International Journal of Advanced Research and Development
ISSN: 2455-4030
Impact Factor: RJIF 5.24
www.advancedjournal.com
Volume 2; Issue 6; November 2017; Page No. 674-677

Household infrastructures and amenities in Mizoram: A regional analysis

Saitluanga Benjamin L
Department of Geography & RM, Mizoram University, Aizawl, Mizoram, India

Abstract
Accessibility to household infrastructural services and amenities are important measures of quality of life and socio-economic development. This paper attempts to measure the level of accessibility to household infrastructural services and amenities in the 8 districts and 26 Rural Development (RD) blocks of Mizoram. By adopting Z-score method, districts and RD blocks are classified into various levels of development. The study reveals that those administrative units located at the southern and the western borders are found to be far less developed than other parts of the state.

Keywords: household infrastructures, regional disparity, Mizoram

1. Introduction
Regional analysis of household infrastructure and assets is crucial for understanding spatial pattern of development. Developed countries are characterized by higher incidence of good housing condition, more adequate provision of basic amenities and higher per capita possession of household assets. On the other hand, provision of housing and basic amenities to the rapidly growing population is a major problem in developing countries. With increasing recognition that housing problem in developing countries is vast (Gilbert and Gugler, 1992; UNCHS, 1996; Potter and Lloyd, 1998) [5, 12, 9], the household has been an increasing focus on development literature (Carr, 2005) [2].

Accessibility and availability of basic household amenities like houses, safe drinking water, electricity and proper toilet facility are important indicators of levels of human development. Better access to household infrastructures correlates to development in education, health as well as reduction of poverty and enhancement of quality of life. Apart from these household infrastructures, there are household assets like television, motor vehicles, and internet facilities. Possession of household assets reflects the socio-economic status and these assets are crucial indicators of measuring level of poverty. Housing itself is an important indicator of a person's well-being. Those who are living in good quality housing are expected to have more income, better health and education. Generally, availability of household infrastructure and basic amenities show positive relations with those of economic development (Kundu *et. al*, 1999) [7].

A number of studies have been taken out in India on regional disparities in housing and household amenities (Shaw, 2007; Kundu *et. al*, 1999; Bhagat, 2011; Mishra & Shukla, 2012; Haque, 2016) [11, 7, 1, 6]. A few available literatures on Northeast India reveal the existence of spatial inequality in level of development in urban housing and basic amenities (Kundu et. al., 1999; Das & Nipun, 2012; Saitluanga, 2014) [7, 3, 10]. Spatial inequality in basic household infrastructural services is clearly observable in Mizoram in spite of its small size in terms of both geographical area and population.

2. Objectives of the study
The objective of the study is to measure the levels of development in access to household infrastructural services and amenities in Mizoram at both district and rural development (RD) block levels during 2001-2011.

3. Methodology
The following indicators were obtained from the Census of India H-series for the years 2001 and 2011.

1. Percentage of households using electricity as main source of lighting
2. Percentage of households having flush toilet facility
3. Percentage of households using Liquefied Petroleum Gas (LPG) as main cooking fuel
4. Percentage of households availing banking facilities
5. Percentage of households having access to safe drinking water [1]
6. Percentage of households living in permanent house [2]

After comparing the 2001 and 2011 date, Z-score method was used to find out the composite index to measure level of development for the year 2011 only as follows-

1. Data obtained from secondary sources were transformed into variables to be used as indicator.
2. To transform data matrix into free scale matrix, indicators were standardized by subtracting the mean from each individual variables and divided by their standard deviations as-

$$Z_i = \frac{Xij - Xj}{SDj}$$

[1] For this purpose, only treated tap water is considered as safe drinking water.
[2]Permanent : Permanent houses refer to those houses whose walls & roofs are made of pucca materials, i.e., where burnt bricks, G.I.Sheets or other metal sheets, stone, cement, concrete is used for wall and tiles, slate, shingle, corrugated iron, zinc or other metalsheets, asbestos sheets, bricks, lime and stone and RBC/RCC concrete are used for roof.

Where Z_i is the Z- Score for the i^{th} unit,X_{ij} is the X variable in the i^{th} unit and j^{th} variable, X_j is the mean of j^{th} variable and SD_j is the standard deviation of the jth variable.

1) After the Z-scores for all the indicators were obtained, the composite score was obtained by summing up all the individual Z- Scores as-
$C= \sum Z$

Where C is the composite score and $\sum Z$ is the summation of all the Z-Scores.

4. Results and Analysis

Mizoram is divided into 26 Rural Development (RD) Blocks by the state government for easier coordination of development and implementation of plans. However, since there are three blocks which are partly lying within two districts, the total number of blocks under all the 8 districts comes to 29.

Table 1 shows district-wise data of 2001 and 2011 for the selected indicators of household amenities and assets. Although all indicators have shown a positive trend during 2001-201, the Standard Deviation (SD) shows that inter-district disparity in some indicators have increased during the decade. Overall, all districts have shown increasing trend in all the selected indicators. However, the rate of increase was considerably different among the districts.

Table 1: Household Amenities in Mizoram, Districts-Wise, 2011

	Electricity		Water closet Latrine		LPG		Bank		Tap water		Permanent House	
District	2001	2011	2001	2011*	2001	2011	2001	2011	2001	2011	2001	2011
Aizawl	90.2	97.4	37.6	78.5	66.0	79.0	46.2	66.9	43.5	67.9	71.8	84.5
Champhai	52.3	93.3	9.3	47.1	19.2	35.5	26.8	50.7	19.0	67.6	48.8	68.9
Kolasib	76.0	85.9	12.0	50.1	38.0	50.8	34.5	44.7	31.8	66.3	36.9	46.1
Lawngtlai	30.6	40.5	1.8	21.7	3.8	22.8	9.1	27.8	10.5	33.5	17.3	29.5
Lunglei	71.4	80.9	13.5	43.7	23.6	43.0	23.0	50.8	35.3	54.4	53.8	57.1
Mamit	39.3	70.7	4.2	29.0	6.7	23.3	20.0	34.7	3.6	25.6	30.9	43.3
Saiha	30.4	67.8	1.6	30.6	20.2	43.8	13.3	50.0	31.1	64.8	28.0	40.0
Serchhip	92.6	97.9	13.6	55.6	33.6	43.8	34.1	90.6	39.9	67.2	61.4	78.8
Mean	60.3	79.3	11.7	44.5	26.4	42.8	25.9	52.0	26.8	55.9	43.6	56.0
SD	24.0	18.1	10.8	16.8	18.6	16.6	11.4	18.2	13.4	15.9	17.3	18.4

At block level, Tlangnuam Block in Aizawl district but has the highest number of households having accessibility, while South Bungtlang has the lowest, except in availability of safe drinking water, where West Phaileng is the lowest (see Table 2). This clearly shows that the Aizawl area has relatively high level of development in all aspects, while the southern and western fringes have the lowest level of development. Most of the development projects seem to be concentrated in the state capital region.

Table 2: Household Amenities in, Mizoram, Rural Development block-wise, 2011

RD Blocks	Electricity %	Flush Toilet %	LPG %	Banking Services %	Treated Tap Water %	Permanent house %
Zawlnuam	69.27	36.32	24.10	31.88	21.68	35.07
West Phaileng	54.07	25.52	13.42	26.79	0.73	37.93
Reiek	93.23	51.10	32.70	50.84	10.81	69.87
N. Thingdawl	89.03	55.55	46.86	46.86	66.05	53.30
Bilkhawthlir	84.10	59.15	52.30	52.30	53.97	42.19
Tlangnuam	98.95	88.00	90.07	71.50	66.14	88.35
Darlawn	73.95	61.47	24.00	36.11	14.20	57.36
Phullen	98.81	67.46	19.01	21.70	18.64	68.12
Aibawk	99.31	79.89	51.17	42.90	5.33	82.63
Thingsulthliah	98.16	66.88	55.00	69.41	48.56	74.88
Ngopa	84.38	60.10	16.75	34.27	38.95	47.53
Khawzawl	95.46	56.68	34.02	36.44	61.97	70.08
Champhai	95.69	61.51	59.46	51.65	42.19	76.39
Khawbung	91.26	50.01	10.68	87.62	17.07	67.15
East Lungdar	98.43	40.15	21.41	78.71	23.50	77.27
Serchhip	97.76	64.26	50.92	96.49	43.60	79.62
West Bunghmun	42.63	18.90	2.53	15.38	2.19	22.85
Lungsen	54.97	22.74	15.27	26.67	8.06	17.03
Lunglei	97.62	73.75	69.65	74.49	59.31	78.88
Hnahthial	96.89	38.00	34.53	41.70	0.89	76.03
Chawngte	19.66	25.30	11.00	13.73	6.93	6.33
Lawngtlai	68.63	42.64	49.04	48.04	0.67	53.37
South Bungtlang	21.26	9.89	2.06	9.05	10.21	5.48
Sangau	53.17	28.27	16.02	39.26	2.89	63.38

Tuipang	43.41	23.36	12.49	23.27	0.65	20.09
Saiha	82.63	49.47	62.60	66.21	11.18	52.11
Mean	77.03%	48.32%	33.73%	45.90%	24.48%	54.74%
SD	0.244	0.199	0.225	0.229	0.227	0.241

A composite index has been worked out for 2011 Census data to show inter-district disparity in household amenities and assets (see Table 3). Aizawl district with a composite Z-score of 8.86 is the highest ranking district distantly followed by Serchhip with a score of 5.49. This shows that the residents of Aizawl district where Aizawl city is located are better off than the remaining population. At the other extreme, Lawngtlai with a score of -8.89 is the least ranking district followed by Mamit with -5.11.

Among the eight districts of Mizoram, Aizawl and Serchhip scores exceed the average in all the amenities (scores more than 0). While Lawngtlai and Mamit districts scores below the averages in all the indicators. There is a general trend of the composite index scores decreasing as we move from north towards south. This indicates that the northern part of Mizoram is more developed in household amenities, as compared to the southern part of the state. There is also a general decreasing trend of the scores as we move from east towards the west and vice versa, with few exceptions. Moreover, as the central region has done relatively well, it may be said that most developmental activities are concentrated in the northern and central regions. This may also be due to accessibility factors like distance from the state capital and nearness to international border.

Table 3: Composite Index scores of Districts, Mizoram 2011

Rank	Blocks	Composite Score
1	Aizawl	8.862
2	Serchhip	5.491
3	Champhai	1.774
4	Kolasib	1.542
5	Lunglei	-0.108
6	Saiha	-3.558
7	Mamit	-5.111
8	Lawngtlai	-8.893

Table 4 shows the composite index scores of all RD blocks from the said indicators, ranked in order of their score. Out of all the 26 blocks, Tlangnuam scores the highest with 9.742, while South Bungtlang scores the lowest with -9.901. This may be related to the fact that Tlangnuam Block consists of the state capital area, while South Bungtlang is located far south bordering Myanmar. There appears to be a negative correlation between the level of development and distance of the blocks from the state capital.

Table 4: Composite Index scores of Rural Development blocks, Mizoram, 2011

Rank	Blocks	Composite Score	Rank	Blocks	Composite Score
1	Tlangnuam	9.742	14	Phullen	0.440
2	Lunglei	7.501	15	Hnahthial	-0.009
3	Serchhip	6.496	16	Ngopa	-0.031
4	Thingsulthliah	5.666	17	Darlawn	-0.671
5	Champhai	4.500	18	Lawngtlai	-0.962
6	Aibawk	3.452	19	Zawlnuam	-2.899
7	Thingdawl	3.255	20	Sangau	-3.655
8	Khawzawl	3.065	21	West Phaileng	-5.566
9	Bilkhawthlir	2.719	22	Lungsen	-6.134
10	East Lungdar	2.242	23	Tuipang	-7.049
11	Saiha	1.761	24	Bunghmun	-7.909
12	Khawbung	1.651	25	Chawngte	-8.701
13	Reiek	0.997	26	South Bungtlang	-9.901

Further analysis reveals that the RD blocks near the Tripura and Bangladesh borders like Chawngte, Bunghmun, Lungsen, West Phaileng and Zawlnuam have lower scores as compared to those bordering Assam, Manipur and Myanmar like Champhai, Thingdawl, Khawzawl, Bilkhawthlir, East Lungdar and Phullen with a few exceptions from those bordering Myanmar in the southern part of the state. Since Mizoram import most of its basic needs from Assam in the north, the northern parts of the state are relatively more developed. This may be reflected by the fact that southern parts of the state are less developed than their northern counterparts.

After the composite score for all the RD Blocks were obtained, they were then categorized into five levels of development on the basis of their scores as shown in Table 5.

Table 5: Classification of RD Blocks by Levels of Development, Mizoram, 2011

Category	Composite Score	RD Blocks
Very High Developed RD Block	Above 5	Tlangnuam, Lunglei, Serchhip, Thingsulthliah
High Developed RD Block	2.001 – 5.000	Champhai, Aibawk, Thingdawl, Khawzawl, Bilkhawthlir, East Lungdar
Medium Developed RD Block	-0.999 to 2.000	Saiha, Khawbung, Reiek, Phullen, Hnahthial, Ngopa, Darlawn, Lawngtlai
Low Developed RD Block	-3.999 to -1.000	Zawlnuam, Sangau
Very Low Developed RD Block	Below -4.000	West Phaileng, Lungsen, Tuipang, Bunghmun, Chawngte, South Bungtlang

Out of all the RD Blocks, the very high developed consists of about 15%, the high development 23%, the medium development 31%, the low development 8% and the very low development 23%.

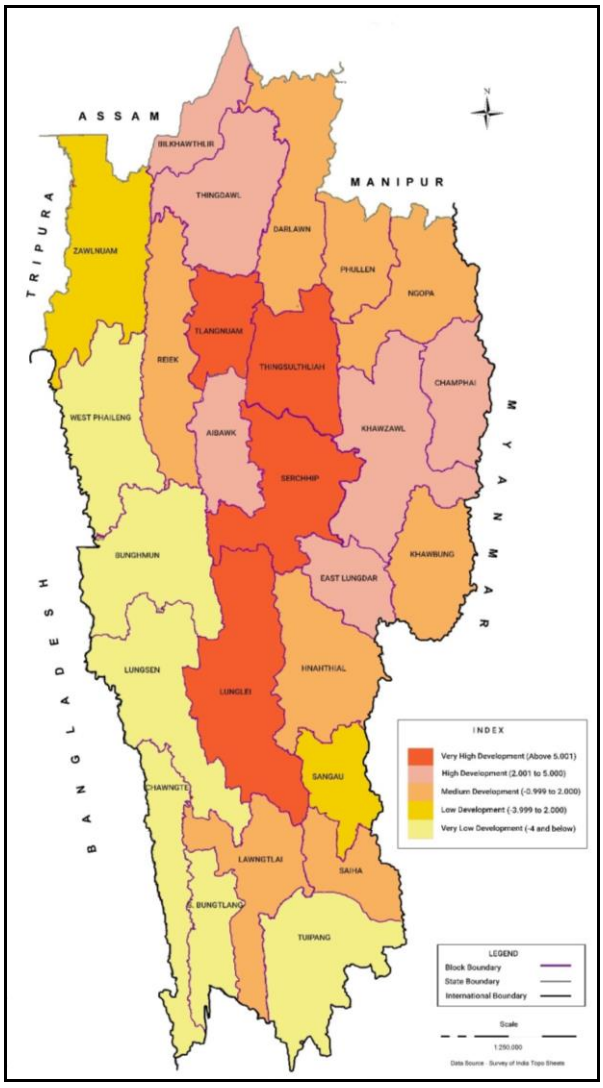

Fig 1: Levels of Development in Household Amenities at RD Block Level, Mizoram 2011.

5. Conclusion

Micro-level studies are very helpful in understanding the exact nature of disparities in development. The present study shows a glimpse of regional disparities in development at district and RD block levels in Mizoram. The core areas of the state are relatively more developed than the fringe border areas. Aizawl and its neighbouring districts were ranked much higher than their counterparts in the southern and western parts of the state. Almost all the state's economic activities and important infrastructures are concentrated in the capital region while the remote regions are neglected. It seems that the rapid growth of Aizawl city benefited its peripheral areas to some extent while the far off areas are deprived of such benefits. The three Autonomous District Council (ADC) regions of the state viz. the Lai ADC, the Mara ADC and the Chakma ADC are the least developed regions. All these ADCs are located the southernmost corner of the state.

The government should realize the increasing gap between regions and take appropriate measures through decentralization of development projects that may help in proper utilization of funds and constant monitoring of development projects. Development of infrastructures like roads, water supply, social and educational institutions, banking facilities and other basic infrastructures and services is also highly needed.

6. References

1. Bhagat RB. Urbanization and access to Basic Amenities in India. Urban India. 2011; 31(1):1-14.
2. Carr ER. Development and the Household: Missing the Point? Geojournal, 2005; 62:71-83.
3. Das B, Nipun D. Urbanscape: Basic Amenities across Size Class of Towns in North Eastern India. Urban India, 2012; 32(1):155-173.
4. Das B, Mistri A. Household Quality of Living in Indian States: Analysis of 2011 Census. Environment and Urbanization, 2013; 4(1):151-171.
5. Gilbert A, Gugler J. Cities, Poverty and Development: Urbanization in the Third World, 2nd ed., Oxford University Press, Oxford. 1992.
6. Haque I. Infrastructure Development and Access to Basic Amenities in Class-I Cities of West Bengal, India: Insights from Census Data. Journal of Infrastructure Development, 2016; 8(1):36-84.
7. Kundu A, Bagchi S, Kundu D. Regional Distribution of Infrastructure and Basic Amenities in Urban India: Issues concerning Empowerment of Local Bodies. Economic and Political Weekly. 1999; 34(28):1893-1906.
8. Mishra US, Shukla V. Provisions of Basic Household Amenities in India: A Progress Report. Social Change. 2015; 45(3):421-439.
9. Potter RB, Lloyd-Evans S. The city in the Developing World. Longman, Harlow, 1998.
10. Saitluanga BL. Urbanisation and Regional Development in Northeast India. Mittal Publications, New Delhi, 2014.
11. Shaw A. Basic Amenities in Urban India: Analysis at State and Town level, working paper series No. 616, Indian Institute of Management Kolkata, 2007.
12. UNCHS. An Urbanising World: Global Report on Human Settlements. Oxford University Press, 1996.