative assessment between overall population and Schedule Caste population has been carried out to find spatial differentiation on quality of living. The purpose of the study is to show the spatial pattern of the household quality of living among the overall population and Schedule Caste population in West Bengal.

West Bengal is on the eastern bottleneck state of India, extended from north to south of the region with large geographical diversity in terms of physical and cultural landscape. The performance of economic growth of West

Bengal was quite remarkable during the 1st decade of this century. West Bengal experienced more than 6% growth rate during the last three 5-year plans (World Bank, 2017). In 2010–2011, West Bengal was ranked as the sixth largest economy in India with regard to net state domestic product (Dey, 2015).

This impressive economic performance would have a positive effect on the quality of living of the state. How the economic growth performance in the state spatially distributed can be inferred from the study of spatial pattern of household quality of living.

2. Study Area



Map 1 Location Map of the Study Area

West Bengal is a state along the Bay of Bengal, in the eastern region of India. It is the fourth-most populous state with over 91 million inhabitants, and the thirteenth-largest state by area in India. It lies between 85°50'E and 89°50'E longitude, and 21°25'N and 27°13'N latitude. It occupies an area of 88,752 Sq. km and is also seventh-populated country subdivision in the world. A part of the Indian subcontinent's Bengal region, it borders east on Bangladesh, and north on Nepal and Bhutan. This also crosses the Odissa, Jharkhand, Bihar, Sikkim, and Assam regions of India. The state capital is the seventh-largest city, Kolkata, and India's third-largest metropolitan area. West Bengal comprises the Darjeeling Himalayan hill region, the Ganges delta, the Rarh region and the Sundarban coast.

3. Objectives of the study

This study has two objectives, i.e.

- The study aims to find out spatial pattern of inter district household quality of living in West Bengal.
- This study aims to do comparative assessment of household quality of living between Overall and Schedule Caste population in West Bengal.

4. Data Source and Methodology

The house listing and housing table from the Census of India, 2011 is used in this study. House listing and housing table cover the housing condition, availability of basic amenities and asset possession of households.

Statistical Technique

In the study the mainly three statistical techniques has been used. These are Dimension Index for standardization of the variable, Composite score used for calculating the three indices and final housing quality and living index and then z score has been used for the categorized the data of the Housing Quality and Living Index and preparing the final map and GIS software has been used for preparing the map.

Dimension Index

The formula of range equalization method is the following:

$$X_{id} = \frac{OB_{val} - MIN_{val}}{MAX_{val} - MIN_{val}}$$

Where, X_{id} is the range equalization method, OB_{val} is the actual value, MIN_{val} stands for minimum value, and MAX_{val} represents the maximum value.

Composite Score:

Composite index is a synthetic measure from multiple set of variables. Composite index is a comprehensive and multidimensional index which helps to reduce multiple variables into a single variable. In this study, Household Quality of Living Index (HQLI), a multidimensional concept, is calculated considering three domains, i.e., Quality Housing Index (HI), Basic Amenities Index (BAI) and Asset Index (AI).

$$QHI = \frac{(CS_{cl} * SD_{vl}) + (CS_{c2} * SD_{v2}) \dots CS_{nx} + SD_{nx}}{N}$$

$$BAI = \frac{(CS_{c1} * SD_{v1}) + (CS_{c2} * SD_{v2}) \dots CS_{nx} + SD_{nx}}{N}$$

$$AI = \frac{(CS_{c1} * SD_{v1}) + (CS_{c2} * SD_{v2}) \dots CS_{nx} + SD_{nx}}{N}$$

Here, CS_{c1} is the component score coefficient, SD_{v1} is the standardized value of the indicator and N is the number of variables considered for computation of each index, respectively.

The household quality of living Index (HQLI) is calculated using the following equation:

$$HQLI = \frac{(\sum QHI + \sum BAI + \sum AI)}{N_{ind}}$$

HQLI is nothing but the average of individual index. Here, QHI, BAI, AI is the individual index and N_{ind} is the number of indices.

Z-Score

A z-score describes the position of a raw score in terms of its distance from the mean, when measured in standard deviation units. The z-score is positive if the value lies above the mean and negative if it lies below the mean. It is also known as a standard score, because it allows comparison of scores on different kinds of variables by standardizing the distribution. A standard normal distribution (SND) is a normally shaped distribution with a mean of 0 and a standard deviation (SD) of 1.

$$Z = \frac{X - \mu}{\sigma}$$

The formula for calculating a z-score is $z = (x-\mu)/\sigma$, where x is the raw score, μ is the population mean, and σ is the population standard deviation.

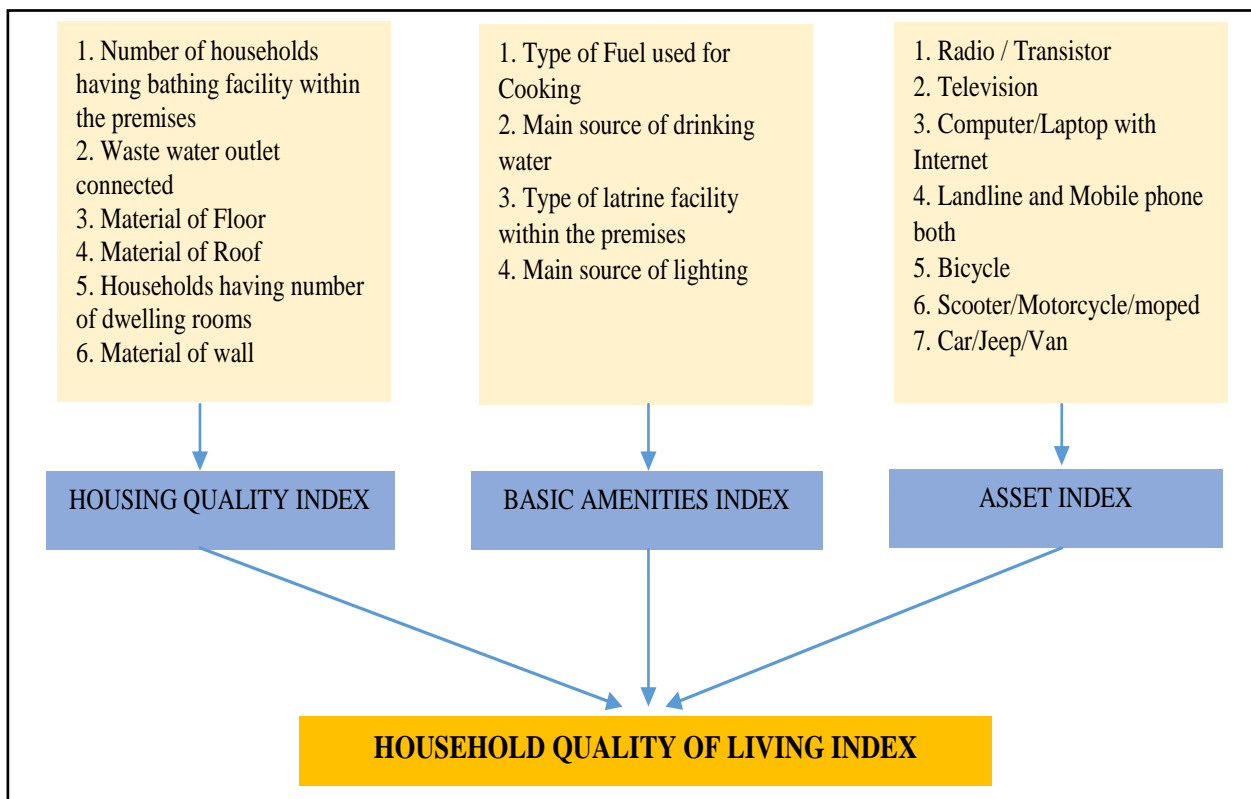


Figure 1 List of the variables for calculating the Household Quality of Living Index

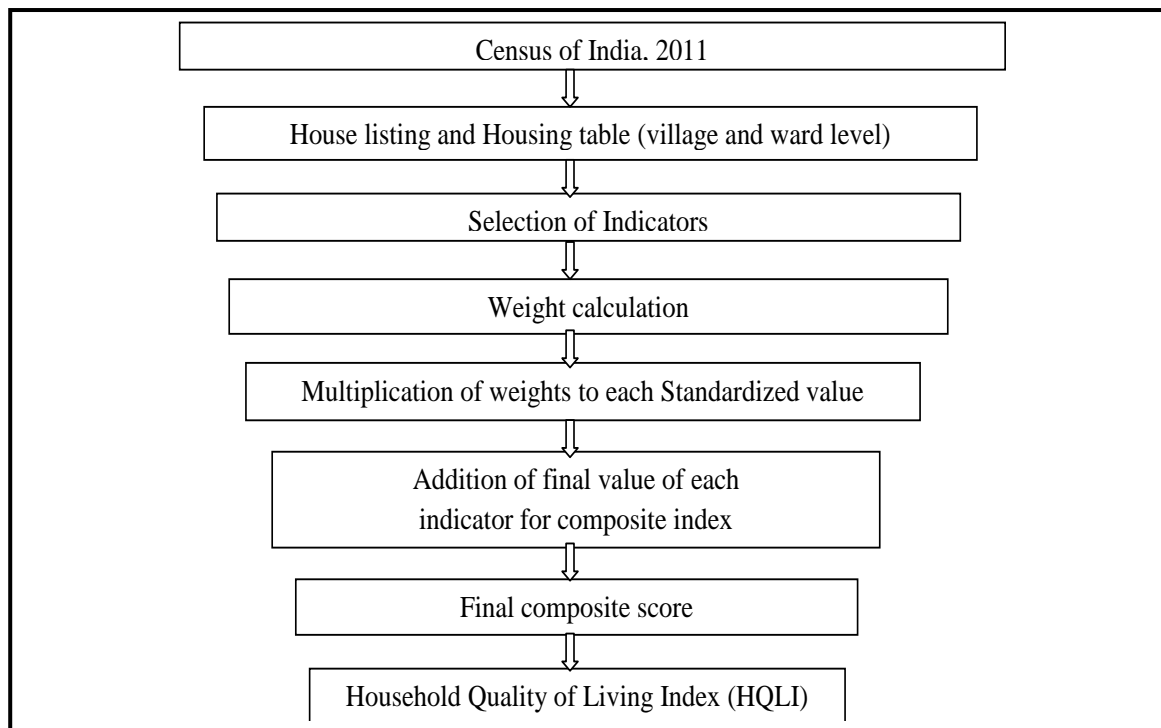


Figure 2 Methodological framework regarding calculation of HQLI

5. Result and Discussion

Table 1: District level Quality of Household Living

District	QHI		BAI		AI		HQLI		Z-Score	
	GEN	SC	GEN	SC	GEN	SC	GEN	SC	GEN	SC
Darjeeling	0.440	0.481	0.461	0.478	0.353	0.448	0.418	0.469	1.087	1.441
Jalpaiguri	0.311	0.299	0.352	0.342	0.258	0.274	0.307	0.305	-0.311	-0.127
Cooch Bihar	0.255	0.226	0.353	0.361	0.183	0.201	0.264	0.263	-0.853	-0.528
Uttar Dinajpur	0.266	0.247	0.259	0.247	0.191	0.265	0.239	0.253	-1.165	-0.622
Dakshin Dinajpur	0.263	0.258	0.274	0.294	0.214	0.239	0.250	0.264	-1.022	-0.517
Maldah	0.285	0.255	0.352	0.313	0.200	0.255	0.279	0.274	-0.661	-0.418
Murshidabad	0.331	0.266	0.296	0.299	0.192	0.233	0.273	0.266	-0.738	-0.496
Birbhum	0.258	0.181	0.277	0.271	0.236	0.178	0.257	0.210	-0.938	-1.031
Bardhaman	0.333	0.292	0.425	0.347	0.423	0.326	0.394	0.322	0.781	0.037
Nadia	0.325	0.298	0.429	0.466	0.403	0.308	0.385	0.357	0.678	0.376
North 24 Parganas	0.405	0.375	0.492	0.532	0.423	0.438	0.440	0.449	1.369	1.247
Hugli	0.387	0.317	0.441	0.388	0.267	0.320	0.365	0.342	0.420	0.224
Bankura	0.233	0.155	0.267	0.262	0.238	0.194	0.246	0.203	-1.078	-1.095
Purulia	0.256	0.186	0.218	0.259	0.420	0.248	0.298	0.231	-0.422	-0.832
Howrah	0.398	0.306	0.411	0.349	0.744	0.387	0.518	0.347	2.339	0.278
Kolkata	0.529	0.622	0.516	0.553	0.243	0.778	0.429	0.651	1.226	3.178
South 24 Parganas	0.271	0.225	0.444	0.327	0.288	0.315	0.334	0.289	0.036	-0.277
Paschim Medinipur	0.230	0.174	0.428	0.295	0.226	0.242	0.295	0.237	-0.463	-0.773
Purba Medinipur	0.346	0.245	0.337	0.428	0.243	0.260	0.309	0.311	-0.285	-0.064

Computed by the authors

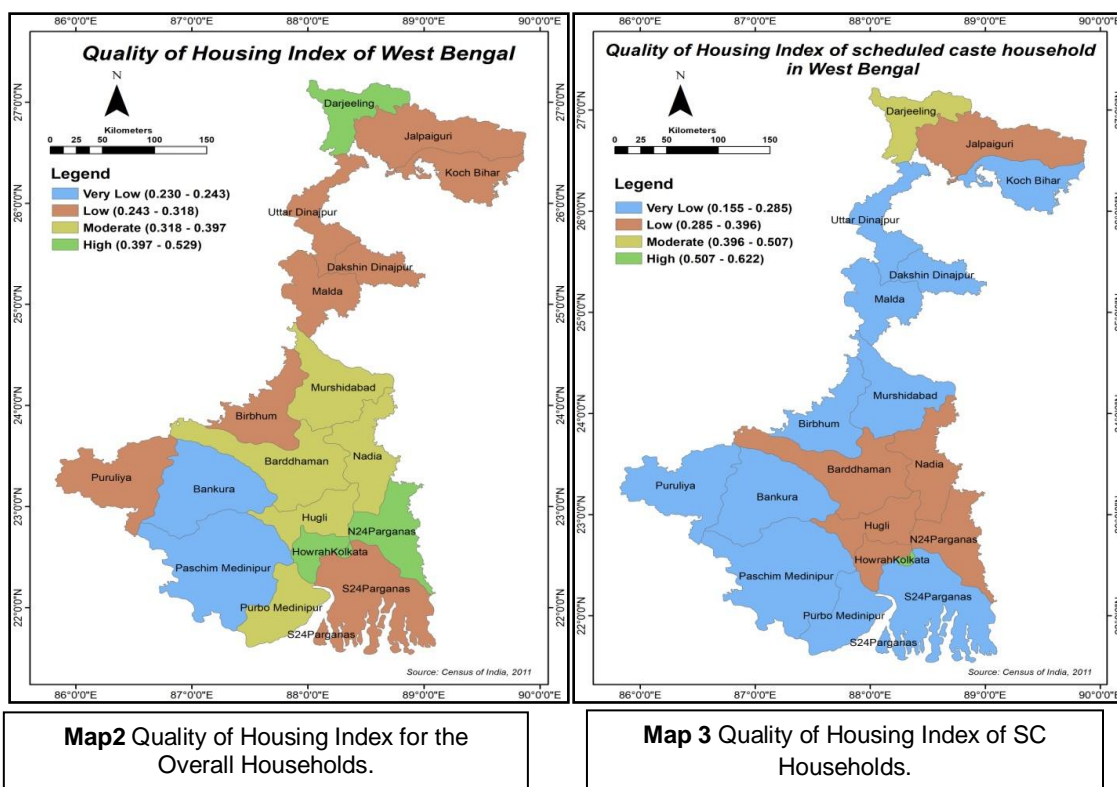
Quality of Housing Index (QHI)

Quality of housing depends on many indicators and can be defined as the quality of the internal and external structure of the house. Housing is a fundamental aspect of human living in satisfying the needs and wants of everyday life. The housing satisfaction of a household's depends on the quality of the

housing and it's also affecting the feeling of general well-being (Campbell, C. et.al, 1976; White & Schollaert, 1993). Better quality of housing gives higher quality of life for the inhabitants. The physical attributes surroundings and facilities of a house act as objective indicators for quality of life (Morris and winter, 1978; Nurizan and Halimah, 1993; Lawrence, 1995). A World

Bank report (1993) highlighted the low quality of houses in developing nations and reported that a large fraction of the population living in the developing world has limited access to quality housing. On the eve of the twelfth plan, solving the incompatibility between housing needs and housing shortage was recognized as a prime challenge for India (Kundu 2006). The primary step in alleviating the housing crisis would be quantitative estimation and dissemination of the pattern of the housing shortage. House listing and housing table of census provides data on the percentage of the household having the availability of housing, basic amenities and asset for each village and town in West Bengal. For assessing the quality of housing of Overall as well as Scheduled Caste population in West Bengal, 6 variables or indicators have taken into consideration (Figure 1). The average index value combined of

these 6 variables projected as quality of housing index for the dwellers. The study found that there are substantial differences in housing quality index within the district of west Bengal. On the basis of the data and score value the entire state has been divided in four categories and two maps have prepared on the value of the QHI values of the state. One map is for the overall population and other map is for the scheduled caste population. After study the map 2 and map 3 it is found that household quality index is higher in Darjeeling, North 24 Pargana, Howrah and Kolkata districts for overall household and in terms of scheduled caste population only Kolkata district is the only in this position. Moderate QHI are found in Murshidabad, Bardhaman, Hugli, Nadia and Purba Medinipur for overall population and only Darjeeling district has been found in this category for scheduled caste population.



Low QHI is observed in the eight districts which comprise 42.10 percent of the state, these are Jalpaiguri, Koch Bihar, Uttar Dinajpur, Dakshin Dinajpur, Malda, Birbhum, Purulia and South 24 Pargana for the overall population and six district, namely Jalpaiguri, Nadia, Bardhaman, Hugli, Howrah and North 24 Pargana falls under low QHI for scheduled caste population which comprise 31.57 percent share of the state and lastly for overall population very low QHI has been found in only two districts Paschim Medinipur and Bankura but for scheduled caste population the low QHI has been found in eleven district which is 57.89 percent of the state. So we can say there is diversified nature in housing quality index among the all districts of West Bengal and there is a huge difference between overall and scheduled caste population. The situation of the scheduled caste people is very worse in the state as it compares with the Quality of Housing Index. Only one district each has been found in high and moderate type of housing quality in the state for the scheduled caste population which is very less as comparison to the overall population of the state and in terms of very low quality of housing among the

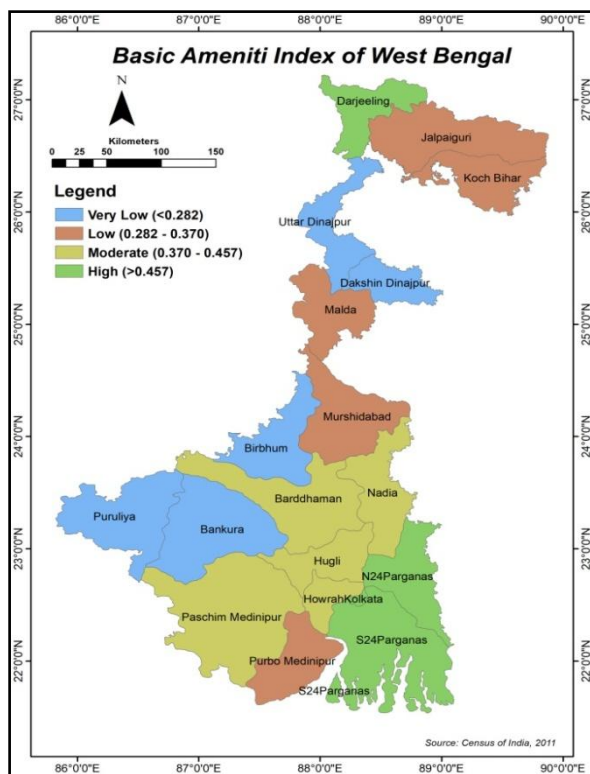
Scheduled Caste is 57.89 percent out of the total state whereas only 10.52 percent for the overall population fall under this category which is very less and it clearly shows the difference.

Basic Amenity Index (BAI)

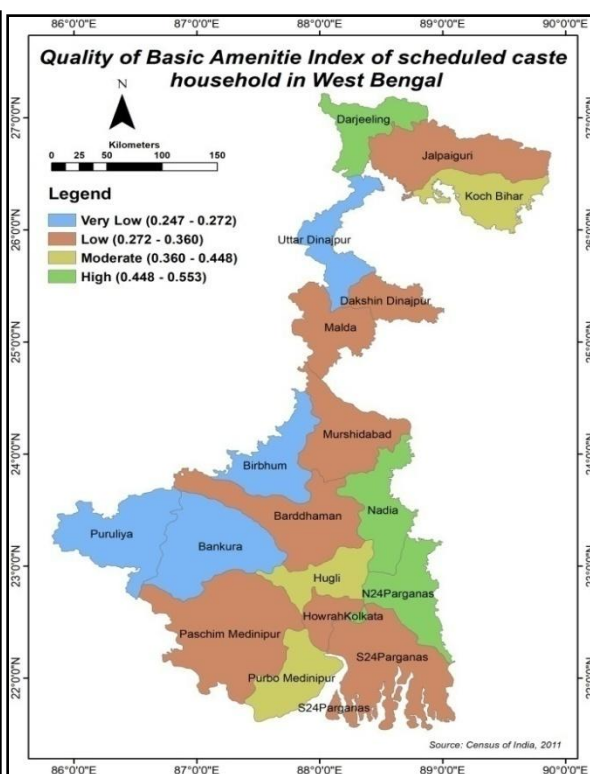
Basic amenities are fundamental components of a household which determine the quality of living in societies, regions as well as in nations (Bhagat, 2011). Basic amenities include all those provisions and facilities which are indispensable to human life in modern times. Access to cooking, access to safe drinking water, access to toilet facilities and having access to energy in the form of electricity etc. are certain fundamental determinants of quality of living (Mahajan, 2016). They also benefit by ensuring better health, environment and providing opportunities for other useful activities. Access to basic amenities also enables households to save foregone hours spent to arrange when these are not available in day to day life (Kumar, 2014). Access to basic amenities is fundamental concerns for less developed societies, particularly

for populations that are economically and socially underprivileged and thus draw considerable attentions from the policy makers, planners and development thinkers. One of the critical concerns raised in the ninth 5-year plan was the ever-increasing gap between the demand and supply of basic services (Planning Commission of India, 1997). In spite of the rapid economic growth in India for the last 2 decades, the universal coverage of basic services in terms of safe water supply, sewerage and toilet facility, and electricity remains the foremost challenge (Shaw, 2007). Universalisation of water and sanitation was one of the prime targets in the twelfth plan period (Planning Commission of India, 2013). The accessibility to the basic amenities like water, sanitation, housing, drainage, and electricity are heavily efficacious in improving the well-being, physical and material comfort and quality of living in

rural and urban areas (Kumar, 2014). According to spatial distribution of basic amenities which has been shown in the table 1, map 4 and map 5, it is found that high basic amenities are found in Darjeeling, North and South 24 Pargana and Kolkata which is 21.05 percent out of all the district for overall population and Darjeeling, Nadia, South 24 Pargana and Kolkata are the highest in terms of scheduled caste population which is exactly same with the overall population (21.05 percent) in terms of number of district. Moderate BAI has been found in Bardhaman, Nadia, Hugli, Howrah and Paschim Medinipur for overall population (26.31 percent) and only three districts namely Koch Bihar, Hugli and Purbo Medinipur are fall under this category for scheduled caste population which is 15.78 percent out of the total district.



Map 4 Basic Ameniti Index for Overall Households.



Map 5 Basic Ameniti Index for Scheduled Caste Households.

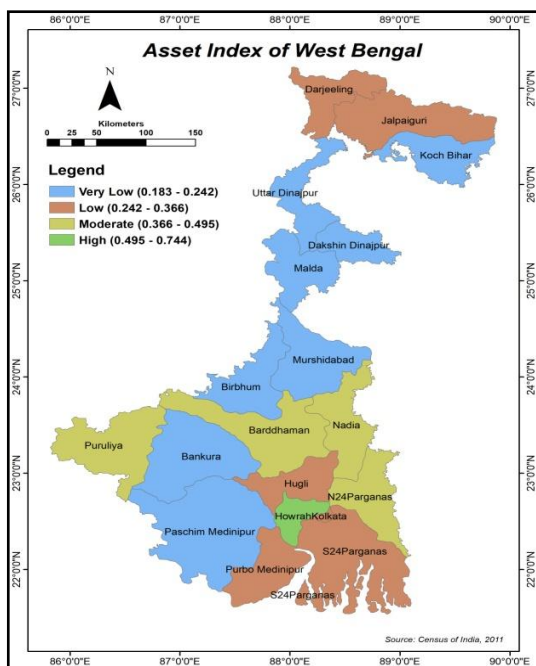
The low BAI is observed in five districts among them three are from the Northern part of West Bengal these are Koch Bihar, Jalpaiguri, Malda and only two district the from southern part of West Bengal Murshidabad and Purba Medinipur for overall population which comprise 26.31 percent and on the other hand for scheduled caste population low BAI is observed in the eight districts which comprise 42.10 percent, almost double from the overall population. It is shown not in terms of housing quality but in terms of basic amenity the scheduled caste people is far below form the average. Uttar Dinajpur, Dakshin Dinajpur, Birbhum, Purulia and Bankura districts have very low basic amenity index for overall population and for scheduled caste people except Dakshin Dinajpur all the four districts have similar and has very low amenity index in the state. So form the Basic amenity index it is observed that there is no such different has been found between the overall and scheduled caste population.

Asset Index (AI)

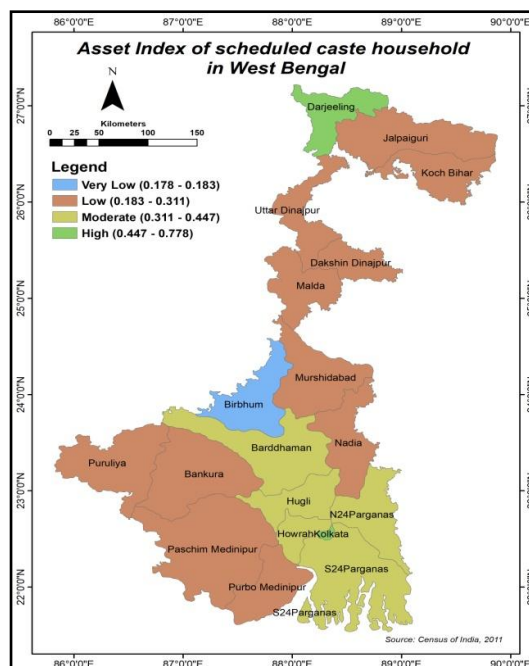
Asset Index or wealth index which is the name used in the Demographic and Health Surveys is a measurement unit regarding household welfare which generally serves for differentiating households according to economic status in the absence of expenditure or income data. This index was firstly introduced by Rutstein with the name of wealth index in 1997 to differentiate household economic status in Zambia Demographic and Health Survey. It was then improved by the proposals of Filmer and Pritchett and was started to be used in many countries (Rutstein and Johnson 2004). It is a composite index constructed by the availability of assets such as durables, automobiles, etc. in the household and characteristic of the dwellings. Asset possession is an indicator of economic proxies and wealth index. Standard of living index can also be calculated from combining them as a composite index

(Mohanty 2008). According to the spatial variation of assets among all districts of west Bengal we have categorised the data into four zones (map 6 and 7). High concentrations of

assets are found in those households residing in Kolkata and Howrah for overall households with 10.53%, while Kolkata and Darjeeling for Scheduled Caste households.



Map 6 Asset Index for Overall Households.



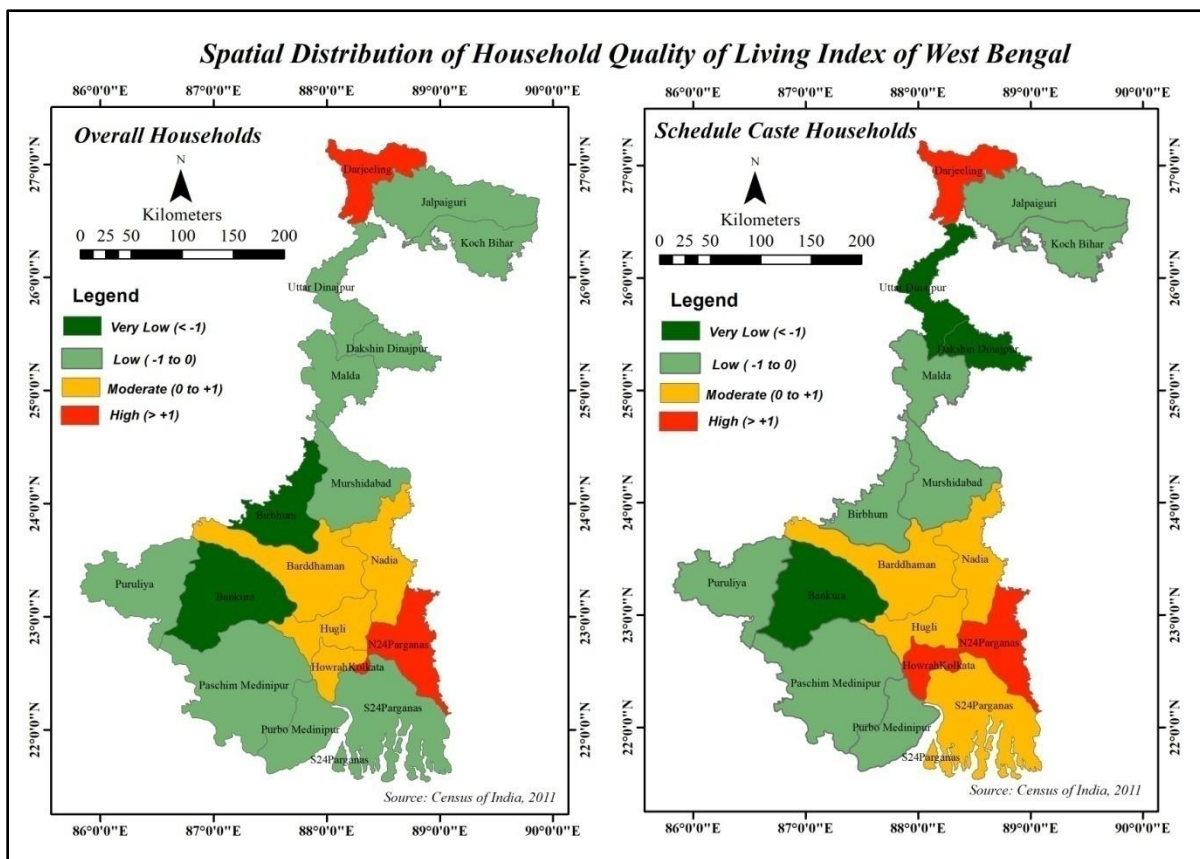
Map 7 Asset Index for Scheduled Caste Households.

Moderate AI is found in Purulia, Bardhaman, Nadia and North 24 Parganas in terms of overall households covering 21.05% of districts of the state. In case of Schedule Caste households the moderate AI is found in Bardhaman, Hugli, North and South 24 Parganas and Howrah with covering of 26.31% of the districts. Large proportion of the districts i.e. 68.42% in West Bengal are categorised under low to very low of AI for Overall households. Similar scenario has also found in case of Schedule Caste households with 63.16% of districts. Household ownership of properties also plays an important part in the standard of life of the household. A conclusion can be drawn that rural West Bengal's asset ownership is in very serious shape and in the case the scheduled caste population is slightly better than the overall population. The main reason is not the income of the population the main reason is the distance and the necessity. Most of the scheduled caste population lives in the rural area and their main occupations are farming and fishing so they need at least a bicycle at least to communicate with the urban center area for either sealing their product or buying. This increases the asset index slightly better than the overall population.

Household Quality of Living Index (HQLI)

Quality of life is the overall well-being of people and cultures, defining negative and optimistic life aspects. It consists of an individual's or society's aspirations for a healthy life. The beliefs, aspirations and socio-cultural background in which a person lives are driven by these expectations. It acts

as a guide by which the distinct realms of a personal life may be evaluated by an entity or community. The degree to which one's own life corresponds with an ideal normative level is called life satisfaction, or, stated alternatively, the degree to which these realms provide satisfaction and thereby add to one's subjective well-being. Quality of life encompasses everything from physical wellbeing, families, schooling, work, wealth, protection, security and democracy, religious values, and the atmosphere. QOL has a broad spectrum of contexts, including international growth, healthcare, governance, and welfare. In addition to wealth and employment, standard quality of life metrics include the constructed environment, physical and mental wellbeing, schooling, entertainment and leisure time, and social belonging. In addition, the guidelines identify and summarize existing WHO guidelines and recommendations related to housing, with respect to water quality, air quality, neighborhood noise, asbestos, lead, tobacco smoke and radon. The guidelines take a comprehensive, intersectoral perspective on the issue of housing and health and highlight co-benefits of interventions addressing several risk factors at the same time for HQLI. In west Bengal the trends of housing quality of living index is very diversify in nature. Both these accommodation, basic facilities and wealth ownership criteria play an important role in assessing the extent of the quality of life of households. Thus, to display the standard of household standard of life in West Bengal, a composite index of these variables is determined.



Map 8 Spatial Trends of Household Quality of Living Index with Z-score among all districts of West Bengal for Overall and Scheduled Caste population

According to the spatial distribution of Z-score of HQLI, this has been shown in table 1 and map 8, it is observe that the high concentration of HQLI has been found in Darjeeling, North 24 Pargana, Kolkata and Howrah which is 21.05% out of all the district for overall households and Darjeeling, North 24 Pargana and Kolkata for Schedule Caste households with 15.79% of all the districts. Large proportion of the districts i.e., 42% for overall households and 52.63% for SC households are under the low HQLI category. Three districts namely Bankura, Uttar and Dakshin Dinajpur (15.79%) are under the very low HQLI category for overall households, while only two districts i.e., Birbhum and Bankura are under the very low HQLI category for SC households with 10.53% of all districts. Rests 21.05% of all districts are under moderate HQLI for both households. A conclusion can be drawn that rural West Bengal's HQLI is in very serious shape. In affecting the magnitude of household quality of life, all these housing criteria play a significant role.

6. Conclusion

An integral dimension to recognizing the developmental model is defining the spatial sequence. It is hard to reliably assess success in alleviating affordable housing problems, and it is difficult to conclusively establish what the social and economic consequences of poor housing are. This is valid since, in both large and small scale housing trials, there are no

single steps that are inexpensive to use. A critical component to understanding the paradigms of growth is the recognition of Spatial Trends. The degree of urbanization plays a crucial role in the concept of Household Life Normative Spatiality. A technique that can be used to determine the housing quality criteria of a chosen community may be developed. Different metrics that relate to the housing quality criteria of all West Bengal districts and their relative weightage have been defined on the basis of this technique. After the study it is observed that the HQLI is more or less similar for overall and scheduled caste population and both are not in a good position except the Howrah for overall and Kolkata for scheduled caste population rest in all the district the dimension value of the HQLI is below 0.5 (Table 1) which is not satisfactory which shows that the economic growth of the state during the 2010-2015 is not helped the people to overcome their problem and improving their living standard.

So to improve the living standard of the people of the state the growth of transportation and connectivity and interregional infrastructure should developed and provide employment to the people in the income generation activity which increased their living standard, provide them the proper housing infrastructure along with the basic amenities and improve the health status of the people which could improve the living standard of the citizen of the state.

References

1. Nurdini, A., & Harun, I. B. (2017). Spatial bounded-choice behaviour within the consumer of rental housing in Bandung, Indonesia. *Journal of Asian Behavioural Studies*, 2(3), 95-104.
2. Kurian, S. M., & Thampuran, A. (2011). Assessment of housing quality. *Institute of Town Planners, India Journal*, 8(2), 74-85.
3. Ministarstvo zaštite okoliša i prostornog uređenja, Zavod za prostorno uređenje, 2013: Izvješće o stanju u prostoru Republike Hrvatske, Zagreb [In Croatian]
4. Štreimikienė, D. (2014). Housing indicators for assessing quality of life in Lithuania. *Intelektinė ekonomika*, 8(1), 25-41.
5. Vitale, A.S. (2008). Defining the quality-of-life paradigm. In: *City of disorder: how the quality of life campaign transformed*. New York University Press, 29–54.
6. Bérenger, V., & Verdier-Chouchane, A. (2007). Multidimensional measures of well-being: Standard of living and quality of life across countries. *World Development*, 35(7), 1259-1276.
7. Behera, D. K. (2016). Measuring socio-economic progress in India: Issues and challenges. *Revista Galega de Economía*, 25(2), 117-132.
8. Aggarwal SC (2015). Quality of life: issues and challenges in measurement. In IARIW -OCED Special Conference:W(h)ither the SNA?, pp 0–15
9. Stiglitz, J., Sen, A., & Fitoussi, J. P. (2009). The measurement of economic performance and social progress revisited. *Reflections and overview. Commission on the measurement of economic performance and social progress, Paris*.
10. <https://spire.sciencespo.fr/hdl:/2441/5j6uh8ogmqldh09h4687h53k/resources/wp2009-33.pdf>
11. Kironji, E. (2008). *Measuring quality of life in South Africa: a household-based development index approach* (Doctoral dissertation, University of Pretoria). <https://hdl.handle.net/2263/25060>
12. Dolan, P., Peasgood, T., & White, M. (2008). Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being. *Journal of economic psychology*, 29(1), 94-122.
13. Helliwell, J. F., & Barrington-Leigh, C. P. (2010). Measuring and understanding subjective well-being. *Canadian Journal of Economics/Revue canadienne d'économique*, 43(3), 729-753.
14. Botteldooren, D., Dekoninck, L., & Gillis, D. (2011). The influence of traffic noise on appreciation of the living quality of a neighborhood. *International journal of environmental research and public health*, 8(3), 777-798.
15. Rollero, C., & De Piccoli, N. (2010). Does place attachment affect social well-being?. *European Review of Applied Psychology*, 60(4), 233-238.
16. Wen, M., Hawkey, L. C., & Cacioppo, J. T. (2006). Objective and perceived neighborhood environment, individual SES and psychosocial factors, and self-rated health: An analysis of older adults in Cook County, Illinois. *Social science & medicine*, 63(10), 2575-2590.
17. Camargo, D. M., Ramírez, P. C., & Fermino, R. C. (2017). Individual and environmental correlates to quality of life in park users in Colombia. *International journal of environmental research and public health*, 14(10), 1250.
18. Lestan, K. A., Eržen, I., & Golobič, M. (2014). The role of open space in urban neighbourhoods for health-related lifestyle. *International journal of environmental research and public health*, 11(6), 6547-6570.
19. Evans, G. W., Kantrowitz, E., & Eshelman, P. (2002). Housing quality and psychological well-being among the elderly population. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 57(4), P381-P383.
20. World Bank (2017) West Bengal-Indicators at a Glance. In: World Bank Brief, Washington DC, United States. <https://www.worldbank.org/en/country/india/brief/india-states-briefs-west-bengal>
21. Dey, S. K. (2015). Regional inequality of West Bengal: a district level study. *Bangladesh Development Studies*, 38(1). 101-117.
22. Campbell, A., Converse, P. E., & Rodgers, W. L. (1976). *The quality of American life: Perceptions, evaluations, and satisfactions*. Russell Sage Foundation.
23. White, G. F., & Schollaert, P. T. (1993). Home ownership and well-being. *Housing and Society*, 20(1), 31-40.
24. World Bank (1993). *Housing, Enabling Market to Work*. Washington D.C.: World Bank.
25. Lawrence, R.J. (1995), Housing Quality: An Agenda for Research. *Urban Studies*, 32 (11): 1155-1664
26. Morris, E. & Winter M. (1798), The Assessment of Housing Needs and Conditions in Small Cities and Town in Iowa, Iowa Agriculture and Home Economics Experimental Station Project, 11-15.
27. Nurizan, Y. & Halimah, A. (1993), Kepuasan dan Defisit Perumahan di Rumah Kos Rendah Semenanjung Malaysia, *Jurnal Manusia dan Masyarakat*, 7: 3-20
28. Kundu A (2006) Report of the Technical Group on Urban Housing Shortage (TG-12) (2012–2017). Ministry of housing and urban poverty alleviation, Government of India, New Delhi, pp 1–112
29. Bhagat, R. B 'Urbanization and Access to Basic Amenities in India'. *Urban India*. VOL. 31 NO.1, pp 1-13, January-June 2011
30. Mahajan, S. K. (2016). Status of Basic Amenities across Major States of Urban India. *North Eastern Economic Review*, 17.
31. Kumar, A. (2014). Access to basic amenities: Aspects of caste, ethnicity and poverty in rural and urban India—1993 to 2008–2009. *Journal of Land and Rural Studies*, 2(1), 127-148.
32. Planning Commission of India (1997) Housing urban development water supply and civic amenities. In: Ninth five year plan (1997–2002), New Delhi, pp 1–46
33. Shaw A (2007) Basic amenities in urban India: analysis at state and town level. in ninth Asian urbanisation conference, Chuncheon, pp 1–33
34. Planning Commission of India (2013) urban development. In Twelfth five year plan (2012–2017), New Delhi, pp 318–61.

APPENDIX

District Name	Weightage Value of Room	Weightage Value of Wall	Weightage Value of Roof	Weightage Value of Floor	Weightage value of Drainage/Water	Weightage Value of QHI
Darjeeling	0.666	0.503	0.301	0.385	0.343	0.44
Jalpaiguri	0.314	0.407	0.269	0.286	0.278	0.311
Cooch Bihar	0.241	0.449	0.196	0.193	0.195	0.255
Uttar Dinajpur	0.241	0.239	0.372	0.195	0.284	0.266
Dakshin Dinajpur	0.311	0.168	0.345	0.212	0.278	0.263
Maldah	0.313	0.153	0.411	0.228	0.32	0.285
Murshidabad	0.291	0.187	0.507	0.277	0.392	0.331
Birbhum	0.338	0.124	0.288	0.264	0.276	0.258
Barddhaman	0.489	0.171	0.345	0.326	0.335	0.333
Nadia	0.251	0.328	0.436	0.262	0.349	0.325
North 24 Parganas	0.373	0.326	0.453	0.432	0.442	0.405
Hugli	0.498	0.188	0.387	0.445	0.416	0.387
Bankura	0.37	0.118	0.243	0.207	0.225	0.233
Purulia	0.355	0.129	0.3	0.232	0.266	0.256
Howrah	0.386	0.4	0.388	0.413	0.401	0.398
Kolkata	0.508	0.502	0.455	0.633	0.544	0.529
South 24 Parganas	0.262	0.221	0.344	0.237	0.291	0.271
Paschim Medinipur	0.383	0.138	0.221	0.198	0.209	0.23
Purba Medinipur	0.349	0.248	0.363	0.393	0.378	0.346

Table 2: Weightage Value of Overall households having each of the specified Quality of Housing

District Name	For Schedule Caste Households					
	Weightage value of Drainage/Water	Weightage Value of Floor	Weightage Value of Roof	Weightage Value of Room	Weightage Value of Wall	Weightage value of QHI
Darjeeling	0.42	0.369	0.338	0.688	0.59	0.481
Jalpaiguri	0.224	0.337	0.276	0.225	0.43	0.299
Cooch Bihar	0.201	0.182	0.202	0.202	0.345	0.226
Uttar Dinajpur	0.198	0.218	0.324	0.222	0.274	0.247
Dakshin Dinajpur	0.098	0.213	0.45	0.29	0.24	0.258
Maldah	0.078	0.231	0.435	0.331	0.197	0.255
Murshidabad	0.15	0.275	0.417	0.295	0.195	0.266
Birbhum	0.073	0.215	0.247	0.24	0.129	0.181
Barddhaman	0.257	0.293	0.298	0.387	0.227	0.292
Nadia	0.245	0.264	0.459	0.165	0.356	0.298
North 24 Parganas	0.404	0.417	0.425	0.276	0.352	0.375
Hugli	0.192	0.418	0.38	0.355	0.239	0.317
Bankura	0.01	0.186	0.212	0.227	0.138	0.155
Purulia	0.018	0.235	0.262	0.259	0.154	0.186
Howrah	0.194	0.425	0.372	0.252	0.288	0.306
Kolkata	1	0.691	0.438	0.484	0.494	0.622
South 24 Parganas	0.105	0.239	0.3	0.232	0.25	0.225
Paschim Medinipur	0.021	0.177	0.202	0.309	0.161	0.174
Purba Medinipur	0.03	0.352	0.345	0.278	0.221	0.245

Table 3: Weightage Value of Scheduled Caste households having each of the specified Quality of Housing

District Name	Weightage value of Cooking	Weightage Value of Drinking Water	Weightage Value of Latrine	Weightage Value of Lighting	Weightage Value of BAI
Darjeeling	0.236	0.608	0.648	0.353	0.461
Jalpaiguri	0.224	0.418	0.456	0.311	0.352
Cooch Bihar	0.183	0.315	0.57	0.346	0.353
Uttar Dinajpur	0.208	0.238	0.189	0.403	0.259
Dakshin Dinajpur	0.208	0.231	0.301	0.358	0.274
Maldah	0.343	0.313	0.239	0.513	0.352
Murshidabad	0.266	0.229	0.333	0.356	0.296
Birbhum	0.333	0.245	0.147	0.382	0.277
Barddhaman	0.398	0.242	0.528	0.533	0.425
Nadia	0.257	0.275	0.791	0.392	0.429
North 24 Parganas	0.336	0.282	0.91	0.441	0.492
Hugli	0.382	0.22	0.714	0.446	0.441
Bankura	0.386	0.198	0.102	0.383	0.267
Purulia	0.31	0.173	0	0.39	0.218
Howrah	0.303	0.216	0.756	0.37	0.411
Kolkata	0.454	0.267	1	0.342	0.516
South 24 Parganas	0.23	0.369	0.611	0.567	0.444
Paschim Medinipur	0.206	0.262	0.884	0.361	0.428
Purba Medinipur	0.325	0.225	0.413	0.387	0.337

Table 4: Weightage Value of Overall households having each of the specified Basic Amenity

District Name	For Schedule Caste Households				
	Weightage Value of Cooking	Weightage Value of Drinking Water	Weightage Value of Latrine	Weightage Value of Lighting	Weightage Value of BAI
Darjeeling	0.312	0.636	0.644	0.318	0.478
Jalpaiguri	0.237	0.376	0.457	0.297	0.342
Cooch Bihar	0.212	0.333	0.576	0.322	0.361
Uttar Dinajpur	0.222	0.196	0.257	0.312	0.247
Dakshin Dinajpur	0.242	0.242	0.269	0.425	0.294
Maldah	0.351	0.332	0.267	0.303	0.313
Murshidabad	0.287	0.229	0.337	0.343	0.299
Birbhum	0.28	0.237	0.047	0.522	0.271
Barddhaman	0.398	0.281	0.326	0.384	0.347
Nadia	0.284	0.242	0.881	0.459	0.466
North 24 Parganas	0.315	0.327	0.956	0.532	0.532
Hugli	0.333	0.313	0.476	0.429	0.388
Bankura	0.363	0.314	0.002	0.367	0.262
Purulia	0.33	0.401	0	0.306	0.259
Howrah	0.265	0.231	0.567	0.332	0.349
Kolkata	0.424	0.289	1	0.497	0.553
South 24 Parganas	0.241	0.179	0.625	0.264	0.327
Paschim Medinipur	0.223	0.311	0.253	0.393	0.295
Purba Medinipur	0.308	0.215	0.896	0.294	0.428

Table 5: Weightage Value of Scheduled Caste households having each of the specified Basic Amenity

District Name	Weightage Value of Radio	Weightage Value of Television	Weightage Value of Computer/Laptop	Weightage Value of Telephone	Weightage Value of Bicycle	Weightage Value of Scooter/Motorcycle/Moped	Weightage Value of Car/Jeep/Van
Darjeeling	0.315	0.614	0.251	0.205	0.142	0.53	0.385
Jalpaiguri	0.065	0.216	0.053	0.113	0.681	0.283	0.126
Cooch Bihar	0	0	0.028	0.039	0.603	0.01	0.038
Uttar Dinajpur	0.097	0.017	0.033	0	0.729	0.053	0.058
Dakshin Dinajpur	0.103	0.143	0.075	0.06	0.651	0.031	0.084
Maldah	0.101	0.008	0.141	0.026	0.459	0.019	0.031
Murshidabad	0.134	0.037	0.027	0.019	0.585	0	0
Birbhum	0.174	0.104	0.017	0.082	0.622	0.183	0
Barddhaman	0.241	0.401	0.174	0.19	0.817	1	0.231
Nadia	0.401	0.498	0.413	0.338	0.632	0.352	0.347
North 24 Parganas	0.44	0.484	0.222	0.302	0.953	0.792	0.124
Hugli	0.215	0.103	0	0.093	0.976	0.45	0.018
Bankura	0.086	0.028	0.058	0.017	0.908	0.371	0.033
Purulia	0.658	0.527	0.237	0.249	0.631	0.672	0.159
Howrah	1	1	1	1	0	0.692	1
Kolkata	0.443	0.23	0.094	0.057	0.341	0.012	0.161
South 24 Parganas	0.309	0.113	0.019	0.053	1	0.564	0.032
Paschim Medinipur	0.355	0.059	0.076	0.034	0.731	0.076	0.054
Purba Medinipur	0.145	0.216	0.081	0.074	0.815	0.137	0.077

Table 6: Weightage Value of Overall households having each of the specified assets

District Name	For Schedule Caste Households						
	Weightage Value of Radio	Weightage Value of Television	Weightage Value of Computer/Laptop	Weightage Value of Telephone	Weightage Value of Bicycle	Weightage Value of Scooter/Motorcycle/Moped	Weightage Value of Car/Jeep/Van
Darjeeling	0.219	0.638	0.252	0.582	0.483	0.875	0.497
Jalpaiguri	0.07	0.17	0.06	0.204	0.759	0.389	0.183
Cooch Bihar	0	0.019	0.041	0.102	0.612	0.142	0.107
Uttar Dinajpur	0.123	0.117	0.077	0.163	1	0.29	0.179
Dakshin Dinajpur	0.136	0.142	0.082	0.18	0.703	0.07	0.228
Maldah	0.161	0.073	0.243	0.209	0.391	0.205	0.153
Murshidabad	0.167	0.15	0.112	0.144	0.434	0.096	0.105
Birbhum	0.132	0.059	0.044	0	0.37	0	0.002
Barddhaman	0.174	0.246	0.154	0.243	0.636	0.488	0.221
Nadia	0.145	0.254	0.16	0.353	0.785	0.254	0.254
North 24 Parganas	0.351	0.445	0.418	0.567	0.541	0.447	0.533
Hugli	0.282	0.27	0.167	0.284	0.825	0.292	0.183
Bankura	0.165	0	0	0	0.773	0.09	0
Purulia	0.07	0.061	0.096	0.077	0.678	0.417	0.045
Howrah	0.601	0.403	0.155	0.4	0.453	0.504	0.212
Kolkata	1	1	1	1	0	1	1
South 24 Parganas	0.512	0.308	0.14	0.406	0.188	0.184	0.353
Paschim Medinipur	0.243	0.05	0.018	0.111	0.897	0.251	0.022
Purba Medinipur	0.376	0.038	0.145	0.218	0.529	0.103	0.186

Table 7: Weightage Value of Scheduled Caste households having each of the specified assets