Quality of Housing in Slums of India with special emphasis on the Slum Households of Odisha

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Abstract

Bread, clothing, and shelter are the basic requirements of human being. But it is still beyond the access of disadvantaged section of our society. Poverty and deficit of housing in rapidly growing cities are the reasons of proliferation of slum. The major objectives of the present study are: to examine the internal variation of the selected indicators of housing quality in slums of India, state-wise, 2011,to examine the quality of housing of slum households in India, state-wise, 2011 and lastly, to analyze the comparative status between Odisha and all India scenario in terms of housing quality. The present study is entirely based on secondary data. The secondary data has been collected from Housing Stocks, Amenities, and Assets of Slum, Census of India and Odisha, 2011. Simple percentage calculations, different statistical techniques like Co-efficient of Variation, ZScore, Composite Score are applied here to analyze the data. In respect of quality of housing of slum households, the accessibility of 'electricity' is more consistent and the availability of 'drinking water within premises' shows very high internal variation. The majority of North and Northwestern states and some states of South India are experiencing high level of quality of housing in slums. Odisha as a low urbanized state is characterized by low level of housing quality of slum households. Most of the slum households of Odisha are of livable condition and permanent in nature and most of slum households are owned in ownership status. The accessibility of basic infrastructure to slum households is very poor. Therefore, the housing quality in slums of Odisha is lower than national average.

Introduction

According to The World Health Organization (1961), housing is the physical structure, used for shelter, which includes facilities, equipments, services, and devices needed for healthy living. Housing in its fullest sense would include the creation of a safe and healthy environment with access to amenities and conveniences of modern life, which indirectly contributes to the social, physical, and psychological well-bing of the individuals (Sharma and Singh, 2017). Housing is intimately related with the overall socio-economic development. It provides shelter and raises the quality of life. In urban areas, the household size is comparatively smaller than the rural areas. In urban areas, the land is more costly and the gap between the demand and supply of housing facility is high, which causes over congestion. The occupational pattern, poverty and the tradition also affect the housing quality.

Bread, clothing and shelter are the common man's basic needs. Housing is an architectural unit for accommodation and safety, which covers several basic services, equipments, and facilities for the human resource development. Unfortunately, it is still beyond the access of disadvantaged section of our society. Poverty and deficit of housing in rapidly growing cities are the reasons for the emergence of slum. Slum is a an informal settlement, where inhabitants are characterized by inadequate housing, services, overcrowding, high density, unhealthy and hazardous location, poverty, minimum settlement size and social exclusion (Challenge of Slum: Global Report on Human Settlement, 2003). The quality of housing comprises many housing facilities like house type, electricity, drinking water, sanitation, drainage facility etc. But unfortunately, the problem of accessing the good housing, infrastructure and services are particularly acute for the urban poor. While quality of housing is typically higher in urban areas than the rural areas, it is still extremely low for the urban poor especially for the slum dwellers (Baker, 2008).

Objectives

The major objectives of the present study are:

i.   To examine the internal variation of the selected indicators of housing quality in slums of India, state-wise, 2011.

ii. To examine the quality of housing of slum households in India, state-wise, 2011.

iii. To analyze the comparative status between Odisha and all India scenario in terms of housing quality, 2011.

Database and Methodology

The present study is entirely based on secondary sources of data. The secondary data has been collected from Housing Stocks, Amenities and Assets of Slum, Census of India and Odisha, 2011. Simple percentage calculations, different statistical techniques like Co-efficient of Variation, Z Score, Composite Score are applied here to analyze the data. The quantitative data has been represented by Choropleth Map with the help of Arc GIS. The formulas used for the calculation are as follows:The formulas used for the calculation are as follows:

Co-efficient of Variation: To calculate the internal variation of the selected six indicators of housing quality in slums of India, **c**o-efficient of variation **(CV)** method has been used as:

$$CV = \left(\frac{\bar{x}}{\sigma}\right) \times 100$$

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

Z -Score and Composite Score: To assess the quality of housing in slums of India, state-wise (2011), Z-Score has been used as:

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

Where, Z_{ij}= standard value of the indicator i in the state j, x_{ij}- actual value of indicator i in state j, $\bar{x}$ = mean value of indicator i in all states, σ = standard deviation of indicator i in all states. The municipality-wise Z-Scores of all indicators of social well-being have been added separately and their averages have been taken out, which may be called 'composite score' (CS) for each municipality. The set of indicators taken to measure the quality of housing in the present analysis are the number of slum households with good condition, owned housing status, permanent house structure. electricity as a main lighting source. latrine facility within premise and drinking water facility within premise.

The Study Area

With an area of 32, 87,263 sq. km, India is the seventh largest country of the World. According to 2011 Census, its total population is 121.02 crores with a crude density of 382 persons/ sq km, sex ratio of 940 females/1000 males, literacy rate (7[+ years]) of 68% and an urban percent of 31%. The total number of slum reporting towns is 2543 comprising a population of about 6,54,94,604.

Odisha extends from17º49'N to 22º34'N latitude and from 81º29'E to 87º29'E longitude on the eastern coast of India. It is bounded by West Bengal in the northeast, Bihar in the north,

Madhya Pradesh in the west, Andhra Pradesh in the south and the Bay of Bengal in the east. Orissa was separated from Bihar and came into existence on 1st April 1936. The capital was established at the historic city of Cuttack, located at the apex of the Mahanadi delta. In 1956, it is shifted to Bhubaneswar, a planned modern town of the post-independence period (Sinha, 1999).

According to the 2011 Census of India, the total population of the state is 419,74,218 contained within its 1,55,707 sq. km area. The population density is 270 persons/sq.km. Among the 35 States/ Union Territories, Odisha is the 11th populous state in India. The state is divided into 30 districts. The sex ratio is 979 females/1000 males. The literacy rate is 72.87%. Odisha is more rural than India as only 16.68% of its total population lives in urban areas, which is much less than the national average, 2011 (31.16%). The total number of urban households is 15,47,833 as per 2011 Census. The total number of slum reporting towns in the state is 76 with 15,60,303 number of slum population. The total numbers of slum households are 3,50,032.

Results and Discussion

Rapid and unplanned urbanization, low investment for the development purpose have created serious difficulties and deficiencies in accessibility of household amenities in slums of India. Quality of housing affects the physical health and the mental condition of a human being. Therefore, houses with proper basic amenities are the prime requisites for a civilized society. But unfortunately, slums are such a part of urban centers that are generally bypassed from the provision of the above said basic amenities across the state in India.

According to Houselisting and Housing Census on Housing Stock, Amenities and Assets in Slums, 2011, the total number of slum households is 350306, which is higher than the number of slum households records by Primary Census Abstract, 2011. The difference is due to two reasons. The difference in total number of slum HHs is due to two reasons: **i.** Houselisting and Housing Census was conducted in the period April to September 2010 in different States/Union Territories depending upon local conditions and Population Enumeration Census was carried out during February-March, 2011. **ii.** In Houselisting Census, it was required to cover only the normal and institutional households except houseless households.

Composite Scores of Housing Quality in the Slums of India

Among the 31 numbers of States/ Union Territories, the accessibility of 'Good' conditioned slum households is highest in Mizoram (80.22%) and it is lowest in Chandigarh (5.95%).The share of owned slum households is highest in Jammu & Kashmir (96.29%) and lowest in Sikkim (34.22%). The highest share of permanent slum households is prevailing in Goa (90.67%). On the other hand, Arunachal Pradesh accounts the lowest share of permanent slum households (17.88%).

The share of slum households (HHs) having latrine facility within premises is highest in Mizoram (99.26%) and lowest in Chandigarh (3.93%). The accessibility of electricity as a

source of lighting is highest in Meghalaya and lowest in Bihar with 99.96% and 55.11% slum households respectively. The availability of drinking water within the premises is highest in Punjab with 89.24% slum households and it is lowest in Chandigarh with 5.55% slum households.

However, internal variation across the states varies from one amenity to another amenity. The availability of 'Drinking water within premises' records highest range of variation across the state, which is followed by 'latrine facility within premises', 'good conditioned households', 'permanent' and 'owned' households in slums of India. Lastly, accessibility of 'Electricity' reports smallest variation in slums across the states of India (Table - 1).

Therefore, regional inequality in respect of quality of housing of slum households in India state-wise is measured by Z-Score technique. The entire array of variation in Composite score of quality of housing of slum households in India state-wise has been grouped into five categories. It is revealed (referring back to Figure 1) that quality of housing in slum is very high in 11 numbers of states, which are mainly located northern and northwestern part of India. The very low housing quality has been observed in 7 numbers of states in India. The states with low quality of housing in slums are mainly concentrated in eastern and north-eastern part of the country.

UN-HABITAT defines a slum household as a group of individuals living under the same roof in an urban area who lack one or more of the following**: i.** Durable housing of a permanent nature that protects against extreme climate conditions. **ii.** Sufficient living space, which means not more than three people sharing the same room. **iii.** Easy access to safe water in sufficient amounts at an affordable price. **iv.** Access to adequate sanitation in the form of a private or public toilet shared by a reasonable number of people. **v.** Security of tenure that prevents forced evictions. Not all slums are homogeneous and not all slum dwellers suffer from the same degree of deprivation. The degree of deprivation depends on how many of the five conditions that define slums are prevalent within a slum household. UN-Habitat analyses show that Sub-Saharan Africa's slums are the most deprived; over 80 per cent of the region's slum households have one or two shelter deprivations, but almost half suffer from at least two shelter deprivations. Approximately one-fifth of slum households live in extremely poor conditions, lacking more than three basic shelter needs.

Generally, the lack of sanitation and water in the region's slums is compounded by insufficient living space for families and inadequate, makeshift housing. According to the Primary Census Abstract (PCA) for population enumeration in India, the total numbers of urban HHs are 78865937 out of which slum HHs are 13920191 (17.65%). In West Bengal, the total numbers of urban HHs are 6350113 out of which slum HHs are 1391756 (21.92%) which are higher than the national average. But as per Houselisting and Housing Census on housing Stock, amenities and assets in slums, 2011 has registered 13749424 numbers of slum households to study the housing condition, basic amenities and assets of slums of in India. In case of West Bengal, the numbers of slum HHs are 1393319 to study the housing Stock, amenities, and assets in slums instead of

1391756 numbers of total slums households. Among the 31 numbers of slum reporting States/Union-territories, Odisha has experienced low level of housing quality of slum households as per 2011 Census. The brief discussion about the quality of housing in slums of Odisha is as follows:

Good Condition Census Houses

Condition of house is an important factor for health, safety and sustainability of built environment, which not only increases the standard of living but also reduces the mortality rate and morbidity. As per the Houselisting and Housing Census, 2011, out of total 350306 slum households about 38.05% households of the state fall under good condition houses, which is much lower than the national average of 58.41%. In the state, most of the slum households (54.02%) reside in livable condition, which is far better than the national average (37.56%). In Odisha, 7.93% slum households come under dilapidated condition, which is also higher than national average (4.03%).

In India, out of total slum households (13749424), 97.18% households are used for Residential purpose and rest of 2.82% households are used for Residential-cum-other use. Similarly, in Odisha, 97.98% and 2.02% slum households are used for Residence and Residence-cum-other purpose respectively. Out of total slum households used for residence purpose, 54.01% slum households are in livable condition (higher than the national average with 34.43% slum households), followed by good (37.99%) and dilapidated condition (8%) in Odisha. Out of total number of slum households used for residence-cum-other use, most of the slum households fall under livable condition (54.31%), followed by good and dilapidated condition.

Owned Housing Status

Owned housing status is considered as one of the important qualitative indicators of better level of housing quality in particular region (Khan,et.al., 2012; Menka and Owaise, 2013). It is highly satisfying that a majority (63.19%) slum household in the state live in their own houses, though it is lower than the national average (70.23%). Beside this, 22.30% and 14.51% slum households reside in rented and any other type houses in the state.

Permanent House Structure

Based on the Structure of houses in Odisha, about 58.91% slum households live in Pucca or Permanent houses, followed by Semi-permanent (24.06%), Temporary (16.32%), and Unclassifiable (0.71%) houses. On the other hand, in India, almost 77.73% slum households reside in Permanent structure houses, which is much higher than Odisha's performance in particular.

Electricity as Main Lighting Source

Inadequate lighting facility is an even bigger problem for slum households. Generally, poor people are suffering from the lack of access to electricity. Low access to electricity reduces economic growth. As far as the source of lighting is considered, Odisha has 75.52% slum households with electricity connection, which is lower than the National

average (90.45%). The share of slum households using kerosene as a source of lighting (22.08%) is higher than the National average (8.25%). Beside this, solar energy, other oil, and other type of sources are used as main sources of lighting. In Odisha, 1.79% slum households are devoid of lighting facility, higher than the National average i.e. 0.53%.

Latrine Facility within Premises

Hygienic sanitation facilities are crucial for public health. The urban slums are very compact and scanty in resource utilizing and allocation. The income levels of the urban poor are meager and uncertain due to the reasons the urban poor cannot spare money for good sanitation and for other health needs. Slum dwellers are more disadvantaged in terms of sanitation facility compared to households residing in non-slum urban areas. Therefore, slum dwellers lacking latrine facility face a daily assault of health threats because they are unnerved by the city's sanitation systems (Prasad, 2013). In Odisha, 51.85% of slum households does not have latrine facility within premises, which is a big threat for the health of slum dwellers of Odisha state. On the other hand, in India only 33.99% slum households do not have the latrine facility within premises. Another disappointing fact is that in Odisha about 93%slum households are used to with open air defecation. So, only 6.78% slum households has public latrine facility for defecation, which is much lower than the national average (44.38%). On the other hand, out of total number of slum households having latrine facility within premises, 68.19% households have septic tank type of latrine facility, which is higher than the national average.

Drinking Water Facility within Premises:

The ever-mounting numbers of slum dwellers pose serious challenges to provision of basic urban services. Water availability, its access by urban poor and water quality emerged as key concern for urban planners (Satpathy, 2014). It is revealed that based on location of sources of drinking water facility, 38.01% slum households have the drinking water facility within premises in Odisha, which is lower than India as a whole (56.72%). It is followed by 32.71% slum households having drinking water facility near premises and away from premises in Odisha, which are higher than the national average. About 35.01% households are using tap water from treated sources (lower than the national average), followed by tube well (23.07%), hand pump (16.13%), uncovered well (13.37%) etc, which are all higher than the national average performance. The untreated sources like river/canal, tank/pond/lake, spring, covered well are other sources of drinking water in India, state-wise, 2011.

Conclusion

Quality of housing is an important factor for health, safety, and sustainability of built environment. It is important for household well-being and quality of life. Therefore, quality of housing also relevant for the well-being of slum dwellers. But generally, slums are characterized by deplorable housing quality. Therefore, every country is trying their level best to solve the urban problems by providing adequate basic amenities and utility services. However, striking observations of the present study are:

1. In respect of quality of housing of slum households, the accessibility of 'electricity' is more consistent and the availability of 'drinking water within premises' shows very high internal variation.
2. The majority of North and Northwestern states and some states of South India are experiencing high level of quality of housing in slums.
3. Among the 31 numbers of slum reporting states, Odisha as a low urbanized state is characterized by low level of housing quality of slum households.
4. Most of the slum households of Odisha are of livable condition and permanent in nature and most of slum households are owned in ownership status.
5. The accessibility of basic infrastructure to slum households is very poor. Most of the slum households are used to with open defecation. Less numbers of slum households have latrine facility within premises.
6. Electricity is the main sources of lighting for slum households in Odisha but it is much lower than the national average.
7. The most disappointing fact is that below 50% slum households have the drinking water facility within premises as well as are getting tap water from treated sources.
8. Overall, the housing quality of Odisha is lower than national average.
9. Variation in quality of housing among tahsils is not the outcome of any single factor rather it may be attributed to the combination of factors like accessibility and connectivity, socio-economic condition, and level of urbanization etc.

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Table -1: Regional Imbalance in Quality of Housing in Slums of India, State/UTs-wise, 2011

States/ UTs	Percentage of Slum Households with					
	Good	Owned	Permanent	Electricity	Latrine facility within premises	Drinking water facility within premises
Jammu & Kashmir	65.08	96.29	81.41	97.10	88.20	80.73
Himachal Pradesh	73.01	62.04	87.78	95.50	85.46	79.91
Punjab	42.64	81.01	87.75	96.65	88.67	89.24
Chandigarh	5.95	80.25	63.58	88.04	3.93	5.55
Uttarakhand	62.82	76.22	89.29	93.80	91.70	83.47
Haryana	49.53	80.15	78.12	92.32	79.96	73.39
NCT of Delhi	31.70	71.01	84.48	97.28	50.10	50.89
Rajasthan	56.53	82.67	85.33	89.10	71.60	69.18
Uttar Pradesh	49.45	83.93	82.20	77.99	77.48	71.01
Bihar	41.78	86.89	60.50	55.11	53.84	64.52
Sikkim	77.27	34.22	82.23	98.90	91.03	81.98
Arunachal Pradesh	40.10	36.90	17.88	86.59	83.67	57.30
Nagaland	59.98	39.68	50.05	98.25	93.26	44.95
Mizoram	80.22	45.40	86.96	98.87	99.26	55.30
Tripura	53.86	82.86	37.34	91.71	95.35	55.77
Meghalaya	61.09	50.28	58.16	95.03	92.73	53.03
Assam	44.71	65.44	46.95	74.50	86.43	74.36
West Bengal	50.60	69.86	78.97	84.61	82.52	51.66
Jharkhand	50.01	73.95	60.82	77.15	52.69	45.97
Odisha	38.05	63.19	58.91	75.52	48.15	38.01
Chhattisgarh	57.41	76.98	57.17	92.22	48.67	35.58
Madhya Pradesh	57.84	79.01	66.32	89.80	62.86	39.86
Gujarat	48.10	68.78	78.90	91.76	64.41	63.96
Maharashtra	57.86	73.85	81.95	93.76	41.62	64.60
Andhra Pradesh	74.99	57.36	84.94	96.58	82.34	61.77
Karnataka	57.34	62.93	72.17	92.31	63.3	46.42
Goa	54.85	58.17	90.67	97.30	60.93	70.84
Kerala	63.03	81.70	83.42	96.41	93.20	79.38
Tamil Nadu	69.19	62.05	74.28	93.41	61.01	39.29
Puducherry	70.52	66.04	73.38	96.95	62.77	70.17
Andaman & Nicobar Island	69.64	53.58	78.68	98.03	66.07	81.79
MEAN	55.33	67.83	71.63	90.40	71.72	60.64
S.D	15.14	15.42	17.09	9.59	20.96	18.40
C.V	27.36	22.74	23.86	10.61	29.22	30.35

Source: Calculated by the author based on Housing Stocks, Amenities and Assets of Slum, Census of India, 2011.

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Fig. 1: Quality of Housing based on Composite Score