Tuijin Jishu/Journal of Propulsion Technology
ISSN: 1001-4055
Vol. 44 No. 3 (2023)

Empowering the Marginalized: Technology and Quality of Life in Amritsar's Smart City Slums

Dr. Gurwinder Singh Badal[1], Dr. Adarsh Sharma[2], Dr. Rajan Maurya[3]

[1]Post-Doctoral Fellow (F. No: 3-186/2021-22/PDF/SC), Indian Council of Social Science Research, New Delhi (110067)
Email: badal.gurwinder@gmail.com, Mobile: +91-97803-66902
[2]Assistant Professor, Department of Geography, Government Degree College, Arki, Solan, Himachal Pradesh, (173208) - (INDIA)
Email: sharma.adarsh0800@gmail.com, Mobile: +91- 94596-00100
[3]Assistant Professor, Department of Geography, Dyal Singh College, University of Delhi, Delhi- 110003, (INDIA)
Email: rmaurya@geography.du.ac.in, Mobile: +91-87501-62942

Abstract
Amritsar is the largest city in Punjab, north India, quantified based on its slum population. The present paper attempts to study the accessibility of essential facilities like safe drinking water, bathing provision, drainage connectivity, fuel used for cooking and electricity availability, and evaluate the quality of life in Amritsar slums. Primary data were collected using a multi-module interview schedule between August and September 2022 to achieve these research goals. Thus, 614 households were selected for a preliminary survey based on the location of slums in the city. The analysis identified that the availability of basic amenities and quality of life of slum dwellers varies among various slums; at the same time, the provision of these amenities also depends on the type, location and magnitude of multiple slums. Further, it was concluded that public planning agencies have failed to supply the required facilities to the economically weaker sections of society. In addition to Government efforts, there is a need to strengthen the private sector's role in slum up-gradation, participatory planning for slum areas and other inclusive planning measures to ensure basic amenities and better quality of life for the slum dwellers.

Keywords: *Basic Amenities, Housing, Informal settlements, Quality of life, Slum, Urbanization.*

1. Introduction

In recent years, the urban population has been growing at varying rates and has become an inevitable component of economic development, more prominently in low-income countries. A rising number of city dwellers has recently begun to dominate the whole gamut of migration streams and issues across all developing nations. Mainstream growth economists considered such rapid population growth and workforce mobility as a growth stimulant, through which the surplus labour in rural areas (say, agriculture and allied activities) shifted to more remunerative works/jobs in the urban industrial/services. In this sense, such migration will likely generate many socioeconomic benefits for households, the economy and society. However, at the same time, an unending and high magnitude of urban-induced mobility in low-income countries is likely to create far-reaching economic, social and political consequences. Many urban observers and experts fear that the rising number of such migrants may raise urban unemployment, poor sanitation, inadequate electricity, housing shortage, drinking water,

transport and other services. Moreover, due to the rising influx of migrants from rural areas, one can see the growth of slums and an overall decline in the quality of urban life.

In economic literature, the term 'Slums' has been regarded as unofficial urban neighbourhoods with subpar housing and unpleasant living circumstances. Slums are not new; they have existed in almost all cities. According to UN-Habitat estimates, one billion people, or one-third of the world's population, live in slums or squatter communities (UN-Habitat, 2003). Similarly, another assessment by WUP demonstrated that compared to 1950, when 30% of the world's population lived in cities, projections for 2050 indicate that 66% of people will live in cities. (WUP, 2014). Studies have also advocated that the Asian region, which is also rapidly urbanizing, has the highest percentage of the world's population living in slums. For example, approximately 554 million people lived in slums on the Asian continent in 2001, making up almost 60% of all slum residents worldwide. More precisely, slum and squatter settlements made up 58% of the urban population in South Asia, compared to 36.4% in East Asia and 28% in Southeast Asia. Likewise, slums are home to 28% of Southeast Asia's urban population, which makes up 38.3% of the country's total population. (Ooik & Phua, 2007). Thus, from the available statistics, it was evident that a sizable fraction of the global urban population will reside in metropolitan areas.

Recent empirical studies have found that the fundamental reason responsible for the development of squatter and slum settlements is the lack of adequate planning, management and execution of development schemes that can help in providing affordable housing for the low-income parts of the urban population. Similarly, public planning agencies failed to supply developed land to the weaker section of society, resulting in the creation of slums haphazardly. Hence, empirical studies worldwide suggested that squatter and slum homes are the optimal options for low-income urban populations (UN-Habitat, 2003). Many slum-related studies also linked the expansion and proliferation of existing slums and the emergence of new slums, particularly in third-world countries, to the government's failure of urban planning policies (Kuffer et al.., 2016).

India, one of the emerging countries, is also facing the challenge of making the country slum-free in the coming decades since approximately 1.37 crore households (17.4 per cent) of urban households lived in slums in 2011. In India, unplanned rapid urbanization has resulted in many city dwellers residing in urban slums. On the other hand, city authorities face numerous challenges in managing and coping with the diverse demands for infrastructural provision to meet economic and social needs. Basic amenities are an essential foundation for a decent living and enhancing economic growth and quality of life. Basic amenities include safe drinking water, sanitation, housing, roads, electricity, fuel, connectivity, healthcare, schools, playgrounds and other recreational facilities. Ensuring inclusive societal growth is only accessible if these fundamental issues of people with low incomes and marginalized sections are solved. Thus, to raise slum dwellers' living standards, India has become one of the founding signatories to the United Nations' New Millennium Development Goals, which primarily aims to improve the living quality of the city dwellers residing in slums (Tripathi, 2015).

Despite the government's initiatives, long-time negligence towards a section of people in a democratic setup questions our concept of nationhood and the ongoing development process. The living condition of ordinary people reflects a country's socioeconomic, political and environmental development. The poor and marginalized people living in slums and squatters are denied basic amenities despite dedicated schemes and budgetary allocations.

Slums in Indian Smart City Amritsar

Amritsar is one of the largest cities in Punjab and has the highest slum population, accounting for the percentage of the city population. The rapid growth of 8.13 per cent from 2001 to 2011 in the slum population is recorded in the city (Master Plan for Amritsar, 2010). A significant part of Amritsar city has been developed without proper planning, and it is evident that 51% of the city area has been developed haphazardly or unexpectedly. The unplanned development has been manifested in the form of a walled city, slums and 158 unauthorized colonies in the town (Master Plan for Amritsar, 2010).

As of 2011, there were 63 slums notified (All notified areas in a town or city notified as 'Slum' by the State, UT administration or local government under any act, including a 'Slum Act'- Census 2011) by Amritsar Municipal Corporation, which comprises 29.33 per cent of the population to the total population of the city (See Table 1). The slum population in Amritsar increased from 5 per cent in 1981 to 29.33 per cent in 2011 (Sandhu & Sekhon, 2017). Regarding ownership of the slum land, 89 per cent of the slums in the city exist on private land. In contrast, the remaining 11 per cent of the slums live on Municipal Corporation lands, mainly in the city's southern part. It is usually observed that most slums come up on government land, but in the case of Amritsar, most of the slums are on private land.

Table 1: Growth of city and slum population, Amritsar city (1981- 2011)

Years	City Population	Slum Population	Slum Population as Per cent of the city population
1981	589299	32632	5.53
1991	708835	123000	17.35
2001	966862	229603	23.74
2011	1132719	332274	29.33

Source: Census of India, 2011

2. Materials and Methods

Study Area

Amritsar, a Pool of Nectar, derives its name from Amrit Sarovar. The city of Amritsar lies at 31°07" and 32°03" North latitude and 74°29" and 75°23" East longitude with an average elevation of 234 meters (768 ft.) on the Grand Trunk Road only 27 km from the Indo-Pak International Border. The city is in a depression in the middle of the Bari Doab, with a population of 1,132,761 persons (Census of India, 2011). Amritsar has been served by a Class I municipality since 1868, which was upgraded to Municipal Corporation in 1977.

The Municipal Corporation of Amritsar is governed by the Punjab Municipal Corporation Act 1976. The total area of the Municipal Corporation Amritsar is 139.58 sq. km, out of which 105.86 sq. km is developed and 33.72 sq. km is undeveloped. It is one of the 22 district headquarters of Punjab and is the second largest city in Punjab after Ludhiana. The city lies on the main Grand Trunk Road (GT Road), also known as National Highway 1, from Delhi to Amritsar connecting Lahore in Pakistan, and therefore is very well connected to the road network. Amritsar is also very well connected by rail to almost all major cities in India.

Aims and Objectives

The present study attempts to assess the availability of basic amenities in notified slums in Amritsar city. The paper aims to add to the existing knowledge base regarding the availability of basic amenities in the slums of Amritsar using the latest primary data. This paper also is an attempt to analyze the levels of Quality of life in slums. The study was conducted in Amritsar city, with a population of 1,132,761 according to the census of India, 2011, among which 29.33 per cent of the population is live slums.

Data Sources

The present study is based on both primary and secondary data. The primary data has been collected with the help of a structured interview schedule, and the researcher administers the schedules personally. The stratified random sampling method is used to achieve major objectives for this study, and the primary survey was conducted in notified slums of Amritsar city in August-September 2022. Secondary sources of data include data and publications from the Census of India, including the Primary census abstract for slums 2011 and District census handbooks, the Ministry of housing and urban poverty alleviation, Punjab urban planning and development authority (PUDA), Amritsar development authority (ADU), Municipal corporation of Amritsar, Town and country planning department, Punjab and other related government departments.

The Sample

As the first step, a six-fold classification of Amritsar slums based on their location is taken up as the base. Secondly, slums from each Category have been taken proportionally according to their percentage share in total slums. The nine sample slums in six major categories are included in the primary survey: (1) Chhota Haripura (2) Angarh (3) Dhapai (4) Ekta Nagar (5) Ram Talai (6) Maqboolpura (7) A/O Gilwali gate (8) Fatehpur (9) Ghanupur (See Table 2). Lastly, 5 per cent of households were selected for the primary survey in each slum. An in-depth study of 614 homes was conducted through an interview schedule to determine basic amenities and quality of life.

Table 2: Selection of sample size

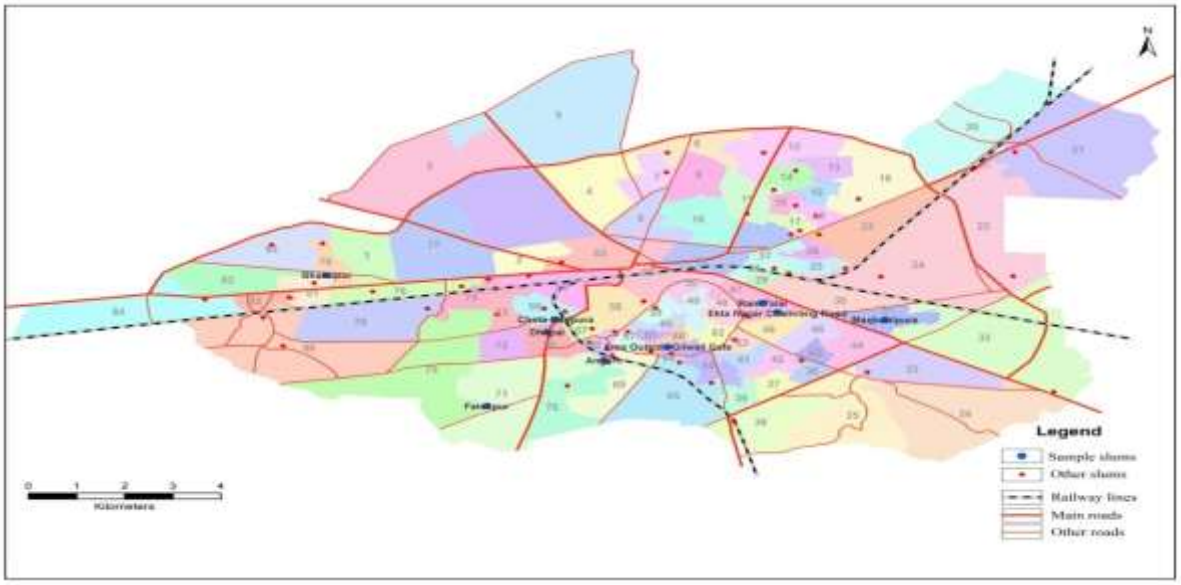
Slum Category*	Name of the sample slum	Population	Total Household	Sample household
Slums along Railway line	Chhota Haripura Angarh	8300 3850	1660 770	83 39

Slums along Major roads	Dhapai Ekta Nagar	8800 2300	1760 460	88 23
Walled city slums	Ram Talai	3300	660	33
Industrial slums	Maqboolpura	11000	2200	110
Refugee slums	A/o Gilwali gate	1000	200	10
Sporadic slums	Fatehpur Ghanupur	5550 17160	1110 3432	56 172
Total		61260	12252	614
Notes: Categorization of slums has been done by the researcher based on the location of slums in Amritsar city.				

Source: Municipal Corporation, Amritsar

To evaluate the quality of life, the z-score has been calculated for all the indicators using the following formula:
$z = (x-\mu)/\sigma$
Where z is the z-score, X is the original value of the ith variable, μ is the mean value, and σ is the standard deviation from the mean value. The composite score has been computed after calculating the z-score by summing up the z-score values of all indicators for all six categories of slums to know the quality of life in the slums of Amritsar city.

Figure 1: Location of slums in Amritsar city (Ward wise)



Source: Prepared by Researcher

3. Results and Discussion

The present study is divided into two sections. In the first section, the availability of basic amenities in the slums of Amritsar city has been discussed (See Table 3). Five parameters are chosen to assess the availability of basic amenities in different slums of Amritsar city. Five parameters used to determine basic amenities are a source of drinking water, type of toilet facility, availability of drainage connectivity, access to electricity supply and type of fuel used for cooking. In the second section, based on these parameters, the quality of life in different slums has been evaluated using a composite score.

Assessment of Basic Amenities in Amritsar Slums

Safe drinking water is a fundamental human need. Without water, there would have been no life on earth. In the slums of Amritsar city, there are four significant sources of drinking water, i.e., piped water supply by the Municipal Corporation, hand pumps, private arrangement of piped water and tanks (See Table 3). Piped water is the most common source of water used by 55.86 per cent of the slum population in all slums. The second most

preferred water source by the slum population is the hand pump, which is used by 22.96 per cent of people. Nearly 10 per cent of the slum population opted for both the private arrangement and tanks as their source of drinking water. In sporadic slums, 65 per cent of people use piped water for drinking, whereas in refugee slums, only 30 per cent of people drink water from the d sources. 27.27 per cent of the population in Industrial slums and the slums along walled cities consume water by hand pump as their primary source of drinking water. Private piped water sources are chosen as the source of drinking water by 14.75 per cent of the population in the slums along railways. Tanks were used as a source of drinking water by 15.31 per cent of the population in the slums along major roads, whereas only 7.01 per cent of the population used tanks to drink water in slums, which are spread sporadically.

Toilet facilities are of utmost importance for each Household. The most commonly used toilet facilities in the slums are flush and pit (See Table 3). 78.17 per cent of slum dwellers in Amritsar use a flush system, whereas 15.63 per cent of the slum population has pit toilets in their own houses. On the other hand, 6.18 per cent of slum dwellers go to open grounds or farms near the slum areas for toilet purposes. 86.48 per cent of people in slums along significant roads have a flush system for toilet purposes in their houses. While 26.36 per cent of people in industrial slums use pits for toilet purposes. 8.77 per cent of people in sporadic slums also have pits in their houses. Nearly one-tenth of the population in industrial slums goes to open grounds and nearby farms for toilet purposes.

Waste disposal is a widespread problem in slum areas as these areas are considered backward, so no attention is paid to them. The disposal of both solid and liquid waste must be proper to ensure proper hygiene in the area. The water disposal facility in slums is either open or has no specific drainage system (See Table 3). 51.62 per cent of slum dwellers have drainage facilities. Still, their facility is not covered, which poses a significant risk to their health as many water-borne diseases can quickly spread through flies and mosquitoes. While 10.09 per cent of the slum population has closed the facility for water disposal, 38.27 per cent of people in the slums have no facility available for water disposal. 64.03 per cent of people in sporadic slums have an open water disposal facility. However, 21.21 per cent of slum people in slums along old-walled cities have closed the facility for water disposal. 4.91 per cent of people in slums along railways also have closed facilities to dispose of their liquid waste. Fifty per cent of dwellers in industrial slums have no particular liquid waste disposal facility so industrial effluents can cause severe skin disorders and other ailments.

Electricity is one of the most important blessings that science has given to humanity. It has become a vital part of modern life; one cannot imagine a world without it. Slum dwellers in Amritsar have both legal as well as illegal supply of electricity (See Table 3). Nearly four-fifths per cent of people have legal access to electricity in the slums of Amritsar. A small proportion of the slum population, i.e., 11.88 per cent, has no access to electricity. An insignificant minority of the 3.42 per cent of the population has access to electricity from illegal sources. 96.96 per cent of the slum population in slums along old walled city has legal access to electricity supply. 16.21 per cent of the slum population in slums along major roads has no assured access to electricity. About a small proportion of slum people, i.e., 10 per cent in refugee slums, have access to electricity from illegal sources. 1.81 per cent of people in Industrial slums use electricity from illegal sources. There are chances that people are more prone to accidents caused by electric shocks during power theft.

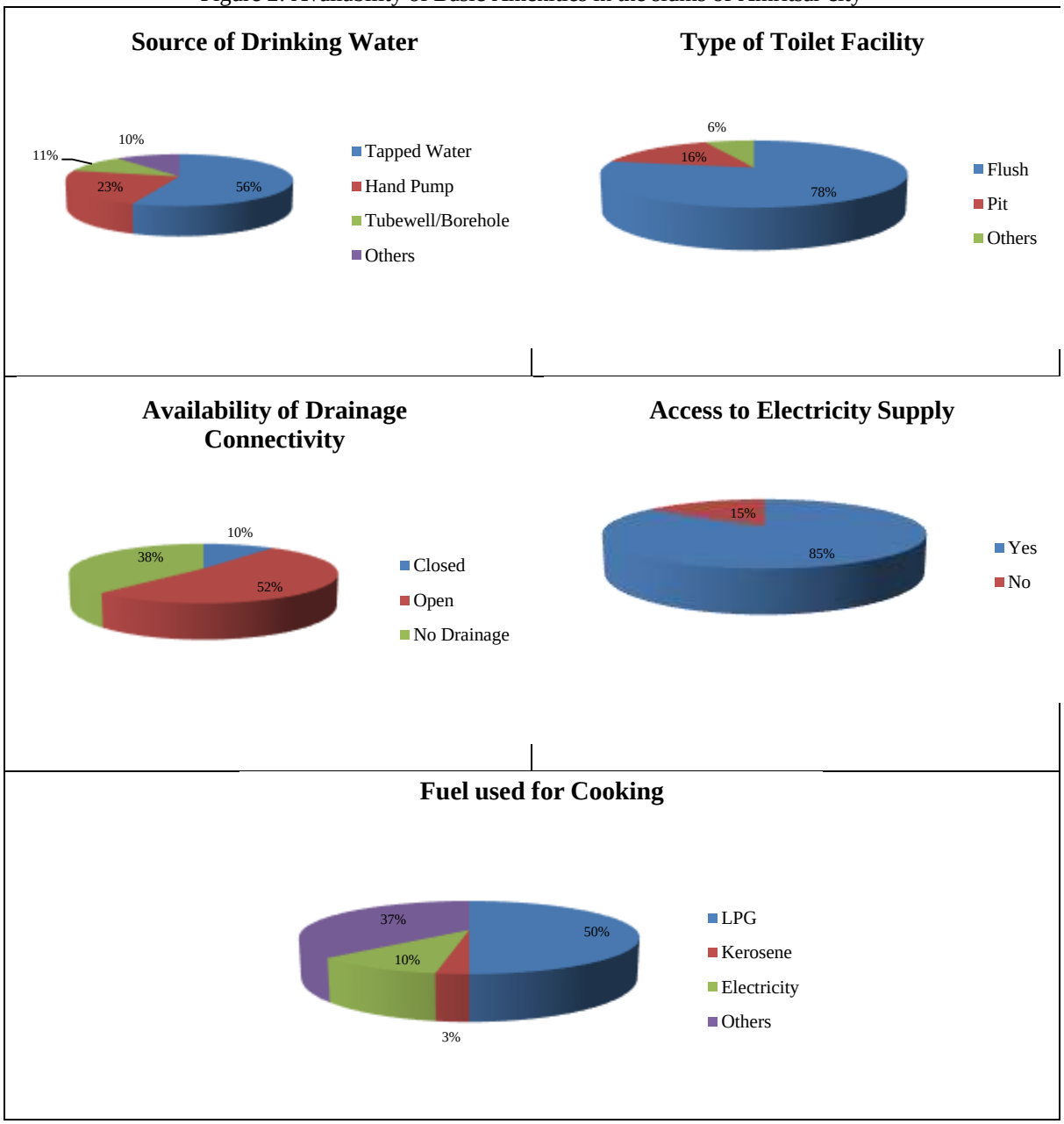
An essential ingredient to slum upgrading is improving basic household services like the energy used for cooking and the open living spaces. LPG, Kerosene, Electricity, Firewood, and Dung cakes are the four different sources used by the slum population in Amritsar to cook food (See Table 3). About 7.50 per cent of the slum population uses LPG as fuel for cooking food in the various slums of Amritsar, whereas 2.60 per cent of people use kerosene for cooking their food. 10.42 per cent of the slum population uses electricity to prepare food in their houses. More than one-third of the population has firewood or dung cakes as fuel to cook food. 57.57 per cent of the slum population in the slums along the old walled city use LPG to cook food. 35.24 per cent of the population in slums along the railway also uses LPG to prepare food. 12.12 per cent of the population in slums along old walled cities use kerosene for cooking food. Less than one-third of the population in the refugee slums uses electricity as fuel to cook food. 41.81 per cent of the slum population in the industrial slums of Amritsar cooks food with the help of firewood or dung cakes. 4.83 per cent of the slums along railways also use firewood or dung cakes to cook food. People using dung cakes and kerosene are prone to many health-related diseases, which increases the chances of respiratory problems.

Table 3: Availability of Basic Amenities in slums of Amritsar city

Parameters	**Indicators**	**Slums along railway**	**Slums along major roads**	**Old Walled city slums**	**Industrial slums**	**Refugee slums**	**Sporadic slums**	**Total**
		% of HH[1]	**% of HH**	**% of HH**	**% of HH**	**% of HH**	**% of HH**	
Source of drinking water	Tapped Water	47.54 (58)	53.15 (59)	39.39 (13)	54.54 (60)	30 (3)	65.78 (150)	55.86 (343)
	Hand Pump	25.40 (31)	18.01 (20)	27.27 (9)	27.27 (30)	30 (3)	21.05 (48)	22.96 (141)
	Tubewell/Borehole	14.75 (18)	13.51 (15)	21.21 (7)	9.09 (10)	20 (2)	6.14 (14)	10.74 (66)
	Others[2]	12.29 (15)	15.31 (17)	12.12 (4)	9.09 (10)	20 (2)	7.01 (16)	10.42 (64)
Type of toilet facility	Flush	71.31 (87)	86.48 (96)	75.75 (25)	65.45 (72)	60 (6)	85.08 (194)	78.17 (480)
	Pit	21.31 (26)	9.00 (10)	21.21 (7)	26.36 (29)	40 (4)	8.77 (20)	15.63 (96)
	Other	7.37 (9)	4.50 (5)	3.03 (1)	8.18 (9)	0 (0)	6.14 (14)	6.18 (38)
Availability of drainage connectivity	Closed	4.91 (6)	14.41 (16)	21.21 (7)	9.09 (10)	30 (3)	8.77 (20)	10.09 (62)
	Open	51.63 (63)	40.54 (45)	45.45 (15)	40.90 (45)	30 (3)	64.03 (146)	51.62 (317)
	No drainage	43.44 (55)	45.04 (50)	33.33 (11)	50 (55)	40 (4)	27.19 (62)	38.27 (235)
Access to electricity supply	Yes (Legal/ Illegal)	81.14 (99)	81.08 (90)	96.96 (32)	87.27 (96)	90 (9)	85.08 (194)	84.69 (520)
	No	18.85 (23)	18.91 (21)	3.03 (1)	12.72 (14)	10 (1)	14.91 (34)	15.30 (94)
Fuel used for cooking	LPG	35.24 (43)	48.64 (54)	57.57 (19)	53.63 (59)	40 (4)	56.14 (128)	50 (307)
	Kerosene	0.81 (1)	1.80 (2)	12.12 (4)	1.81 (2)	0 (0)	3.07 (7)	2.60 (16)
	Electricity	15.57 (19)	10.81 (12)	6.06 (2)	2.72 (3)	30 (3)	10.96 (25)	10.42 (64)
	Other[3]	4.83 (59)	38.73 (43)	24.24 (8)	41.81 (46)	30 (3)	29.82 (68)	36.97 (227)

Notes: [1]HH stands for Household.
[2] Others include wells and tanks.
[3] Firewood/Coal/Crop residue/Dung cakes etc.
All figures in the table are in percentile, and the figures in the brackets are actual number of people surveyed.
Source: Primary Survey

Figure 2: Availability of Basic Amenities in the slums of Amritsar city



Source: Calculated using Primary Data

Levels of Quality of life

In this section, five essential parameters have been taken to evaluate the quality of life in the significant slums of Amritsar city. To determine the quality of life, a composite z-score has been computed by summing up z-score values of all the five indicators of quality of life (See Table 4). The Mean value for the calculated composite score is 13.308.

Table 4: Selected variables for quality of life of slum dwellers of Amritsar city and their X value

Variables	Parameters	Indicators	Weightage value	Slums along railway	Slums along major roads	Walled city slums	Industrial slums	Refugee slums	Sporadic slums

				% of HH	X value	% of HH	X value	% of HH	X value	% of HH	X value	% of HH	X value	% of HH	X value
X1	**Source of drinking water**	Tapped Water	4	48	1.92	53	2.12	39	1.56	55	2.2	30	1.2	66	2.64
		Hand Pump	3	25	0.75	18	0.54	27	0.81	27	0.81	30	0.9	21	0.63
		Tubewell/Borehole	2	15	0.3	14	0.28	21	0.42	9	0.18	20	0.4	6	0.12
		Others(1)	1	12	0.12	15	0.15	12	0.12	9	0.09	20	0.2	7	0.07
X2	**Type of toilet facility**	Flush	3	71	2.13	87	2.61	76	2.28	66	1.98	60	108	85	2.55
		Pit	2	22	0.44	9	0.18	21	0.42	26	0.52	40	0.8	9	0.18
		Other	1	7	0.07	5	0.05	3	0.03	8	0.08	0	0	6	0.06
X3	**Availability of drainage connectivity**	Closed	3	52	1.56	41	1.23	46	1.38	41	1.23	30	0.9	64	1.92
		Open	2	5	0.1	14	0.28	21	0.42	9	0.18	30	0.6	9	0.18
		No drainage	1	43	0.43	45	0.45	33	0.33	50	0.5	40	0.4	27	0.27
X4	**Access to electricity supply**	Legal	3	81	2.43	81	2.43	97	2.91	87	2.061	90	2.7	85	2.55
		Illegal	2	5	0.1	3	0.06	3	0.06	2	0.04	10	0.2	4	0.08
		No supply	1	14	0.14	16	0.16	0	0	11	0.11	0	0	11	0.11
X5	**Fuel used for cooking**	LPG	4	35	1.4	49	1.96	58	2.32	54	2.16	40	1.6	56	2.24
		Electricity	3	16	0.48	11	0.33	6	0.18	3	0.09	30	0.9	11	0.33
		Kerosene	2	1	0.02	2	0.04	12	0.24	2	0.04	0	0	3	0.06
		Others(2)	1	5	0.05	39	0.39	24	0.24	42	0.42	30	0.3	30	0.3

Notes: (1) Others include wells and tanks.
(2)Firewood/Coal/Crop residue/Dung cakes etc.
HH stands for Household. Weightage has been assigned according to the rank. X value is calculated by dividing the weightage value by 100 and then multiplying it by the percent of Household.

Source: Calculated using Primary Data

Table 5: Composite Score for Slums in Amritsar City

Slum Category	X1	X2	X3	X4	X5	X	X-X	(X-X)2
Slums Along Railway	3.09	2.64	2.09	2.67	1.95	12.44	-0.868	0.753
Slums along major roads	3.09	2.84	1.96	2.65	2.72	13.26	-0.048	0.002
Walled city slums	2.91	2.73	2.13	2.97	2.98	13.72	0.412	0.169
Industrial slums	3.28	2.58	1.91	2.76	2.71	13.24	-0.068	0.004

Refugee slums	2.7	2.6	1.9	2.9	2.8	12.9	-0.408	0.166
Sporadic slums	3.46	2.79	2.37	2.74	2.93	14.29	0.982	0.964
Total						79.85		2.058

Source: Calculated using Primary Data

Based on the calculation of composite z-score values, levels of quality of life have been grouped into three categories, i.e., low (composite z-score of between 11.5-12.5), medium (composite z-score of between 12.5-13.5) and high (composite z-score of between 13.5-14.5) (See Table 6). Slums along railway lines, i.e., Chhota Haripura and Angarh, have a low quality of life. Slums along major roads, either on highways or roads connecting other district headquarters, have a medium quality of life. In this study, two slums on significant roads were taken for the primary survey: Dhapai and Ekta Nagar. Industrial and Refugee slums also have a medium level of quality of life. It is interesting to note here that slums, which are spread sporadically and slums along an old walled city in the centre of the town, have a high quality of life. All the basic amenities are readily available in areas scattered sporadically and central parts of Amritsar city.

Table 6: Levels of Quality of Life

Level of quality of life	**Composite score**	**Slum category**
Low	11.5-12.5	Slums along railway
Medium	12.5-13.5	Refugee slums, Industrial slums, Slums along major roads
High	13.5-14.5	Walled city slums, Sporadic slums

Source: Calculated using Primary Data

4. Conclusions

This study clearly shows that access to basic amenities varies among different slums in Amritsar city based on their location. In most of the slums, people still depend upon groundwater for drinking purposes. Municipal water supply is still a distant dream for many slums. Almost 45 per cent of the slum population still does not have access to piped water from the Municipal Corporation. About 22 per cent of people still need access to a toilet facility. Lack of proper waste disposal facilities and poor sewage systems are causing pollution and health-related problems in slums. In slums, around 39 per cent of areas have no adequate drainage system, although this is the most essential aspect of maintaining proper hygiene. Over half of the slum population has to face open drainage, leading to serious health ailments. It is difficult to digest that in the 21st century, people still have no access to electricity like in Amritsar slums.

Interestingly, almost 50 per cent of people use conventional energy sources for cooking their food. The disparity among different slums also leads to changes in the socioeconomic setup of the city. Though the quality of life is low in all sample slums, it varies from one slum to another. To improve the socioeconomic condition of slum dwellers, the government must improve the quality of life in slums through services like tenure regularization. Slum upgrading should be adopted as a solution with basic amenities as required, especially after discussion and agreement with slum residents. Affordable housing is also the need of the hour, along with the presence of basic facilities. The successful implementation of the new mission of the Government of India, i.e., Prime Minister Awas Yojana (PMAY), will lead to improved quality of life and access to improved amenities for slum dwellers. Several non-government organizations have been working to normalize the life of slum dwellers in Amritsar. The government should encourage the private sector to its involvement in improving the condition of slums. There is an urgent need to minimize the variations in the availability of basic amenities by strengthening the financial resources and technical capacity for adequate provision.

Acknowledgement
Dr Gurwinder Singh Badal (F. No: 3-186/2021-22/PDF/SC) is a Post-Doctoral Fellowship recipient. The Indian Council of Social Science Research's Post-Doctoral Fellowship (ICSSR) has significantly contributed to the creation of this study. However, the author is responsible for the information provided, the views expressed, and the conclusions formed.

5. References

[1] Burgess, R. (1982). Self-help housing advocacy: a curious form of radicalism. A critique of the work of John FC Turner. Self-help housing: A critique, 55-97. https://www.jstor.org/stable/25675159

[2] Chowdhury, F. J., & Amin, A. N. (2006). Environmental assessment in slum improvement programs: some evidence from a study on infrastructure projects in two Dhaka slums. Environmental Impact Assessment Review, 26(6), 530-552. https://doi.org/10.1016/j.eiar.2005.11.004
[3] Das, B. (1999). Slum Dwellers in Indian Cities: A Case Study of Surat, Man and Development, 21(3): 92-142. https://ideas.repec.org/p/qeh/qehwps/qehwps07
[4] De, S., & Singh, A. M. (1980). The urban poor, slums and pavement dwellers in major cities of India, New Delhi, Manohar Publishers, Delhi, 26-27.
[5] Fox, S. (2008). On the origin and consequences of slums, Development studies institute, LSE, Feb 2008. https://www.lse.ac.uk/international-development/Assets/Documents/PDFs/csrc-working-papers-phase-two/wp89.2-origins-and-pace-of-africas-urban-transition.pdf
[6] Ooi, G. L., & Phua, K. H. (2007). Urbanization and Slum Formation. Journal of Urban Health : Bulletin of the New York Academy of Medicine, 84(Suppl 1), 27-34. https://doi.org/10.1007/s11524-007-9167-5
[7] Habib, E. (2009). The role of government and NGOs in slum development: The case of Dhaka city, Development in Practice, 19(2): 259-265. https://doi.org/10.1080/09614520802689576
[8] Mitra, A. (1994). Urbanization, slums, Informal sector employment and poverty, B.R. Publishing Corporation: New Delhi.
[9] National Sample Survey Organization. (2003). Conditions of Urban slums-2002.
[10] Census of India. (2001). Primary Census Abstract for Slum, Office of the Registrar General and Census Commissioner, India, New Delhi. https://censusindia.gov.in/census.website/. Accessed on December, 2022
[11] Census of India. (2011). Primary Census Abstract for Slum, Office of the Registrar General and Census Commissioner, India, New Delhi. https://censusindia.gov.in/census.website/. Accessed on December, 2022
[12] Kuffer, M., Pfeffer, K., & Sliuzas, R. (2016). Slums from space—15 Years of slum mapping using remote sensing., 455. https://doi.org/10.3390/rs8060455
[13] Owusu, G., & Lund, R. (2005). Slums of hope and slums of despair: Mobility and livelihoods in Nima, Accra, Norwegian Journal of Geography, 62: 180-190. http://197.255.68.203/handle/123456789/602
[14] Punjab urban planning & development authority. (2010). Draft master plan Amritsar (2010-2031). http://www.indiaenvironmentportal.org.in/content/314276/draft-master-plan-amritsar-2010-2031/. Accessed on December, 2022
[15] Saini, L. D. (1994). Slums in an industrial city (A case study of Ludhiana), PhD thesis, Panjab University, Chandigarh.
[16] Sandhu, R. S. (1989). The city and its slums: a sociological study, Guru Nanak dev university Publishers, Amritsar.
[17] Sandhu, R. S. & Sekhon, B.S. (2017). "Slums and Planning in Urban India: A case study of Amritsar City", in N. Jayaram (editor), Social Dynamics of the Urban Studies from India, Springer publications, 175-192. https://doi.org/10.1007/978-81-322-3741-9_10
[18] Tripathi, S. (2015). Determinants of Large City Slum Incidence in India: A Cross-Sectional Study, Poverty and public policy, 7(1). https://doi.org/10.1002/pop4.93
[19] UNFPA (United Nations Population Fund). (2007). Annual Report (2007), UNFPA, New York, NY, 30 pages, https://www.unfpa.org/publications/unfpa-annual-report-2007. Accessed November, 2022.
[20] UN-Habitat (2003). The Challenges of Slums, United Nations Human Settlements Programme,
[21] Sterling, VA. https://digitallibrary.un.org/record/504984?ln=en. Accessed on January, 2023
[22] UN-Habitat (2003a). The Challenges of Slums, Global Report on Human Settlements,
[23] Earthscan Publications Ltd. London. https://digitallibrary.un.org/record/504984?ln=en. Accessed on January, 2023
[24] UN-Habitat (2007). Report on "State of the World Cities 2006/2007", UN-Habitat, Nairobi,
[25] Kenya. https://digitallibrary.un.org/record/504984?ln=en. Accessed on January, 2023
[26] UN-Habitat (2010). Report on "Cities for all: Bridging the urban divide: 2010-11", UN-
[27] Habitat, Nairobi, Kenya. https://digitallibrary.un.org/record/504984?ln=en. Accessed on January, 2023
[28] United Nations (2000).United Nations Millennium Declaration, General Assembly, Resolution No. 2, Session 55. https://digitallibrary.un.org/record/422015?ln=en. Accessed on January, 2023
[29] WUP (2014).World urbanization prospects. 978-92-1-151517-6 Published by the United Nations. https://population.un.org/wup/publications/files/wup2014-highlights.pdf