

# Analyzing the Distribution and Variation of Household Assets and Amenities in North Bengal Municipalities: A Construction of Assets Index (ASI) and Amenity Index (AMI)

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**Abstract:** *This study aims to analyze the spatial distribution and variability of assets and household amenities in urban areas of North Bengal. The Assets Index (ASI) and Amenity Index (AMI) were constructed to assess ownership of different assets and evaluate the distribution of amenities. The concentration of assets evaluated through location quotient (LQ). The livelihood sustainability assessed by AMI index calculated that lighted the distribution of amenity and spatial variation with an investigation of regional inequality of basic amenities and coverage of household amenities on urban municipalities. It also focused on a causal relationship among assets (dependent), concentration of assets and on standard level of modern household amenities (independent). The study highlights regional inequality in basic amenities and examines the relationship between assets and amenities. The findings provide valuable insights for urban administrators and state governments in planning further development initiatives.*

**Keywords:** Assets index (ASI), Assets concentration, Amenity index (AMI), Correlation and inequality

## 1. Introduction

The household assets and amenities are an essential component for quality of life and well-being of the people. The analysis of assets and its concentration is intended to complement such measure that illuminates a clear understanding towards multi-dimensional character and also present status of the region (Adato, 2006). The measurement of assets and amenities indicate towards the measure of social well-being. Social well-being stands on so many dependent and independent causal factors of developing parameters. Despite its important it is an ill-defined concept and difficult to adequate measure (Diana Lee Ngo, 2012). To get a fair view of wealth and well-being this study attempted the indices of assets index, amenity index and also evaluated the concentration of assets. The main focus of this study was to compute assets and its spatial distribution over the municipalities and compute amenities with an investigation of regional inequality of basic amenities and coverage of household amenities on urban municipalities of North Bengal. It also holds a comparative relationship between assets, assets concentration and amenities. Several studies attempted cross the country and made a comparative study using the asset index (Sahn & Stifel 2000, Booyesen, 2007). Po et al. (2012) have computed the value of assets owned in different countries, based on using relative prices of World Bank CPI database to attempt comparisons among different countries. The University of Nijmegen has also elaborated a comparable asset index for 93 low- and middle-income countries. There are a limited number of items, but housing characteristics and access to public services are taken in account in the calculation of the index (Smits and Steendijk, 2012). The assets index computed based on parameters selected by socio economic census 2011 (Table: 1). The difference of (assets index value) highest 3.17 and lowest -

0.68 (rank<sup>1</sup> ~ rank<sup>31</sup>) ranges 3.85 it explained a wide unequal distribution of assets over the municipal areas and there was wide variation of assets possession among the municipalities. An extensive study carried out by Kaur and Meenakshi (2015) Household assets and amenities conveyed towards a better life of people, all the facilities those help to better life are the part of amenity such as safe drinking water, light, sanitation, waste out late etc. Electric light enables more reading for better education, safe water, sanitation and drainage connection reduce the prevalence of health hazards and also ensure the clean environment. In modern life, household possessions assets and amenities are the signs of social status and instruments for a better life. To investigate the regional inequality of basic amenities and coverage of household amenities on the municipality's amenity index computed that covered ten selected parameters as per socio economic census 2011 (Table: 6& 7). Access of basic amenities enables the households to achieve sustenance of life. If the amenity services are not available in day-to-day life it provides a bad standard of living. The importance of amenities for minimum standards of life has been highlighted in the international arena since it got included in the Millennium Development Goals (Kumar, 2014). There is strong relation found between assets and amenities (0.956). Those municipalities took a good rank of assets also have recorded good amenity but the relation of concentration of assets with assets index and amenity index were very weakly correlated (0.232, 0.170). An extensive study carried out by Carolin Marse and Adword Falton (2007) to analyse assets and their accumulation that intended to compliment such measures that extended clear understanding of social wealth. This paper also focused on assessment of assets and amenity as the form of social wealth and their spatial distribution and its concentration.

## 2. Study Area

West Bengal is the 13th largest state in India having an area of 88, 752 square kilometres and situated in between 21°25'N to 27°13'N and 85°50'E to 89°50'E. The northern part of West Bengal is known as North Bengal extends on 27179.89 square kilometre, that contained 33.62% area of the state. North Bengal has seven districts Darjeeling, Jalpaiguri, Kooch Bihar, Uttar Dinajpur, Dakshin Dinajpur, Malda and Mursidabad. There are a total of 31 municipalities in seven districts of North Bengal. The administrative view of North Bengal's districts are - district Darjeeling is divided into four Sub - Divisions consisting of 12 Community Development (C. D) Blocks and 5 municipalities (Darjeeling, Kalimpong, Kurseong, Mirik, Siliguri), district Jalpaiguri there are a total of 13 C. D. Blocks that consists of three Sub - Divisions and have 5 municipalities (Alipurduar, Dhupguri, Jalpaiguri, Mal, Siliguri), Kooch Bihar district which are spread over 12 C. D. Blocks, There are 6 municipalities in the district (Dinhata, Haldibari, Kooch Bihar, Mathabhanga, Mekliganj, Tufanganj), Uttar Dinajpur district there are two Sub - Divisions in the district namely Raiganj (District Headquarters) and Islampur, 9 C. D blocks and 4 municipalities (Dalkhola, Islampur, Kaliaganj, Raiganj). Dakshin Dinajpur district comprises of 8 C. D. blocks and 2 municipalities (Balurghat, Gangarampur). Malda is the southern district of the North Bengal. The district has two Sub - division namely Maldah Sadar and Chanchal. It has a total of 15 C. D blocks and 2 municipalities (Englishbazar, Old Malda). Mursidabad district is situated on the Eastern

peripheral plains of the State of West Bengal and it is the Northern - most district of North Bengal. The district has 5 Sub - divisions, viz. Berhampore Sadar, Jangipur, Lalbag, Kandi and Domkal with 26 C. D. blocks and 7 Municipalities (Beldanga, Berhampore, Dhulian, Jangipur, Jiaganj - Azimganj, Kandi and Murshidabad). The state has two distinct natural divisions i. e., the Himalayan Region and the Gangetic Plains. Himalayan region was further sub - divided into two parts (a) Darjeeling Himalayas - This zone consisted of Darjeeling district except the Siliguri Sub - Division. (b) Sub - Himalayan - This zone comprised of the districts of Jalpaiguri and Kooch Bihar and Siliguri Sub - Division of Darjeeling district. In Gangetic Plains, 14 districts of West Bengal were located. This region was further divided into four micro physiographic zones. These were Barind tract (North and South Dinajpur, Malda), Moribund Delta (Murshidabad). The North Bengal State has temperate in north to sub - tropical in south. Diversity of climate and topography are greatly influence the soil characteristics of the state. The soil of the state was classified into five groups (i) northern mountain acidic gravel soil zone of Jalpaiguri and Darjeeling, (ii) northern Tarai soil zone of Jalpaiguri, Kooch Bihar including Tarai and Duars region, (iv) alluvial soil zone of plain region of Kooch Bihar, Malda, Mursidabad, Based on origin and nature most of the river of the study area group of North Himalayan snow fed river Tista, Torsha, Joldhaka, Raidak, Sankosh, Kaljani, Machi, Balason, Lish, Ghis, Tangan, Mahananda. Mayurakshi, Dwarka, Ganga - Bhagirathi, Jalangi.

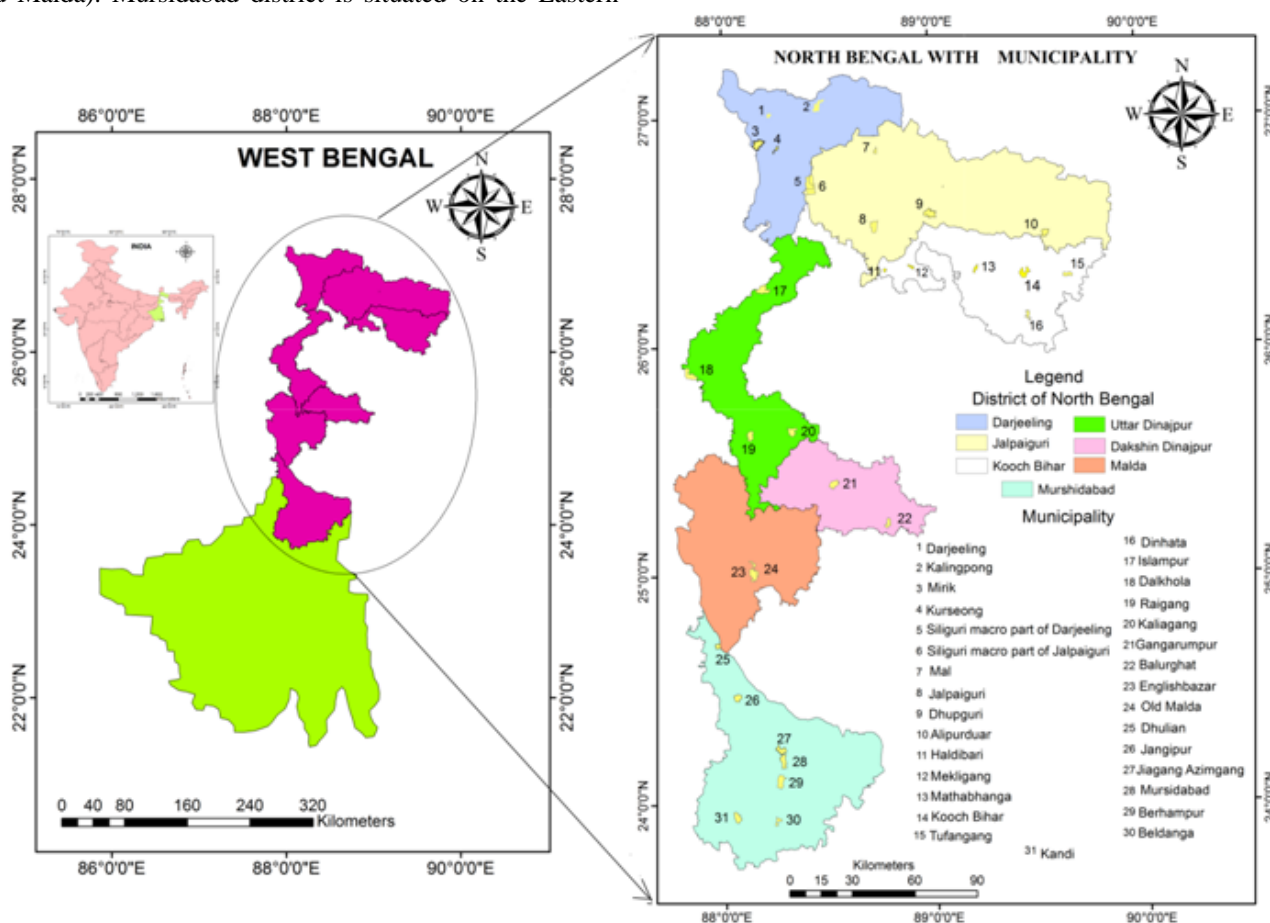


Figure 1: Location of study area

### 3. Methodology

The study utilized the Assets Index ASI based on household asset ownership and the Amenity Index AMI to evaluate the distribution of household amenities. Correlation analysis was performed to examine the relationship between assets and amenities. The study employed spatial analysis techniques to assess the regional inequality of amenities across North Bengal municipalities.

#### 3.1 Normalisation of Assets index and Amenity index

The computation of asset index depended on the ability of having set of living components that requires the better sustain of life, that index performed based on selected parameters of assets by the socio - economic census 2011. The parameters selected by socioeconomic survey of India was the number of households having refrigerator, landline, mobile, both mobile and landline, computer laptop with internet, computer laptop without internet, vehicles as two - wheeler, three - wheeler, four - wheeler, air conditioning, washing machine. Mentioned assets were taken in consideration that assigned a good and decent slandered of living. The dimension of valuation of the parameters of assets was different. The household level data of mentioned above parameters of different unit aggregated and normalized. There are many methods of normalisation to take a set of data as unit free as well as to make different parameters in a unidimensional direction such as ranking method, standardization by Z - scores probability method, min - max method, distance to reference method, categorical scale method etc. Z score selected as the method of normalization of different assets parameters. The normalized probability value of Z score summed. From the sum of Z probability value, a simple average of assets index computed (eq. . 2). the assets probability Standardisation or Z - score for each indicator calculated by subtracting the mean from the individual indicator value and dividing the result with the standard deviations (eq. . 1). The important criteria of the standardised Z - score probability was with the objective of minimum loss of information i. e., invariants of normalization without loss the information. The sum value of probability method ( $x_i$ ) is leads to a composite index of assets assessment, thus the normalized computation value of  $x_i$  assigned as asset index (eq. . 2). Togets the view of wealth of livelihood sustainability through the assets index (ASI) in urban municipality (Table: 1).

Amenity of the urban municipalities computed on parameters of (i) Drinking water within premises, (ii) Drinking water near remises (iii) Drinking water away premises as drinking water source (a), (iv) Electricity, (v) Kerosene, (vi) Solar as source of light (b), (vii) Waste open drainage (viii) Waste close drainage as waste water out late (d) (ix) Water seal latrine (c), (x) House hold having kitchen availability (e). The household having above parameters taken to assess amenity index (AMI). Before calculate amenity index all parameters treated as unidimensional direction (Table: 6 & 7) through (1/actual) those are comparatively indicated in negative relation ( $a \rightarrow a_2, b \rightarrow b_2, d \rightarrow d_1$ , Table: 6). The technique has used to compute AMI depended obviously the variables must also be at least moderately correlated to each other. After make them all as

unidirectional linear variable the main parameters of (a), (b), and (d) normalized through Eq. . 5, Eq. . 6 and Eq. . 7. The amenity index computed through the accumulation of normalized linear data of - (a). . . . . (e) indicators by using factor analysis (\*F  $\rightarrow$  c, e, Eq5. . . . . 7 \*PCA). . . Eq. . 8. As principal components analysis, factor analysis is an important multivariate method used for data reduction purposes. The main aim was to represent a set of amenity variables by a smaller number of variables. The factor value thus leads a value of amenity index (Table: 8a).

A large number of secondary data and statistical techniques were incorporated in this study. The detailed methodological planning was completed through Eq. . 1. . 8. The district wise municipality maps were collected from Census of India (2011), West Bengal Statistical Hand Book. The assets and amenity data collected from socio economic census 2011, Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, Government of India, 2011 (<http://censusindi.gov.in>). Analytical parts of statistical methods and data representation performed with the help of SPSS, Microsoft office Excel version 2007 and mapped Assets index, Concentration of amenity and Amenity index using Arc - GIS (10.3.1 version).

$$Z = (X - \mu) / \sigma \dots\dots\dots(\text{Eq } 1)$$

$$ASI = \sum_{i=1}^{11} x_i / n \dots\dots\dots (\text{Eq } 2)$$

$$As.Hn = \sum_{i=1}^{11} As.Hni / n \dots\dots\dots (\text{Eq } 3)$$

$$LQ = \frac{(As.Hn / H.Tn)}{(Dist.HTn / Sam.HTn)} \dots\dots\dots (\text{Eq } 4)$$

$$Sdr = \sum_{i=1}^3 a_i / 3 \dots\dots\dots(\text{Eq } 5)$$

$$Ls = \sum_{i=1}^3 b_i / 3 \dots\dots\dots (\text{Eq } 6)$$

$$Oww = \sum_{i=1}^2 d_i / 2 \dots\dots\dots (\text{Eq } 7)$$

$$AMI = (*F \rightarrow c, e, \text{Eq}_{5, \dots, 7}; *PCA) \dots\dots\dots (\text{Eq } 8)$$

Where, (Eq1) ... Z - Normalized z score of each parameter, x - is individual observation,  $\mu$  - is variable mean and  $\sigma$  - is standard deviation; (Eq2) ... ASI - Assets index,  $x_i$  - is standardised Z, n - number of standardised Z variable; (Eq3)... As.Hn - average normalised assets under all parameters of each municipality, As.Hn<sub>i</sub> - number of household in all assets parameter, n - number of assets parameter; (Eq4)... LQ - location quotient, H.Tn - Total number of household under the municipality, Dist.HTn - Total number of household of the district, Sam.HTn - total number of household in study area municipality; (Eq5)... Sdr - Drinking water source, a<sub>1</sub> - Drinking water with premises, a<sub>2</sub> - Drinking water near remises, a<sub>3</sub> - Drinking water away premises; (Eq6)... Ls - Source of light, b<sub>1</sub> - electricity, b<sub>2</sub> - kerosene, b<sub>3</sub> - solar; (Eq6)... Oww - Waste water out late, d<sub>1</sub> - waste open drainage, d<sub>2</sub> - waste close drainage; Ak - Having kitchen available; AMI - amenity index, \*F - factor analysis Sdr, Ls, Oww, \*PCA - extraction method principal component analyses.

4. Result and Discussion

4.1 Assets Status

An asset is a resource owned or controlled by an individual or a family or govt etc. It represents the wealth of a household or individual and presents the living standard. The present study covered thirty - one municipals of seven district of North Bengal, West Bengal state of India. Based on socioeconomic census of India (2011) assets computed on given parameters (i) refrigerator, (ii) Landline, (iii) Mobile, (iv) Both mobile and landline, (v) Computer laptop with internet, (vi) Computer laptop without internet, (vii) Two - wheeler, (viii) Three - wheeler, (ix) Four - wheeler, (x) Air - conditioning and (xi) Washing machine (Table: 1). From the Normalized value of assets distribution (Table: 2) found that most importantly dominated assets for livelihood sustenance of household in thirty - one municipals of seven district of North Bengal were Mobile 46.82% (rank 1), Refrigerator 20.53% (rank 2), Two - wheeler 12.31% (rank 3) and Washing machine 4.47% (rank 4). Assets index value ranges from high positive value to low negative value. The positive value of the municipality represents as the high level of assets of urban household and on the other hand negative assets index value represents as low level of assets in urban household (Table 1).

Based on the assets index value the municipality ranked (rank 1) as highest assets and so on. From the point of view of living standard, it has much possibility the municipality having highest assets have a good standard of life. The rank of top most assets distribution found on Siliguri macro part of Darjeeling 3.17 (rank 1), Englishbazar 2.15 (rank 2),

Siliguri macro part of Jalpaiguri 1.25 (rank 3), Berhampor 1.15 (rank 4), Balurghat 0.91 (rank 5), Jalpaiguri 0.91 (rank 6), Kooch Bihar 0.30 (rank 7), Raigang 0.20 (rank 8), Darjeeling 0.18 (rank 9) and Old Malda - 0.13 (rank 10) this municipality was in a good assets possession of North Bengal of West Begal state. The municipality ranked in the bottom assigned as a low assets possession. The very bottom and negative value assets index municipality were Kurseong - 0.51 (rank 21), Tufangang and Mathabhanga - 0.52 (rank 22), Mursidabad and Mal - 0.53 (rank 24), Dhulian and Dalkhola - 0.55 (rank 25), Beldanga and Dalkhola - 0.59 (rank 28), Haldibari - 0.63 (rank 29), Mirik - 0.67 (rank 30), Mekligang - 0.68 (rank 31) (Table: 1). The assets index value of thirty - one municipalities has a wide range of variation over the North Bengal urban area. The difference of assets value of highest 3.17 and lowest - 0.68 (rank 1 ~ rank 31) ranges 3.85 it explains a wide unequal distribution of assets over the municipal areas. Based on assets index the municipality categorised in three group of assets possession i. e., low (< - 0.50), moderate ( - 0.50 - 0.50) and high (>0.50) (Table: 3). There were 35.45% municipality under the low assets possession having assets index value < - 0.50 namely Mirik, Kurseong, Mal, Haldibari, Mekligang, Mathabhanga, Tufangang, Dalkhola, Dhulian, Mursidabad, Beldanga. Among the thirty - one municipality 45.16% fallen under the moderately assets index value of - 0.50 - 0.50 they were Darjeeling, Kalimpung, Mirik, Kurseong, Mal, Siliguri Macro part of Jalpaiguri, Alipurduar, Mekligang, Dalkhola, Raigang, Berhampur. The high assets index value > 0.50 found on 19.53% municipalities they were Siliguri Macro part of Darjeeling, Siliguri Macro part of Jalpaiguri, Jalpaiguri, Balurghat, Englishbazar and Behrampu (Table 3).

Table: Assets computation based on Zvalue.

District	Municipality	1 (x <sub>1</sub> )	2 (x <sub>2</sub> )	3. (x <sub>3</sub> )	4 (x <sub>3</sub> )	5. (x <sub>5</sub> )	6. (x <sub>6</sub> )	7 (x <sub>7</sub> )	8 (x <sub>8</sub> )
Darjeeling	Darjeeling	- 0.03	- 0.35	0.4	- 0.17	0.41	0.84	- 0.63	- 0.56
	Kalimpong	- 0.33	- 0.49	- 0.46	- 0.58	- 0.15	- 0.22	- 0.66	- 0.62
	Kurseong	- 0.57	- 0.54	- 0.65	- 0.63	- 0.41	- 0.35	- 0.72	- 0.62
	Mirik	- 0.74	- 0.54	- 0.91	- 0.67	- 0.64	- 0.7	- 0.72	- 0.58
	Siliguri	3	1.65	2.84	3.31	3.61	3.31	2.92	3.49
Jalpaiguri	Alipurduar	- 0.19	- 0.24	- 0.22	0.07	- 0.3	- 0.25	- 0.25	0.12
	Dhupguri	- 0.49	- 0.5	- 0.47	- 0.51	- 0.46	- 0.55	- 0.43	- 0.53
	Jalpaiguri	0.91	1	0.16	2.84	1.12	1.18	0.71	- 0.02
	Mal	- 0.56	- 0.4	- 0.75	- 0.47	- 0.51	- 0.6	- 0.51	- 0.54
	Siliguri	1.29	0.29	2.1	0.46	0.95	1.2	1.91	2.1
Kooch Bihar	Dinhata	- 0.45	- 0.34	- 0.61	- 0.16	- 0.45	- 0.37	- 0.33	- 0.52
	Haldibari	- 0.69	- 0.52	- 0.87	- 0.57	- 0.62	- 0.68	- 0.63	- 0.58
	Kooch Bihar	0.35	0.1	- 0.04	0.83	0.35	0.41	0.22	0.15
	Mathabhanga	- 0.58	- 0.51	- 0.73	- 0.46	- 0.49	- 0.53	- 0.5	- 0.43
	Mekliganj	- 0.74	- 0.52	- 0.99	- 0.65	- 0.65	- 0.77	- 0.7	- 0.61
Tufanganj	- 0.6	- 0.45	- 0.82	- 0.37	- 0.54	- 0.5	- 0.51	- 0.32	
Utter Dinajpur	Dalkhola	- 0.64	- 0.47	- 0.68	- 0.6	- 0.57	- 0.7	- 0.57	- 0.39
	Islampur	- 0.39	- 0.44	- 0.34	- 0.42	- 0.47	- 0.35	- 0.34	0.26
	Kaliaganj	- 0.42	- 0.45	- 0.34	- 0.38	- 0.38	- 0.49	- 0.37	- 0.52
	Raiganj	0.32	0.6	0.75	0.04	- 0.04	0.02	0.28	0.1
Dakshin Dinajpur	Balurghat	0.92	2.22	1.2	0.6	0.39	1	0.7	2.14
	Gangarampur	- 0.53	- 0.47	- 0.37	- 0.55	- 0.55	- 0.48	- 0.48	- 0.29
Malda	Englishbazar	2.57	4.05	2.06	1.66	2.51	2.53	2.5	1.81
	Old Malda	- 0.49	- 0.47	- 0.05	- 0.57	- 0.55	- 0.46	- 0.27	0.2
Mursidabad	Beldanga	- 0.6	- 0.52	- 0.63	- 0.61	- 0.59	- 0.66	- 0.57	- 0.6
	Berhampore	2.12	0.06	1.91	1.06	1.56	1.12	2.1	- 0.26
	Dhulian	- 0.59	- 0.48	- 0.17	- 0.63	- 0.6	- 0.75	- 0.59	- 0.55
	Jangipur	- 0.42	- 0.34	- 0.01	- 0.55	- 0.42	- 0.62	- 0.34	- 0.26

	Jiaganj - Azimganj	- 0.47	- 0.17	- 0.47	- 0.31	- 0.42	- 0.55	- 0.41	- 0.48
	Kandi	- 0.41	- 0.33	- 0.36	- 0.38	- 0.51	- 0.48	- 0.38	- 0.58
	Murshidabad	- 0.54	- 0.43	- 0.49	- 0.61	- 0.57	- 0.58	- 0.42	- 0.52

**Table 1:** Assets computation based on Z value (Continued)

District	Municipality	9 (x <sub>9</sub> )	10. (x <sub>10</sub> )	11. (x <sub>11</sub> )	$\sum_{i=1}^{11} x_i$	ASI	Rank
Darjeeling	Darjeeling	0.71	- 0.3	1.67	1.98	0.18	9
	Kalimpong	0.18	- 0.54	- 0.2	- 4.02	- 0.37	13
	Kurseong	- 0.35	- 0.55	- 0.2	- 5.62	- 0.51	21
	Mirik	- 0.59	- 0.58	- 0.7	- 7.33	- 0.67	30
	Siliguri	4.44	2.67	3.62	34.86	3.17	1
Jalpaiguri	Alipurduar	- 0.04	- 0.28	- 0.3	- 1.91	- 0.17	11
	Dhupguri	- 0.38	- 0.49	- 0.6	- 5.37	- 0.49	20
	Jalpaiguri	0.98	0.68	0.41	9.96	0.91	6
	Mal	- 0.41	- 0.52	- 0.6	- 5.85	- 0.53	24
	Siliguri	1.67	0.72	1.06	13.73	1.25	3
Kooch Bihar	Dinhata	- 0.38	- 0.48	- 0.5	- 4.58	- 0.42	17
	Haldibari	- 0.57	- 0.54	- 0.7	- 6.92	- 0.63	29
	Kooch Bihar	0.55	0.17	0.2	3.29	0.3	7
	Mathabhanga	- 0.44	- 0.5	- 0.6	- 5.77	- 0.52	22
	Mekliganj	- 0.64	- 0.57	- 0.7	- 7.51	- 0.68	31
	Tufanganj	- 0.48	- 0.54	- 0.6	- 5.76	- 0.52	22
Utter Dinajpur	Dalkhola	- 0.47	- 0.4	- 0.6	- 6.07	- 0.55	26
	Islampur	- 0.32	- 0.41	- 0.5	- 3.71	- 0.34	12
	Kaliaganj	- 0.36	- 0.33	- 0.5	- 4.54	- 0.41	16
	Raiganj	- 0.08	0.26	0	2.23	0.2	8
Dakshin Dinajpur	Balurghat	0.04	0.74	0.54	10.49	0.95	5
	Gangarampur	- 0.44	- 0.48	0.46	- 4.18	- 0.38	14
Malda	Englishbazar	0.81	3.74	- 0.6	23.65	2.15	2
	Old Malda	- 0.48	- 0.45	2.19	- 1.4	- 0.13	10
Mursidabad	Beldanga	- 0.61	- 0.51	- 0.6	- 6.5	- 0.59	28
	Berhampore	0.41	1.52	1.04	12.64	1.15	4
	Dhulian	- 0.61	- 0.46	- 0.6	- 6.06	- 0.55	26
	Jangipur	- 0.48	- 0.29	- 0.5	- 4.21	- 0.38	14
	Jiaganj - Azimganj	- 0.54	- 0.38	- 0.5	- 4.75	- 0.43	18
	Kandi	- 0.52	- 0.42	- 0.6	- 4.95	- 0.45	19
	Murshidabad	- 0.59	- 0.48	- 0.6	- 5.85	- 0.53	24

Note\*\* Reference ID description 1. Refrigerator (x1), 2. Land line (x2), 3. Mobile (x3), 4. Both mobile & landline (x4), 5. Computer, Lap with internet (x5), 6. Comp Lap with no internet (x6), 7. Two - Wheeler (x7), 8. Three - Wheeler (x8), 9. Four - Wheeler (x9), 10. AC (x10), 11. Washing machine (x11).

**Table 2:** Normalized value of assets distribution

Parameters	Minimum	Maximum	Mean	Std. Deviation	% of assets	Rank
1. Refrigerator	235	27978	5731.49	7411.02	20.53	2
2. Landline	4	1079	130.65	234.21	0.47	10
3. Mobile	992	47777	13067.06	12235.22	46.82	1
4. Landline and Mobile	32	6532	1123.52	1633.20	4.03	5
5. Computer laptop with internet	34	6720	1051.13	1570.11	3.77	6
6. Computer laptop without internet	41	4621	903	1121.76	3.24	7
7. Two - wheeler	43	17124	3435.29	4686.88	12.31	3
8. Three - wheeler	0	349	52.90	84.91	0.19	11
9. Four - wheeler	49	4793	645.58	933.93	2.31	8
10. Air Conditioning	0	3935	524.78	912.03	1.88	9
11. Washing machine	25	7807	1246.36	1809.88	4.47	4

**Table 3:** Statistics of indices fall in the different classes.

Assets index (normalized Z value)				
Category	Z score	No of municipality	% of municipality	Name
Low	< - 0.50	11	35.48	Mirik, Kurseong, Mal, Haldibari, Mekligang, Mathabhanga, Tufanganj, Dalkhola, Dhulian, Mursidabad, Beldanga.
Moderate	- 0.50 – 0.50	14	45.16	Darjeeling, Kalimpong, Dhupguri, Alipurduar, Kooch Bihar, Dinhata, Islampur, Raiganj, Kaliaganj, Gangarampur, Old Malda, Jangipur, Jiaganj – Azimganj, Kandi.

High	>0.50	6	19.35	Siliguri Macro part of Darjeeling, Siliguri Macro part of Jalpaiguri, Jalpaiguri, Balurghat, Englishbazar, Behrampur.
Concentration of assets (LQ)				
Category	LQ	No of municipality	% of municipality	Name
Very low	< 0.59	7	22.58	Dhupguri, Dhulian, Jangipur, Jiagan – Azimgang, Mursidabad, Beldanga, Kandi.
Low	0.59 – 0.90	11	35.48	Darjeeling, Kalimpong, Mirik, Kurseong, Mal, Siliguri Macro part of Jalpaiguri, Alipurduar, Mekligang, Dalkhola, Raigang, Berhampur.
Moderate	– 1.15	6	19.35	Siliguri Macro part of Darjeeling, Jalpaiguri, Islampur, Kaliagan, Gangarumpur, Old Malda.
High	0.90>1.15	7	22.58	Haldibari, Mathabhanga, Kooch Bihar, Tufanganj, Dinjata, Balurghat, Englishbazar.

**4.2 Concentration of Assets**

Concentration of assets is an important quantitative measurement to view a socioeconomic condition. The regional assets possession and concentration of assets computed by utilizing the location quotient in a powerful way through taking the assets dimensions of (i) refrigerator, (ii) Landline, (iii) Mobile, (iv) Both mobile and landline, (v) Computer laptop with internet, (vi) Computer laptop without internet, (vii) Two - wheeler, (viii) Three - wheeler, (ix) Four - wheeler, (x) Air - conditioning and (xi) Washing machine (Table: 4 & 5). The concentration of assets of North Bengal urban municipalities shows the assets possession in individual municipality compare to total household have mentioned assets to total household in the whole municipalities of North Bengal. The most and highest concentration of assets found on five municipal areas they were Kooch Bihar (2.23), Dinjata (1.69) Mathabhanga (1.68), Tufanganj (1.55) and Haldibari (1.456<sup>th</sup>) in Cooch Bihar district. So, the Kooch Bihar district has a dominant concentration of assets in compares to other six district municipal of the study area. The municipalities have ranked on the basis of assets concentration the highest assets concentrated assigned as first rank and so on. The top ten municipalities of assets concentration recorded on Kooch Bihar (rank<sup>1</sup>), Dinjata (rank<sup>2</sup>), Mathabhanga (rank<sup>3</sup>), Tufanganj (rank<sup>4</sup>), Balurghat (rank<sup>5</sup>), Haldibari (rank<sup>6</sup>), Englishbazar (rank<sup>7</sup>), Gngarumpur (rank<sup>8</sup>), Siliguri macro part of Dejeeling (rank<sup>9</sup>), Old Malda (rank<sup>10</sup>). In top ten count of municipality assets concentration 60% of

municipality from northern district of North Bengal (district Darjeeling & Kooch Bihar). The municipalities have bottom concentration of assets recorded on Berhampur (rank<sup>20</sup>), Darjeeling (rank<sup>21</sup>), Alipurduar (rank<sup>22</sup>), Mal (rank<sup>23</sup>), Mirik (rank<sup>24</sup>), Dhupguri (rank<sup>25</sup>), Beldanga (rank<sup>26</sup>), Kandi (rank<sup>27</sup>), Mursidabad (rank<sup>28</sup>), Jalpaiguri (rank<sup>29</sup>), Jiagan – Azimgang (rank<sup>30</sup>), Dhulian (rank<sup>31</sup>). Under the bottom ranked municipalities (rank<sup>20</sup> to rank<sup>31</sup>) Mursidabad district computed as 54.55% of municipalities in dominantly of the bottom condition of assets concentration (Table: 5).

Based on LQ value of assets concentration whole municipality categorised in four groups. Under the very low group of assets concentration (<0.59) there were 22.59% of municipalities - Dhupguri, Dhulian, Jangipur, Jiagan – Azimgang, Mursidabad, Beldanga, Kandi. In the group of low concentration of assets (0.59 – 0.90) there were 35.48% of municipalities - Darjeeling, Kalimpong, Mirik, Kurseong, Mal, Siliguri Macro part of Jalpaiguri, Alipurduar, Mekligang, Dalkhola, Raigang, Berhampur. The municipalities - Siliguri Macro part of Darjeeling, Jalpaiguri, Islampur, Kaliagan, Gangarumpur and Old Malda found in the category of moderate assets concentration (0.90 – 1.15) and covered 19.35% of municipal areas. Rest of the municipalities - Haldibari, Mathabhanga, Kooch Bihar, Tufanganj, Dhupguri, Balurghat, and Englishbazar were in the category of (> 1.15) high concentration of assets covered by 22.58% of municipalities of the North Bengal (Table: 3).

**Table 4:** Normalized Household Assets (As. Hn) of municipality

District	Municipality	1. Refrigerator (As. H <sub>1</sub> )	2. Land line (As. H)	3. Mobile (As. H)	4. Both mobile & landline (As. H <sub>4</sub> )	5. Computer, Lap with internet (As. H <sub>5</sub> )	6. Comp Lap with no internet (As. H <sub>6</sub> )
Darjeeling	Darjeeling	5498	48	17973	845	1700	1850
	Kalimpong **	3311	15	7484	174	810	656
	Kurseong**	1521	4	5077	92	405	505
	Mirik**	268	4	1944	32	45	123
	Siliguri	27978	517	47777	6532	6720	4621
Jalpaiguri	Alipurduar	4303	75	10416	1238	586	623
	Dhupguri	2076	14	7301	285	331	281
	Jalpaiguri	12480	364	14972	5761	2802	2223
	Mal	1595	37	3900	359	247	234
	Siliguri	15268	198	38741	1881	2540	2245
Kooch Bihar	Dinjata	2402	51	5592	858	344	492
	Haldibari	636	9	2430	194	72	135
	Kooch Bihar	8312	153	12635	2483	1598	1366
	Mathabhanga	1470	12	4189	365	279	313
	Mekliganj	235	10	992	59	34	41
Tufanganj	1264	25	3035	525	203	345	

Utter Dinajpur	Dalkhola	974	20	4729	137	162	117
	Islampur	2824	27	8904	442	315	515
	Kaliaganj	2585	25	8849	501	455	354
	Raiganj	8108	271	22225	1189	988	930
Dakshin Dinajpur	Balurghat	12551	650	27749	2098	1657	2024
	Gangarampur	1838	21	8581	226	192	370
Malda	Englishbazar	24783	1079	38312	3834	4995	3745
	Old Malda	2083	21	12466	191	183	384
Mursidabad	Beldanga	1250	10	5379	127	131	168
	Berhampore	21454	145	36471	2851	3497	2163
	Dhulian	1374	19	11011	90	105	67
	Jangipur	2583	51	12945	226	392	208
	Jiaganj - Azimganj	2253	91	7265	610	385	288
	Kandi	2677	54	8634	501	257	360
Murshidabad	1722	30	7101	123	155	247	

Table 4: Normalized Household Assets (As. Hn) of municipality (Continued)

Municipality	7. Two - wheeler (As. H <sub>7</sub> )	8. Three Wheeler (As. H <sub>8</sub> )	9. Four Wheeler (As. H <sub>9</sub> )	10. AC (As. H <sub>1</sub> )	11. Washing machine (As. H <sub>11</sub> )	$\sum_{i=1}^{11} As. Hi$	$\sum_{i=1}^{11} As. Hi / n$
Darjeeling	465	5	1308	254	4261	34207	3109.73
Kalimpong **	364	0	813	30	978	14635	1463.5
Kurseong**	80	0	316	27	852	8879	887.9
Mirik**	43	4	92	0	36	2591	259.1
Siliguri	17124	349	4793	2956	7807	127174	11561.27
Alipurduar	2261	63	605	270	649	21089	1917.18
Dhupguri	1429	8	294	78	237	12334	1121.27
Jalpaiguri	6784	51	1562	1144	1992	50135	4557.73
Mal	1050	7	260	49	190	7928	720.73
Siliguri	12367	231	2207	1177	3170	80025	7275
Dinhata	1894	9	292	90	334	12358	1123.45
Haldibari	495	4	112	31	61	4179	379.91
Kooch Bihar	4445	66	1157	680	1603	32895	2990.45
Mathabhanga	1072	16	239	66	148	8169	742.64
Mekliganj	140	1	49	6	25	1592	144.73
Tufanganj	1024	26	195	31	118	6791	617.36
Dalkhola	741	20	207	164	198	7469	679
Islampur	1836	75	346	149	362	15795	1435.91
Kaliaganj	1714	9	307	224	363	15386	1398.73
Raiganj	4770	61	570	759	1222	41093	3735.73
Balurghat	6706	235	681	1204	2230	57785	5253.18
Gangarampur	1170	28	231	86	2075	14818	1347.09
Englishbazar	15159	207	1405	3935	155	97609	8873.55
Old Malda	2173	70	200	116	5215	23102	2100.18
Beldanga	783	2	78	62	125	8115	737.73
Berhampore	13272	31	1025	1914	3127	85950	7813.64
Dhulian	661	6	75	105	106	13619	1238.09
Jangipur	1842	31	194	263	389	19124	1738.55
Jiaganj - Azimganj	1510	12	143	175	282	13014	1183.09
Kandi	1662	4	164	138	188	14639	1330.82
Murshidabad	1458	9	93	85	139	11162	1014.73

NOTE\*\* - In case of Kalimpong and Kurseong assets three - wheeler (As. H<sub>8</sub>) is zero because it's hilly region, for Mirik AC (As. H<sub>1</sub>) not considered as assets because it's at low temperature area. Normalization of Kalimpong, Kurseong, Mirik - n = 10.

Table 5: Assets concentration

District	Municipality	As. Hn	H. Tn	(As. Hn/ H. Tn)	Dist. HTn	Sam. HTn	(Dist. HTn / NBm. HTn)	LQ	rank (LQ)
Darjeeling	Darjeeling	3109.73	23173	0.134196	99332	546524	0.181752	0.74	21
	Kalimpong	1463.50	8920	0.16407	99332	546524	0.181752	0.90	14
	Kurseong	887.90	5661	0.156845	99332	546524	0.181752	0.86	16
	Mirik	259.10	2177	0.119017	99332	546524	0.181752	0.65	24
	Siliguri	11561.27	59401	0.194631	99332	546524	0.181752	1.07	9
Jalpaiguri	Alipurduar	1917.18	15141	0.126622	100792	546524	0.184424	0.69	22

	Dhupguri	1121.27	10323	0.108619	100792	546524	0.184424	0.59	25
	Jalpaiguri	4557.73	24747	0.184173	100792	546524	0.184424	1.00	12
	Mal	720.73	5853	0.123138	100792	546524	0.184424	0.67	23
	Siliguri	7275.00	44728	0.16265	100792	546524	0.184424	0.88	15
Kooch Behar	Dinhata	1123.45	8576	0.131	42302	546524	0.077402	1.69	2
	Haldibari	379.91	3375	0.112566	42302	546524	0.077402	1.45	6
	Kooch Bihar	2990.00	17299	0.172842	42302	546524	0.077402	2.23	1
	Mathabhanga	742.64	5704	0.130196	42302	546524	0.077402	1.68	3
	Mekliganj	144.73	2194	0.065965	42302	546524	0.077402	0.85	17
	Tufanganj	617.36	5154	0.119783	42302	546524	0.077402	1.55	4
Utter Dinajpur	Dalkhola	679.00	6795	0.099926	66148	546524	0.121034	0.83	19
	Islampur	1435.91	11233	0.12783	66148	546524	0.121034	1.06	11
	Kaliaganj	1398.73	11835	0.118186	66148	546524	0.121034	0.98	13
	Raiganj	3735.73	36285	0.102955	66148	546524	0.121034	0.85	18
Dakshin Dinajpur	Balurghat	5253.18	38526	0.136354	51042	546524	0.093394	1.46	5
	Gangarampur	1347.09	12516	0.10763	51042	546524	0.093394	1.15	8
Malda	Englishbazar	8873.55	50322	0.176335	66541	546524	0.121753	1.45	7
	Old Malda	2100.18	16219	0.129489	66541	546524	0.121753	1.06	10
Mursidabad	Beldanga	737.73	6769	0.108986	120367	546524	0.220241	0.49	26
	Berhampore	7813.64	46035	0.169733	120367	546524	0.220241	0.77	20
	Dhulian	1238.09	16452	0.075255	120367	546524	0.220241	0.34	31
	Jangipur	1738.55	17173	0.101237	120367	546524	0.220241	0.46	29
	Jiaganj - Azimganj	1183.09	11979	0.098764	120367	546524	0.220241	0.45	30
	Kandi	1330.82	12235	0.108771	120367	546524	0.220241	0.49	27
	Murshidabad	1014.73	9724	0.104353	120367	546524	0.220241	0.47	28

The socioeconomic census of India (2011) has computed the urban amenities on parameters of (i) Drinking water within premises, (ii) Drinking water near remises (iii) Drinking water away premises as drinking water source, (i) Electricity, (ii) Kerosene, (iii) Solar as source of light, (i) Waste open drainage (ii) Waste close drainage as waste water out late, water seal latrine as latrine facility and household having kitchen available as cooking condition standard. North Bengal is a part of the state of West Bengal, there are thirty - one municipalities, its modern household amenity condition witnessed in table: 8a. Based on household having availability of mentioned modern household amenity (Table: 6 & 7) the index of amenity computed, the quantitative amenity value assigned positive as good to negative as bad amenity condition. The municipality have high positive assigned as first rank of amenity priority (Table: 8) and so on. The very high amenities of municipality were recorded on Siliguri macro part of Darjeeling north of the state and on Englishbazar of Malda district and Berhampur of Mursidabad district exhibits at south of the study area. Rank wise top ten municipalities having a sustenance quality of amenity index were Siliguri macro part of Darjeeling (2.753 rank<sup>1</sup>), Englishbazar (2.130 rank<sup>2</sup>), Berhampur (1.935 rank<sup>3</sup>), Siliguri macro part of jalpaiguri (1.847 rank<sup>4</sup>), Balurghat (1.525 rank<sup>5</sup>), Raiganj (0.947 rank<sup>6</sup>), Jalpaiguri (0.434 rank<sup>7</sup>), Darjeeling (0.093 rank<sup>8</sup>), Kooch Bihar (0.069 rank<sup>9</sup>) and Alipurduar (- 0.136 rank<sup>10</sup>).

Those municipalities' bears a greater negative amenity index value considered as under the condition of not having safe drinking water facility available, good light condition,

standard kitchen and latrine and proper waste water out late. The municipalities recorded at the bottom rank of amenity were Kandi (- 0.557 rank<sup>20</sup>), Mursidabad (- 0.547 rank<sup>21</sup>), Kalimpong (- 0.557 rank<sup>22</sup>), Mathabhanga (- 0.669 rank<sup>23</sup>), Dalkhola (- 0.669 rank<sup>24</sup>), Kurseong (- 0.678 rank<sup>25</sup>), Beldanga (- 0.683 rank<sup>26</sup>), Tufanganj (- 0.694 rank<sup>27</sup>), Mal (- 0.718 rank<sup>28</sup>), Haldibari (- 0.817 rank<sup>29</sup>), Mirik (- 0.900 rank<sup>30</sup>) and Mekligang (- 0.908 rank<sup>31</sup>). The spatial pattern of amenity distribution was very un - even among the municipalities, they categorised in four groups, as very low amenity (-0.91 - - 0.55) those having poor condition in mentioned amenity parameter (Table: 6 & 7) computed 35.48% out of total. The municipality were Kalingpong, Mirik, Kurseong, Mal, Haldibari, Mekligang, Mathabhanga, Tufanganj, Dalkhola, Mursidabad, and Beldanga. Under the category of low (- 0.50 - - 0.14) amenity group 35.48% municipality fallen namely Dhupguri, Alipurduar, Dinhata, Islampur, Kaliaganj, Gangarampur, Old Malda, Dhulian, Jangipur, Jiaganj - Azimganj, Kandi. In the category of moderate (0.07 - 0.95) group of amenities 12.90% of municipality counted, they were Darjeeling, Jalpaiguri, Kooch Bihar and Raiganj. The municipalities of the group of High amenities (1.53 - 2.75) condition were very less in number only 16.13%, they were Siliguri macro part of Darjeeling, Siliguri macro part of Jalpaiguri, Balurghat, Englishbazar and Berhampur. So, from the view point of amenity sustainability of the municipalities very a smaller number of municipal areas is in good condition of amenity but much of them in low condition of amenity recorded (Table: 9).

**Tale 6:** Normalization of Amenities.

District	Municipality	a. Drinking water source						b. Source of light				
		1	2	(1/a2)	3	(1/a3)	Sdr	4	5	(1/b2)	6	Ls
Darjeeling	Darjeeling	5682	7088	0.0001411	10403	9.61E - 06	1894	22946	151	0.006623	7	7651
	Kalimpong	3651	1768	0.0005656	3501	0.0002856	1217	8723	149	0.006711	1	2908
	Kurseong	2684	2398	0.000417	579	0.0017271	894.67	5577	65	0.015385	2	1859.67
	Mirik	239	276	0.0036232	1662	0.0006017	79.67	2145	24	0.041667	1	715.35



	Siliguri	40032	17775	0.0000563	1587	0.0006301	13344	57495	1748	0.000572	8	19167.67
Jalpaiguri	Alipurduar	7941	6355	0.0001574	845	0.0011834	2647	13991	1116	0.000896	4	4665
	Dhupguri	1855	6763	0.0001479	1705	0.0005865	618.33	8695	1541	0.000649	2	2899
	Jalpaiguri	8926	12860	0.0000778	2960	0.0003378	2975.33	23642	1009	0.000991	2	7881.33
	Mal	2610	1969	0.0005079	1273	0.0007855	870	5235	565	0.00177	1	1745.33
	Siliguri	32171	10589	0.0000944	1968	0.0005081	10723.67	43672	839	0.001192	10	14560.67
Kooch Behar	Dinhata	6557	1770	0.000565	249	0.0040161	2185.67	7922	586	0.001706	0	2640.67
	Haldibari	1521	1679	0.0005956	175	0.0057143	507	2953	417	0.002398	0	984.33
	Kooch Bihar	12660	3091	0.0003235	1548	0.000646	4220	16256	881	0.001135	2	5419.33
	Mathabhanga	3854	1627	0.0006146	222	0.0045045	1284.67	5230	416	0.002404	1	1743.67
	Mekliganj	819	682	0.0014663	693	0.001443	273	1379	757	0.001321	2	460.33
	Tufanganj	3305	1429	0.0006998	420	0.002381	1101.67	4736	384	0.002604	0	1578.67
Utter Dinajpur	Dalkhola	5587	810	0.0012346	398	0.0025126	1862.33	4941	1526	0.000655	4	1648.33
	Islampur	9818	1309	0.0007639	106	0.009434	3272.67	10307	901	0.00111	1	3436
	Kaliaganj	8663	1926	0.0005192	1246	0.0008026	2887.67	9595	2125	0.000471	3	3199.33
	Raiganj	24875	7283	0.0001373	4127	0.0002423	8291.67	28796	5471	0.000183	21	9605.67
Dakshin Dinajpur	Balurghat	30474	6363	0.0001572	1689	0.0005921	10158	35422	2562	0.00039	103	11841.67
	Gangarampur	8484	2175	0.0004598	1857	0.0005385	2828	9749	2517	0.000397	4	3251
Malda	Englishbazar	39151	6962	0.0001436	4209	0.0002376	13050.33	45842	3314	0.000302	24	15288.67
	Old Malda	10608	3385	0.0002954	2226	0.0004492	3536	13495	2142	0.000467	8	4501
Mursidabad	Beldanga	2726	3291	0.0003039	752	0.0013298	908.67	5326	1287	0.000777	2	1776
	Berhampore	37047	7358	0.0001359	1630	0.0006135	12349	43604	2234	0.000448	7	14537
	Dhulian	4345	7424	0.0001347	4683	0.0002135	1448.33	10487	5043	0.000198	21	3502.67
	Jangipur	8369	5716	0.0001749	3088	0.0003238	2789.67	15372	1135	0.000881	6	5126
	Jiaganj - Azimganj	8472	2486	0.0004023	1021	0.0009794	2824	9537	1837	0.000544	6	3181
	Kandi	4933	3104	0.0003222	4198	0.0002382	1644.33	9881	2002	0.0005	5	3295.33
	Murshidabad	5383	1884	0.0005308	2457	0.000407	1794.33	7549	1946	0.000514	2	2517

Table 7: Continue with table Normalization of Amenities table 6.

District	Municipality	7. Water seal latrine Lws= (c)	8. Waste open drainage (d1)	d. Waste water out late (1/d1)	9. waste close drainage (d2)	$Oww_2 = \sum_{i=1}^2 di/2$	10. Having kitchen available Ak= (e)
Darjeeling	Darjeeling	15239	6399	0.000156	13061		13472
	Kalimpong	6686	1448	0.000691	5515		3925
	Kurseong	4658	1318	0.000759	3719	1859.5	4017
	Mirik	1499	192	0.005208	642	321.0026	1414
	Siliguri	53385	11980	0.000083	42332	21166	46108
Jalpaiguri	Alipurduar	13119	2678	0.000373	10781	5390.5	9864
	Dhupguri	7840	1867	0.000536	2569	1284.5	7939
	Jalpaiguri	22332	3112	0.000321	15531	7765.5	19443
	Mal	3620	1004	0.000996	3114	1557	3620
	Siliguri	38967	6495	0.000154	33787	16893.5	35529
Kooch Behar	Dinhata	6837	1088	0.000919	4765	2382.5	5894
	Haldibari	2668	13	0.076923	564	282.0385	2589
	Kooch Bihar	14314	5296	0.000189	9659	4829.5	13480
	Mathabhanga	4641	86	0.011628	3436	1718.006	3784
	Mekliganj	1369	701	0.001427	773	386.5007	1376
	Tufanganj	4415	257	0.003891	2068	1034.002	3703
Utter Dinajpur	Dalkhola	3371	2907	0.000344	1776	888.0002	4185
	Islampur	9099	4655	0.000215	4109	2054.5	9051
	Kaliaganj	7986	7260	0.000138	2368	1184	8434
	Raiganj	26377	11882	0.000084	15083	7541.5	22843
Dakshin Dinajpur	Balurghat	31358	17170	0.000058	15585	7792.5	38172
	Gangarampur	8623	1857	0.000539	5226	2613	7990
Malda	Englishbazar	42396	28599	0.000035	14719	7359.5	38172
	Old Malda	12885	6221	0.000161	5666	2833	7990
Mursidabad	Beldanga	5323	300	0.003333	4371	2185.502	2857
	Berhampore	41419	9685	0.000103	31625	15812.5	32117
	Dhulian	7216	1842	0.000543	7054	3527	4899
	Jangipur	9652	2770	0.000361	6661	3330.5	6722
	Jiaganj - Azimganj	7668	1775	0.000563	5424	2712	4951
	Kandi	7463	776	0.001289	3950	1975.001	3802
	Murshidabad	6697	1155	0.000866	3104	1552	4054

Table 8: Amenity index

District	Municipality	Sdr	LS	(Lws)	Oww	Ak	AMI	Rank (AMI)
Darjeeling	Darjeeling	1894	7651.00	15239	11445.00	13472	0.093	8
	Kalimpong	1217	2908.00	6686	4797.00	3925	- 0.557	22
	Kurseong	894.6674	1859.67	4658	3258.84	4017	- 0.678	25
	Mirik	79.66807	715.35	1499	1107.17	1414	- 0.900	30
	Siliguri	13344	19167.67	53385	36276.33	46108	2.753	1
Jalpaiguri	Alipurduar	2647	4665.00	13119	8892.00	9864	- 0.136	10
	Dhupguri	618.3336	2899.00	7840	5369.50	7939	- 0.495	19
	Jalpaiguri	2975.333	7881.33	22332	15106.67	19443	0.434	7
	Mal	870.0004	1745.33	3620	2682.67	3620	- 0.718	28
	Siliguri	10723.67	14560.67	38967	26763.83	35529	1.847	4
Cooch Behar	Dinhata	2185.668	2640.67	6837	4738.83	5894	- 0.488	18
	Haldibari	507.0021	984.33	2668	1826.17	2589	- 0.817	29
	Kooch Bihar	4220	5419.33	14314	9866.67	13480	0.069	9
	Mathabhanga	1284.668	1743.67	4641	3192.33	3784	- 0.669	23
	Mekliganj	273.001	460.33	1369	914.67	1376	- 0.908	31
	Tufanganj	1101.668	1578.67	4415	2996.83	3703	- 0.694	27
UtterDinajpur	Dalkhola	1862.335	1648.33	3371	2509.67	4185	- 0.671	24
	Islampur	3272.67	3436.00	9099	6267.50	9051	- 0.285	13
	Kaliaganj	2887.667	3199.33	7986	5592.67	8434	- 0.354	15
	Raiganj	8291.667	9605.67	26377	17991.33	22843	0.946	6
Dakshin Dinajpur	Balurghat	10158	11841.67	31358	21599.83	38172	1.525	5
	Gangarampur	2828	3251.00	8623	5937.00	7990	- 0.345	14
Malda	Englishbazar	13050.33	15288.67	42396	28842.33	38172	2.130	2
	Old Malda	3536	4501.00	12885	8693.00	7990	- 0.136	10
Mursidabad	Beldanga	908.6672	1776.00	5323	3549.50	2857	- 0.683	26
	Berhampore	12349	14537.00	41419	27978.00	32117	1.935	3
	Dhulian	1448.333	3502.67	7216	5359.33	4899	- 0.486	17
	Jangipur	2789.667	5126.00	9652	7389.00	6722	- 0.244	12
	Jiaganj - Azimganj	2824	3181.00	7668	5424.50	4951	- 0.422	16
	Kandi	1644.334	3295.33	7463	5379.17	3802	- 0.498	20
	Murshidabad	1794.334	2517.00	6697	4607.00	4054	- 0.547	21

Note\*: Lws = Water seal latrine

Table 9: Statistics of different classes (AMI)

Category	Amenity	No of municipality	% of municipality	Name
Very low	- 0.91 - - 0.55	11	35.48	Kalingpong, Mirik, Kurseong, Mal, Haldibari, Mekligang, Mathabhanga, Tufanganj, Dalkhola, Mursidabad, Beldanga.
Low	- 0.50 - - 0.14	11	35.48	Dhupguri, Alipurduar, Dinhata, Islampur, Kaliaganj, Gangarampur, Old Malda, Dhulian, Jangipur, Jiaganj – Azimganj, Kandi.
Moderate	0.07 - 0.95	4	12.90	Darjeeling, Jalpaiguri, Kooch Bihar, Raiganj.
High	1.53 – 2.75	5	16.13	Siliguri macro part of Darjeeling, Siliguri macro part of Jalpaiguri, Balurghat, Englishbazar, Behrampur.

4.3 Comparative view of Assets, Concentration of Assets and Amenity:

Assets is the wealth for a household, it depends on individuals earning status. The indicator is dependent parameter that varies on skills and abilities of the person to person or household to household. The concentration of assets is not depended it focused on how much persons or household are in count under a region or place among total number of household count by assets. Amenity is one of the important development indicators, it influenced by local urban administrator or government or anyone else. So, it's also an independent indicator. Correlation analysed among assets, concentration of assets and amenity there were very weak relationship between assets and its concentration (0.232). So, there is very weak relation between assets and its concentration, such as Siliguri macro part of Darjeeling rank<sup>1</sup>(3.17), Englishbazar rank<sup>2</sup> (2.15), Siliguri macro part of Jalpaiguri rank<sup>3</sup> (1.25), Behrampur rank<sup>4</sup> (1.15) in assets

index but there rank in concentration of assets were Siliguri macro part of Darjeeling rank<sup>9</sup> (1.07), Englishbazar rank<sup>7</sup> (1.45), Siliguri macro part of Jalpaiguri rank<sup>15</sup> (0.88), Behrampur rank<sup>20</sup> (0.77). Only Balurghat and Old Malda has same place in assets index and concentration of assets, except these two municipalities there were high dissimilarity exist in relation of assets and on assets concentration. It is not strongly related, so probability stands as the place will have much assets will there be a high concentration of assets is less probable. In between assets and amenity there were a very high strong correlation exist (0.956). Those municipalities recorded high assets index also have high amenity index and the indices value ranges near about amenity index value. Such as Siliguri macro part of Darjeeling rank<sup>1</sup>, Englishbazar rank<sup>2</sup>, Balurghat rank<sup>5</sup> same place in both assets and amenity index. Siliguru macro part of Jalpaiguri rank<sup>3</sup> in assets index and rank<sup>4</sup> in amenity index, Berhampur rank<sup>4</sup> assets index and rank<sup>3</sup> in amenity index (the values are very nearly distributed). So, it can

compute the pleases has high assets have high modern household amenities. The relation of assets and amenity with concentration of assets very less (0.232, 0.170) i. e.,

concentration of assets does not make any influence on assets and amenity.

Table 10: Correlation Matrix

	Assets	LQ	Amenity
Assets	1	0.232	0.956
LQ	0.232	1	0.17
	0.956	0.17	1

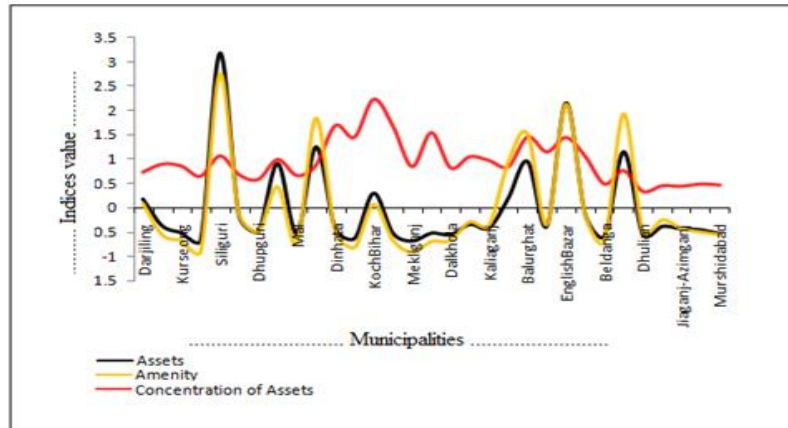


Figure 2: Relations among Assets, Amenities and concentration of assets.

### 5. Conclusion

The analysis using the Assets Index ASI and Amenity Index AMI revealed significant variation in the distribution of assets and amenities among the thirty - one municipalities of North Bengal. Through the indices it evaluated that among the thirty - one municipalities of North Bengal assets and amenity were not equally distributed. From rank analysis it found that there was wide range of inequality among the municipalities from top rank to bottom rank in assets and amenity index, and there was a strong positive relationship 0.953 between assets and amenities. Those municipalities had a strong ASI value also had a strong AMI value. Only 29.03% of municipalities assessed as high and moderate amenity but rest 70.96% counted as low and very low amenity. In ASI only 19.35% of municipalities were counted as high assets but much of the municipalities counted as low assets. So, it can conclude the very a smaller number of municipalities in good condition and much number of municipalities has low condition of wealth as the form of assets and amenity. However, the majority of municipalities had low levels of amenities and assets. Finally it can argue after this study asset indices and amenity index have comparative advantages for some specific targeting programs on social development as well as in management of well - being. It could be considered in current socioeconomic analyses by researchers as well as by policy - oriented steps for administrative organisations and government for farther development, and the findings highlight the need for targeted programs and socioeconomic analyses to address the inequality and improve the well - being of these municipalities

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