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SRINAGAR CITY: HOUSING DEPRIVATION

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Abstract

Although the living conditions have improved everywhere, yet a large number of people in the urban areas have remained deprived of shelter and basic amenities and facilities for them. Keeping this aspect in mind an attempt has been made in this study, to measure housing deprivation in Srinagar city on the basis of identified indicators so that future plans could be made to improve their condition. The study is based on primary sources of data collected from 1,500 households of Srinagar city belonging to different income groups during 2012-13. The findings show that the most deprived households were of low and lower-middle income, while less deprived were from the upper-middle income households. The most deprived has acute housing, water and sanitation problems which require immediate attention by the local municipal authorities to improve the quality of life of the urban deprived lots.

Introduction

India is becoming dominantly urban. In the near future, more people will live in the country's urban areas than in rural areas. The urban population growth rate is 1.8 times than that of overall population growth and 2.6 times than that of rural population growth. India will face an unprecedented scale of urbanization. About 350 million Indians will move to cities by 2030 and the number is likely to double to 700 millions by 2050. It will be the largest urban movement in the world. For this situation India needs to create 500 new cities to accommodate and provide better quality of life for its migrating people (Census of India, 2011; Kant, 2011). In 2011-12, there were 52.8 million urban poor. The slum population in most cities has grown faster than that of non-slum population. From 1991 to 2001, the population of India grew at an average rate of 2.0 per cent per annum, the urban population at

3.0 per cent, mega cities at 4.0 per cent and slum population by 5.0 per cent. The slum population of India was approximately 169 millions in 2005 and is projected to be 202 millions by 2020 (United Nations, 2011). Rapid urbanization brings with it a high degree of poverty. Urban poor, who are increasing in numbers, are deprived of basic amenities like housing, safe drinking water and sanitation.

'Deprivation' implies a standard of living or a quality of life below that the majority of population in a particular society involves hardship and inadequate access to resources. The causes of deprivation are equally difficult to determine. Deprivation is present in all levels of society, but for the most part poverty is regarded as the basis from which deprivation stems. People can be said to be deprived if they lack the material standards of diet, clothing, housing, household facilities, working, environmental and locational conditions and

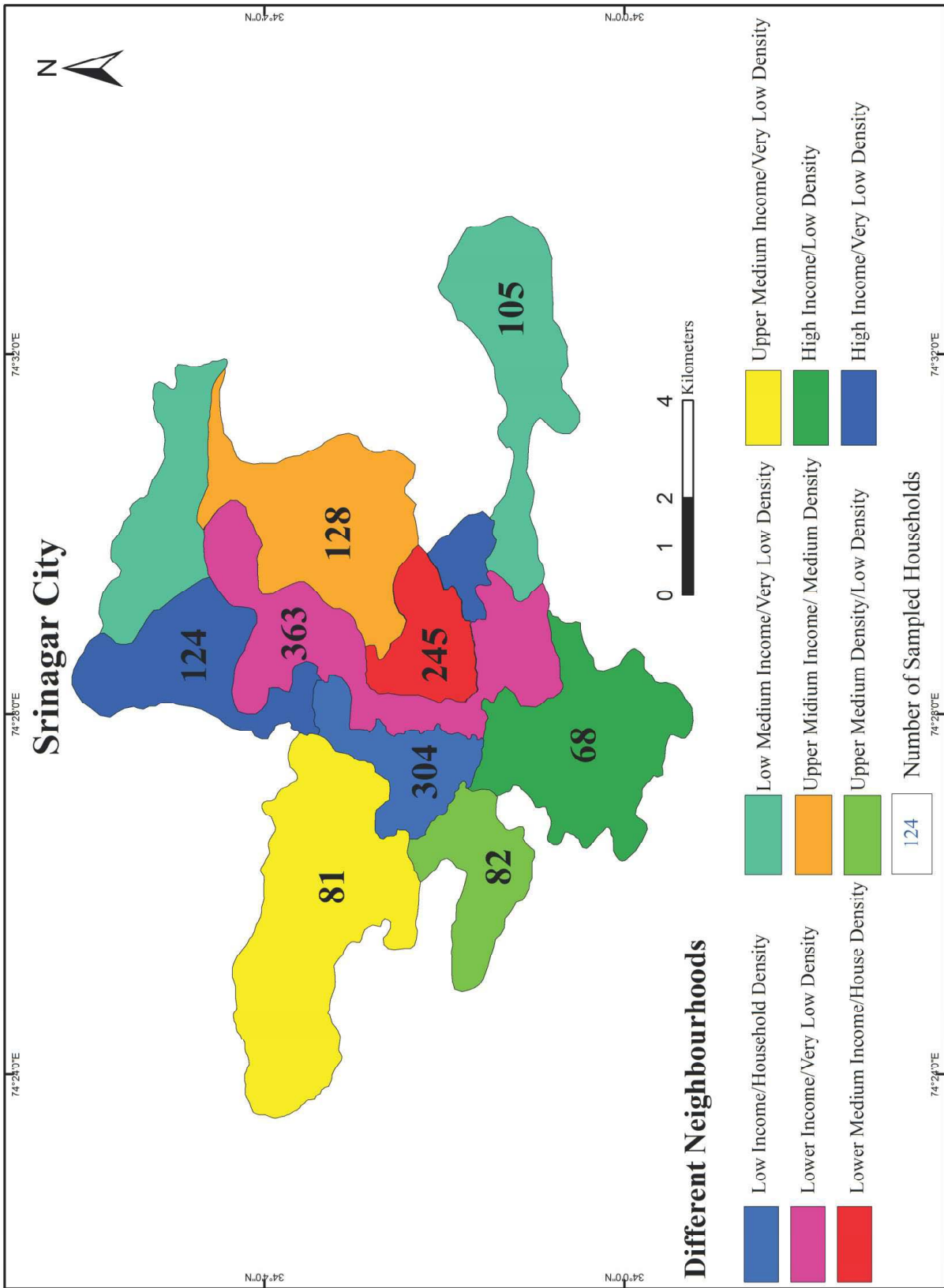


Fig. 1

Source: Based on Field Survey, 2012-13

facilities which are ordinarily available in their society (Townsend, 1987, Ayala, 2007).

Although the living conditions have improved everywhere, even in most backward parts of the country, yet a large number of people have remained deprived of basic nutrition, shelter and basic facilities, minimal competent medical attention and primary education. There is deterioration in physical environment and quality of life in urban areas caused by widening gap between demand and supply of essential services and infrastructure. Increasing pressure of population, escalating per capita cost of providing urban basic services account for deterioration of infrastructure and shrinking of services like drinking water, sanitation, education and basic health services. The government's investment in urban infrastructure also has been less than adequate. Keeping all these aspects in mind, an attempt has been made in this paper to assess housing deprivation in Srinagar city.

Objective of the Study

The major objective of this study is to identify deprived households on the basis of indoor conditions, water supply and sanitation facilities in Srinagar city of Jammu and Kashmir.

Study Area

Srinagar city (33° 53' 49" and 34° 17' 14" N latitudes and 74° 36' 16" and 75° 01' 26" E longitudes) is the summer capital of the state of Jammu and Kashmir. It spreads over in the heart of the oval shaped Valley of Kashmir at an average elevation of about 1,585 m above mean sea level (Fig.1). Srinagar is often known as the 'Venice of East', because of its picturesque features, lakes and waterways, which have bestowed to its scenic beauty. It is famous throughout the world for its tourist attraction. The city receives high influx of tourists both

from India and abroad. Being the largest urban settlement in the Himalayas, it has gained primacy in terms of functions associated with administrative, political, economic, commercial, tourism and other activities. The city has recorded rapid growth of population which has increased nine times (1,22,618 to 11,47,647) and its size has increased twenty times (12.8 to 278.1 km²) during 1901 and 2011. It constitutes about 53.0 per cent of the total urban population of Valley (2.16 million) and 37 per cent of the state (3.10 million) as a whole.

Database and Methodology

The study is mainly based on primary sources of data which were collected through city/household surveys with the help of questionnaire and interviews. The survey was conducted during the years 2012 and 2013. The sample has been selected from the 9 different neighbourhoods. The 34 administrative municipal wards of Srinagar city were grouped into 9 neighbourhoods identified on the basis of; i) income-wise dominance in the wards; low income (Rs. 5000 or less per month); lower-middle (Rs. 5,001-15,000); upper-middle (Rs. 15,001-25,000) and high income (more than Rs. 25,000); ii) population density (very low (2,000 or less persons/km²); low (2,001-5,000 persons/km²); medium (5,001-10,000 persons/km²) and high (more than 10,000 persons/km²); iii) household density very low (500 or less households/km²); low (501-1,000 households/km²), medium (1,001-1,500 households/km²), and high (more than 1,500 households/km²) and iv) physiographic conditions prevailing in and around the neighborhoods.

About 50 per cent of the wards from each neighbourhood were randomly selected and from each of the selected wards, 2.0 per cent of the total households were selected for

Table 1
Srinagar City: Selection of Sample Households from Different Neighbourhoods

Identification of Neighbourhoods		Selection of Sample					
Identified Neighbourhoods	Ward Number	Total	Selected Wards (50 per cent of the total wards)	Total No. of Households in the Selected Wards	Household Proportion (%)	Selection of Sample	Income-wise Number of Households
Low income with high density (LI/HD)	9, 10, 18, 23, 24, 28	6	3 (9, 18, 23)	15,075	22.0	304	H-15, UM-2, LM-135 and L-152
Low income with very low density (LI/VLD)	1, 3	2	1 (3)	5,665	8.30	128	H-6, UM-1, LM-54 and L-67
Lower-middle income with high density (LMI/HD)	2, 4, 5, 7, 8	5	2 (5,7)	10,955	16.05	245	H-14, UM-2, LM-164 and L-65
Lower-middle income with low density (LMI/LD)	13, 34	2	1 (34)	4,656	6.82	105	H-7, UM-3, LM-67 and L-28
Upper-middle income with medium density (UMI/MD)	6, 11, 12, 20, 21, 22, 29, 31	8	4 (12, 20, 22, 29)	16,278	23.83	363	H-88, UM-93, LM-91 and L-91
Upper-middle income with low density (UMI/LD)	19, 25, 26	3	1 (19)	3,548	5.19	81	H-6, UM-32, LM-30 and L-13
Upper-middle income with very low density (UMI/VLD)	27	1	1 (27)	3,600	5.27	82	H-18, UM-29, LM-10 and L-25
High income with low density (HI/LD)	30, 32, 33	3	1 (33)	2,967	4.35	68	H-30, UM-3, LM-22 and L-13
High income with very low density (HI/VLD)	14, 15, 16, 17	4	2 (14, 15)	5,523	8.09	124	H-55, UM-3, LM-51 and L-15
Total Wards		34	16	68,267	100.00	1,500	1,500

Source: Field Survey, 2012-13; Hh=Households, L= Low/Lower, I=Income, M=Medium/middle, D=Density, H= High/higher and U=Upper

sampling and collecting information. The total sample size consisted of 1,500 households belonging to different income groups; 239 of high income; 168 of upper- middle income, 624 of lower-middle income and 469 of low income (Table 1; Fig. 1). The data thus obtained were standardized into standard scores based on under mentioned Z-Score technique for identifying the deprived households:

$$Z_i = \frac{(X_i - \mu)}{\sigma}$$

where, Z_i is the standard core of the i th variable, X_i is the individual observation, μ is the mean of the variable and σ is the standard deviation of the variable.

The obtained Z- Score of each variable is added income-wise and the average is taken to be known as composite Z- Score for each variable to be studied:

$$CS = \frac{\sum Z_{ij}}{N}$$

where, N refers to total number of variables and Z_{ij} indicates the sum of Z-Scores of variables j in i th neighbourhood. All the analysis has been done on the basis of income categories.

Results and Discussions

Housing Conditions

Housing condition, a widely accepted facet of living standard, is an important indicator of the living condition as well as social status of the household. A perusal of Table 2 shows a wide variation in the socio-economic conditions of the sampled respondents belonging to different income groups. Mostly, the respondents were Muslims (97 per cent), married (70.74 per cent), belonging to lower age group of 45 years (68.20 per cent), educated (up to high school or intermediate or graduate level, 29.30 per cent), employed (in business, government and miscellaneous jobs), and had large families (more than 5 members 68.77 per cent) living in the same house (Table 2). There were only few migrants and rest were permanent residents living in the same neighbourhoods from more than 30 years. It was observed that most of them were living in their own pucca houses used only for residential purposes, although few had many rooms but the households mostly occupied 1 or 2 rooms. Most of the households were using a combination of fuels (modern and traditional), about one-fourth were cooking food either in a multipurpose room or outside in the courtyard. Most of them had Public Health and Engineering (PHE) department water connections inside the premises. Although, most of the households had flush latrines inside

Table 2
Srinagar City: Income-wise Distribution of Sampled Households (per cent) according to their Socio-economic Characteristics (2012-13)

Income Groups	No. of Sampled Households	Religion			Age in Years			Marital Status		Family Type		No. of Family Members		Educational Status			Levels of Education			Occupational Status
		Muslims	45 and Less	More than 45	Married	Nuclear	5 and Less	More than 5	Uneducated	Middle	High School	Graduate	Unemployed							
High	239	86.20	64.40	35.60	65.69	45.54	20.5	79.50	10.04	1.39	26.50	34.88	52.30							
Upper-middle	168	95.83	66.10	33.90	67.86	57.14	33.93	66.07	21.43	13.60	27.30	21.97	63.09							
Lower-middle	624	99.20	71.00	29.00	70.19	60.09	29.81	70.19	42.79	26.90	32.50	14.57	61.06							
Low	469	100.00	67.20	32.80	75.05	78.46	39.23	60.77	62.47	42.60	27.80	13.07	56.93							
Total	1,500	97.00	68.20	31.80	70.74	63.33	31.73	68.77	41.33	21.80	29.30	20.34	58.60							

Source: Field survey, 2012-13

premises (90 per cent) yet, only 46 per cent were connected to open drains. While faeces from manual latrines was disposed either in open fields (62 per cent) or in the water bodies (35 per cent). About 30 per cent of the households reported lack of any drainage system forcing them to drain the waste water either in water bodies or in the neighbouring plots. Nearly 47 per cent of the households reported collection of garbage in open containers.

Indicators of Housing Deprivation

Housing deprivation in Srinagar city has been affected by a number of factors, namely:

(i) Indoor Conditions

Indoor crowding depends on both the number of people in the household and the way in which the residential space is managed. It is a situation in which more people are living within a single dwelling than the space available for it, or it exceeds the capacity of the household to provide adequate shelter, space and facilities for its occupants. This affects the quality of life of the residents. Most measures of crowding generally consider the number of persons per room or per bedroom but floor area per person is more precise and policy sensitive measure. For this study therefore, less than 14 m² floor space per person in the sleeping room was considered for crowding and was calculated by taking total floor space of the sleeping room divided by total number of persons sleeping in that room. Perusal of Table 3, show that, of the total sample, about 38 per cent (nearly all the low and one-fourth of the lower-middle income households) had less than 14 m² floor space per person in sleeping room. Survey revealed that due to political turmoil and uncertainties in Kashmir, grandchildren and unmarried girls were sharing the sleeping space with their grandparents. It was also observed that in the low income households all the family members

shared a single room. Thus, problem of crowding was mainly found in the low and few of the lower-middle income households because of economic reasons. Renting out space from house for economic reasons and sub-division of the families into many households sharing the same living space has also created indoor crowding conditions. Due to unaffordable land prices the poor are unable to expand living space and had to adjust within the existing one.

Secondly, mold and dampness is a common problem in the residential areas of Srinagar city. Mold can grow on any substance, as long as moisture and oxygen are available. They may occur when excessive moisture accumulates in buildings or in building materials. Hence, the amount of water in materials triggers the growth of such micro organisms. Dust and dirt normally present in most indoor spaces provide sufficient nutrients to support their extensive growth. The survey revealed that houses suffering from mold and dampness were mainly found to be located along the wetlands and marshy areas. For example, dampness in residential areas of Hamdania colony, Bemina and Waganpora Eidgah is due to their location along the river Jhelum; of Safakadal and Chhatabal is due to their location along the lakes and of Hazratbal and Nigen is due to their location along the drains.

Mold and dampness are very high in the congested core areas of city where ventilation is very poor. Growth of mold in the living rooms increases during the winter months as a result of shutdown of windows and doors and their warming up through various heating systems like *Kangri*, *Bukhari*, gas heater, electric heater etc. Warm temperature and humid indoor conditions are ideal for the growth of mold. About 24 per cent of the total sampled households (nearly half of the low and less than

Table 3
Srinagar City: Income-wise Distribution of Sampled Households (per cent) on the Basis of Indicators of Housing Deprivation, 2012-13

Income Group	No. of Sampled Households	Indicators of Housing Deprivation														
		Percentage of Households having Poor Indoor Conditions					Percentage of Households using Unsafe Water					Percentage of Households having Poor and Inadequate Sanitation Facilities				
		Crowding (less than 14 m ² floor space per person in sleeping room)	Mold and Dampness (in kitchen/bed-room)	Improper Ventilation in House	Total Average	Irregular Water Supply	Water Storage in open Containers	Poor Water Quality	Total Average	Toilet Sharing (more than 6 persons/toilet)	Self-disposal of Solid Waste	Frequency of Waste Disposal (twice a week)	Total Average			
High	239	-	3.34	0.15	0.75	46.86	-	38.91	28.59	33.05	26.78	28.76	29.53			
Upper-middle	168	-	14.88	4.17	4.56	56.55	1.38	36.91	31.61	66.07	42.26	39.33	49.22			
Lower-middle	624	20.03	18.43	8.48	12.92	62.98	19.74	45.19	42.64	70.19	54.33	51.55	58.69			
Low	469	95.52	45.84	24.70	49.10	65.25	38.34	47.12	50.24	60.77	67.59	57.33	61.90			
Total	1,500	38.20	24.06	9.62	20.65	60.40	19.97	43.87	41.41	57.52	52.73	44.24	51.50			

Source: Field survey, 2012-13

one-fourth of the lower-middle income, households) reported mold and dampness in their kitchens and sleeping areas (Table 3).

Thirdly, proper ventilation in the house is a pre-requisite for the dwelling. Adequate ventilation is one of the important factors in determining the quality of indoor air. When the process of ventilation is faulty or improper, the indoor air quality falls and living becomes unhealthy. Of the total sampled households, about 10 per cent (nearly one-fourth of the low income and few of the lower-middle income households) reported improper ventilation in their houses. Ventilation problem was seen in the houses located in the core parts of city mainly among the low income households. However, during the winter months due to intense cold, windows remain tightly closed, hence due to poor ventilation indoor air quality decreases even in the high income group households.

(ii) Water Supply

The Srinagar city receives water supply for domestic purposes mainly from surface water and partially from ground water resources. In the past, people were using the waters of lakes like Dal, Nagin, etc., river Jhelum and different kuhls for domestic purposes. Modern water supply system was introduced in the city during the Dogra rule (1894). At present Srinagar city is under tremendous pressure of rapid accretion. Since, the city is rapidly expanding in all directions, thereby exerting excessive pressure on the existing water supply system. As a result, the existing water supply has turned out to be grossly inadequate.

Regular supply of water is an essential component of everyday life. Most of the households had water supply connections; however, day long interruptions are very common. Nearly 61 per cent of the sampled households reported irregular/interrupted

supply of water (Table 3). Water interruptions were mostly reported by the low and lower-middle income households residing in the outer parts of city in areas like in Humhama, Khanmoh and Panthachowk. Water supply is also not adequate in most of the inner parts of the city where despite of the huge population growth the old, rusted and leaking pipes have not been replaced. The low and lower-middle income households also experience interruptions in water supply due to unauthorized use of electric motor water pumps for storing water in the tanks located on the tops of the houses by the higher income households. Such illegal practices are going on even after repeated warnings from the authorities.

Storing of water properly is the best way to tackle the problem of water shortages. In some areas because of interrupted water supply nearly 81 per cent of the sampled households reported of storing water in synthetic tanks and in closed or open containers. About 20 per cent of the sampled households reported storing water in open containers either metallic or plastic. A perusal of Table 3 shows that nearly 38 per cent of the low and 20 per cent of the lower-middle income households stored water in open containers. So, these households are at the highest risk of water contamination/pollution. When water is left open, a large number of hazardous dust particles and micro organisms get mixed with water causing various water-borne diseases after consumption.

Table 3 also shows that 44 per cent (nearly half of the low and the lower-middle income households) of the sampled households reported of using poor quality water. They reported accumulation of whitish material (fluorides), bad odour and colour of water. About 37 per cent of upper-middle and 39 per cent of high income categories of households also reported poor quality of water (Table 3).

The Doodhganga, which is the main source of drinking water for south and south-western parts of the city, is highly polluted.

(iii) Sanitation Facilities

Sanitation is the key to healthy homes. As the city's population and area grows, the sanitation problems also become acute. The study reveals that nearly 87 per cent of the sampled households had just one toilet which was mostly flush latrines. The number of persons per toilet is very important for healthy and hygienic life as a heavy load on single toilet causes various types of diseases. The study shows that nearly 58 per cent of the households are those in which more than 6 persons were sharing one toilet (Table 3). When toilets are shared they are themselves a potential site of exposure to pathogens. Although 90 per cent of the sample households had flush toilets but the problem existed in 45 per cent of the households where the flush toilets were connected either with open drains or with water bodies. The excreta disposal from the manual toilets was worst where the excreta were being disposed manually either with the garbage (62 per cent) or into water bodies (35 per cent).

Management of domestic waste is another problem associated with sanitary conditions of households. Domestic waste comprises of waste generated from household activities (vegetables and fruit waste, food left over, paper, rubber, ash, milk sachets, plastic, empty food packs, empty canes of cold drinks, carry bags, gardening waste etc). The output of daily waste depends upon the income status, dietary habits and life style of the people. Solid waste associated problems created within the house are related with the nature of storage, disposal practices and accumulation of waste. It is estimated that the households in Srinagar city produce solid waste varying between 350 to 850 grams per day, per capita. The organic component of solid waste accounts for 20-30

per cent of the total waste produced by lower-middle and 10-20 per cent by the low income households. Table 3 shows that of the total sampled households, 53 per cent (nearly three-fourth of low, more than half of the lower-middle and half of the upper-middle households) disposed of waste by themselves. Of the total sample, nearly 44 per cent were disposing waste twice a week (nearly three-fourth of the low and the lower-middle and less than half of the upper-middle households). Since the garbage contains more of organic components, it increases the risk of attracting disease causing pests such as flies, cockroaches and rats inside the houses leading to health hazards.

Identification of Deprived Households

On the basis of housing deprivation indicators, composite standard scores were calculated and presented in Table 4. Considering the composite standard scores, the sampled households were grouped into following three categories such as:

(i) Most Deprived Households

The households recording more than 0.457 composite z scores are included in the category of most deprived households (Table 5; Fig 2). About 73 per cent of the total sampled households recorded high level of deprivation associated with housing facilities and amenities. The most deprived households were from the low (earning less than Rs. 5,000 per month) and lower-middle income (Rs. 5,001 to 15,000 per month) category. The low income households cannot afford good house that may protect them from hazards. They can not afford good quality housing within a neighbourhood where environmental risks are minimized i.e. one with sufficient space, services and facilities, adequate provision of water and sanitation. They have limited means to pay for accommodation so they are priced out of safe,

Table 4
Srinagar City: Standard Scores of Indicators of Housing Deprivation for Identifying the Deprived Households (2012-13)

Income Group	Crowding (less than 14 m ² floor space per person in sleeping room)	Dampness and Mold	Improper Ventilation	Irregular Water Supply	Water Storage in open Containers (metallic/plastic)	Poor Water Quality	Toilet Sharing (more than 6 persons/toilet)	Self-disposal of Solid Waste	Less Frequency of Waste Disposal (twice a week)	Composite Z Scores
High	-0.636	-1.140	-0.857	-1.341	-1.038	-0.638	-1.462	-1.205	-1.213	-1.044
Upper-middle	-0.636	-0.437	-0.484	-0.165	-0.673	-1.047	0.320	-0.315	-0.385	-0.460
Lower-middle	-0.195	-0.366	-0.084	0.615	0.829	0.646	0.802	0.379	0.573	0.402
Low	1.467	1.226	1.422	0.891	0.883	1.041	0.341	1.141	1.026	1.022

Source: Field survey, 2012-13

Table 5
Srinagar City: Identification of Deprived Households

Composite Z Scores	Income Group	Level of Deprivation
More than 0.457	Lower and Middle	Most Deprived
-0.457 to 0.457	Upper-middle	Less Deprived
Less than -0.457	High	Privileged

Source: Table 4

well located, well serviced housing and land sites. Mostly they live in poorly ventilated rooms having poor quality of indoor air. These highly deprived households are at the highest risk and they are the greatest sufferers.

(ii) Less Deprived Households

The households witnessing composite z scores ranging between -0.457 and 0.457 are categorized as less deprived households (Table 5; Fig 2). The less deprived households included the upper-middle income (Rs. 15,001 to 25,000 per month) category of households. About 11 per cent of the total sampled households have been found under this category. This category of households has more affordability than the low income category of households. Therefore, such households enjoy better indoor conditions, sufficient and good quality of water and adequate sanitary facilities in comparison to the low income households.

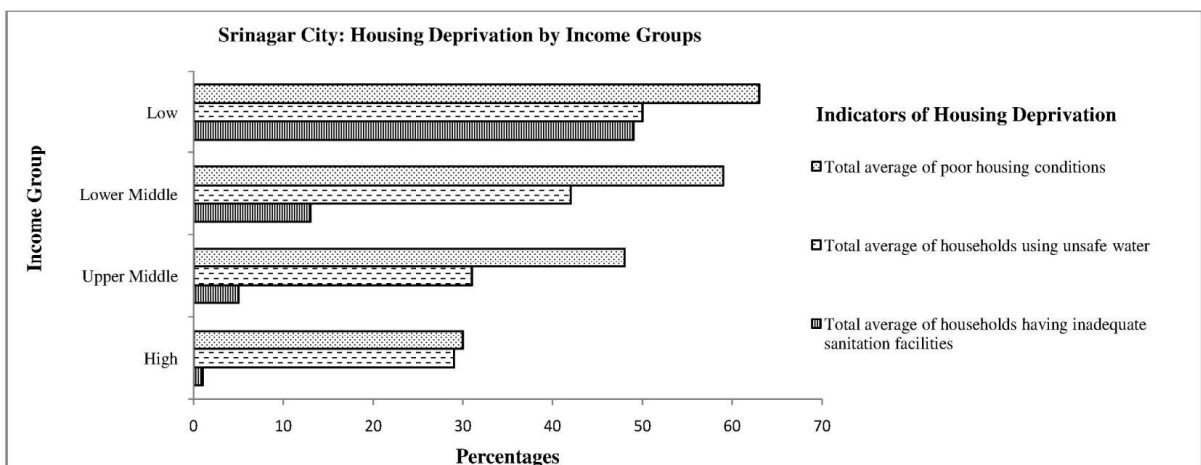
(iii) Privileged Households

Lastly, about 16 per cent of the total sampled households which recorded composite z scores less than -0.457 are considered to be privileged households enjoying all the facilities and amenities of urban housing. These households belong to higher strata of the society having high income of more than Rs. 25,000 per month (Table 5; Fig 2). Due to high

income, they are in a position to pay for all the facilities. They can also shift their house if they find any problem at the existing site. These privileged households enjoy adequate indoor conditions, sufficient and good quality of water and hygienic sanitation conditions in the households living in any part of the city.

Conclusions

The study concludes that 49 per cent and 13 per cent of households respectively belonging to low and lower-middle income group witnessed poor indoor conditions related to crowding, dampness and improper ventilation in their houses. Among the poor, 96 per cent reported crowding, while none of the high and upper-middle income group witnessed crowding in their houses. Households of all the income groups reported irregular supply of water; however maximum percentages of households were from low income group (65 per cent) and minimum (47 per cent) from the high income households. Similarly, although poor quality of water was reported by the households of all the income groups yet, maximum percentage was of low income group (47 per cent) and minimum percentage (39 per cent) from high income households. Likewise, 62 per cent of low income households and 30



Source: Based on Field Survey, 2012-13

Fig. 2

per cent of high income households reported poor and inadequate sanitary conditions. Poor households are not in a position to afford good quality of housing and other basic services like safe and adequate supply of drinking water and sanitation conditions. Their houses and neighborhoods are worst served with water, sanitation and garbage collection services. Thus, it is the income that determines man's way of living, location of his residence and access to various amenities and facilities. Poverty is not only lack of wealth but it is also lack of access to facilities. For many poor city dwellers, there is no need to predict the life threatening environmental degradation; it is already a fact of life. Thus, the most deprived groups having acute shortage of housing space, inadequate supply of safe drinking water and sanitation problems require immediate attention from the government and local municipal authorities of Srinagar city.

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