Assessing Basic Amenities and Quality of Life in Slums: A Case Study of Amritsar City

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Abstract

The largest city in Punjab, north India, is Amritsar, which is determined by its slum population. This research examines the availability of essential facilities in Amritsar's slums, such as safe drinking water, bathing provisions, drainage connectivity, fuel for cooking, and electricity. The study also seeks to evaluate the quality of life in these areas. Despite the current challenges, these areas have significant potential for improvement. The study concluded that public planning agencies, as the key entities responsible for urban development, have not adequately provided necessary facilities to the economically disadvantaged sections of society. The study highlights the need to involve the private sector in slum upgradation, implement participatory planning for slum areas, and adopt inclusive planning measures to ensure basic amenities and a better quality of life for slum dwellers.

Keywords: Basic amenities, housing, informal settlements, quality of life, slum, urbanisation

Introduction

In recent years, the urban population has been growing at varying rates and has become an inevitable component of economic development, particularly in low-income countries. As researchers, urban planners, policymakers, and individuals interested in urban development, you play a crucial role in addressing the challenges slum dwellers face. The continuous and substantial urban-induced mobility in low-income countries will likely create far-reaching economic, social, and political consequences. Many urban observers and experts fear that increasing such migrants may lead to urban unemployment, poor sanitation, inadequate electricity, housing shortages, inadequate access to drinking water, transport issues,

and other services. Additionally, the influx of migrants from rural areas contributes to the growth of slums and an overall decline in the quality of urban life.

In economic literature, the term "slums" has been used to describe unofficial urban neighbourhoods with inadequate housing and poor living conditions. Slums have been present in almost all cities throughout history. According to UN-Habitat estimates from 2003, one billion people, or one-third of the world's population, live in slums or squatter communities. Another estimate from WUP in 2014 showed 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. Studies have indicated that the Asian region, which is rapidly urbanising, has the highest percentage of the world's population living in slums. For example, in 2001, approximately 554 million people lived in slums in Asia, making up almost 60% of all slum residents worldwide. Specifically, slum and squatter settlements accounted for 58% of the urban population in South Asia, compared to 36.4% in East Asia and 28% in Southeast Asia. Slums are home to 28% of Southeast Asia's urban population, making up 38.3% of the country's total population (Ooik & Phua (2007). It is evident from these statistics that a significant portion of the global urban population will live in metropolitan areas.

Recent empirical studies have found that the main reason for the development of squatter and slum settlements is the lack of adequate planning, management, and execution of development schemes that can provide affordable housing for the low-income urban population. Public planning agencies have also failed to supply developed land to the weaker sections of society, leading to the haphazard creation of slums. Therefore, empirical studies worldwide suggest that squatter and slum homes are the best options for low-income urban populations (UN-Habitat, 2003). Many studies on slums have also linked the expansion and proliferation of existing slums and the emergence of new slums, especially in third-world countries, to the failure of government urban planning policies (Kuffer et al., 2016).

India, as an emerging country, is grappling with the challenge of eradicating slums in the upcoming decades, as around 1.37 crore households (17.4 per cent) of urban households were living in slums in 2011. The unplanned rapid urbanisation in India has led many city dwellers to urban slums. City authorities face multiple challenges in managing and meeting the diverse requirements for infrastructure to fulfil economic and social needs. Basic amenities are fundamental for a decent living and improving economic growth and quality of life. These amenities include safe drinking water, sanitation, housing, roads, electricity, fuel, connectivity,

healthcare, schools, playgrounds, and other recreational facilities. Achieving inclusive societal growth is contingent upon resolving these basic issues for low-income and marginalised people. To improve the living standards of slum dwellers, India has become a founding signatory to the United Nations' New Millennium Development Goals, which primarily aim to enhance the living quality of city dwellers residing in slums (Tripathi, 2015).

The government's efforts notwithstanding, the persistent neglect of a segment of the population in a democratic society raises questions about our concept of nationhood and the ongoing development process. Ordinary people's living conditions indicate a country's socioeconomic, political, and environmental progress. Despite the implementation of specific schemes and budgetary allocations, the impoverished and marginalised individuals residing in slums and squatter settlements are deprived of basic amenities.

Slums in Indian Smart City Amritsar

Amritsar is one of Punjab's largest cities and has the highest slum population, accounting for a significant percentage of the city's population. The slum population grew rapidly by 8.13% from 2001 to 2011 (Master Plan for Amritsar, 2010). Most of the city has been developed without proper planning, with 51% of the area being developed haphazardly. This unplanned development has resulted in a walled city, slums, and 158 unauthorised colonies (Master Plan for Amritsar, 2010).

As of 2011, Amritsar Municipal Corporation had notified 63 slums, representing 29.33% of the city's total population (Census, 2011). The slum population in Amritsar increased from 5% in 1981 to 29.33% in 2011 (Sandhu & Sekhon, 2017). Most of the slums, around 89%, are located on private land, with the remaining 11% on Municipal Corporation lands, mainly in the city's southern part. This is a notable deviation from the usual trend, where most slums are on government 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			

Materials and Methods

Study Area

Amritsar, known as a Pool of Nectar, gets its name from Amrit Sarovar. The city of Amritsar is located 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.). It is situated 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 as per the Census of India, 2011. A Class I municipality has served Amritsar since 1868, which was upgraded to Municipal Corporation in 1977.

The Punjab Municipal Corporation Act 1976 governs the Municipal Corporation of Amritsar. 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 is situated 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 well connected to the road network. Amritsar is also well connected by rail to almost all major cities in India.

Aims and Objectives

The current study seeks to evaluate the accessibility of essential facilities in recognised slums in Amritsar City. Using the most recent primary data, the paper aims to contribute to the existing knowledge about the availability of basic amenities in Amritsar's slums and analyse the quality of life in these areas. The research was carried out in Amritsar City, which had a population of 1,132,761 according to the 2011 Census of India, with 29.33 per cent residing in slums.

Data Sources

The current study is based on both primary and secondary data. The primary data was collected using a structured interview schedule, and the researcher personally administered the schedules. The study used the stratified random sampling method to achieve its main objectives, and the primary survey was conducted in the notified slums of Amritsar city in August-September 2022. Secondary sources of data include information 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 relevant government departments.

The Sample

The first step involves classifying Amritsar slums into six categories based on location. Next, a proportionate number of slums from each category are selected for the survey, with a total of nine sample slums in six major categories included in the primary survey: Chhota Haripura, Angarh, Dhapai, Ekta Nagar, Ram Talai, Maqboolpura, A/O Gilwali gate, Fatehpur, and Ghanupur (Table 2). Finally, 5% of households are selected from each slum for the primary survey. The primary survey involves an in-depth assessment of 614 households through interviews to evaluate basic amenities and the quality of life.

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 was computed after calculating the z-score by summing up the z-score values of all indicators for all six categories of slums to determine the quality of life in the slums of Amritsar city.
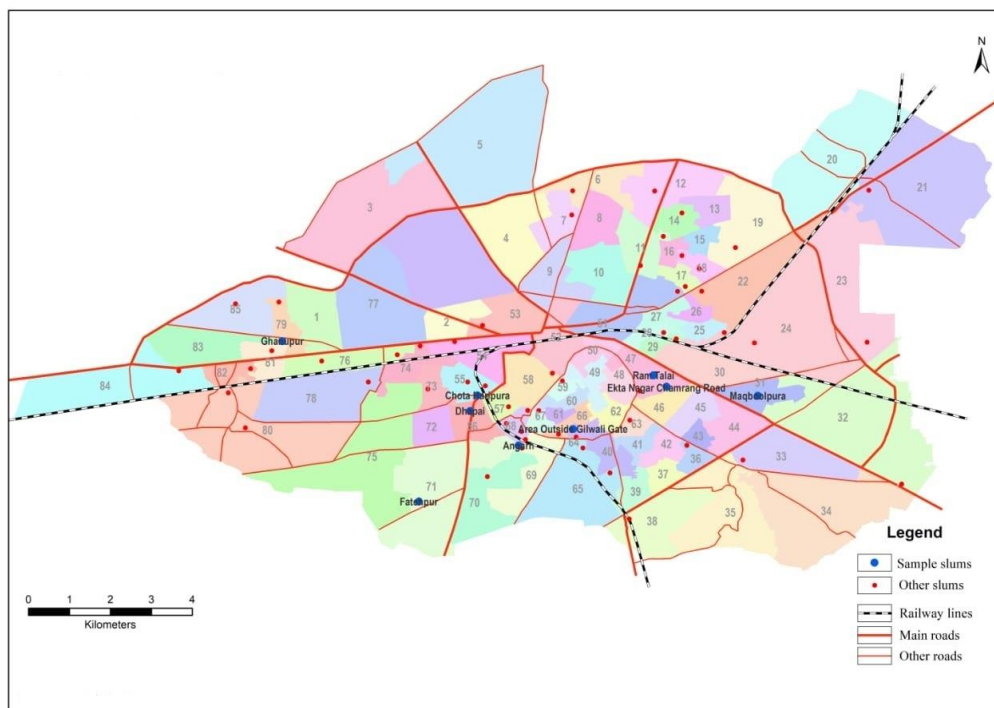
Table 2

Selection of Sample Size

Slum Category[*]	Name of the sample slum	Population	Total household	Sample household
Slums along Railway line	1. Chhota Haripura	8300	1660	83
	2. Angarh	3850	770	39
Slums along Major roads	3. Dhapai	8800	1760	88
	4. Ekta Nagar	2300	460	23
Walled city slums	5. Ram Talai	3300	660	33
Industrial slums	6. Maqboolpura	11000	2200	110
Refugee slums	7. A/o Gilwali gate	1000	200	10
Sporadic slums	8. Fatehpur	5550	1110	56
	9. Ghanupur	17160	3432	172
Total		61260	12252	614

Notes: The researcher categorised slums based on their location in Amritsar city.
Source: Municipal Corporation, Amritsar

Figure 1
Location of Slums in Amritsar City (Ward wise)

Source: Prepared by Researcher

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 essential for human survival. In the slums of Amritsar city, residents obtain their drinking water from four main sources: piped water supplied by the Municipal Corporation, hand pumps, private piped water arrangements, and tanks (refer to Table 3). Piped water is the most common water source, used by 55.86% of the slum population. The second most preferred water source is hand pumps, which 22.96% of people use. Approximately 10% of the slum population uses private arrangements and tanks for their drinking water. In sporadic slums, 65% of people use piped water; in refugee slums, only 30% use this source. Hand pumps are the major

source of drinking water for 27.27% of the population in Industrial and the slums along walled cities. Private piped water sources are chosen as the source of drinking water by 14.75% of the population living in the slums along railways. Tanks are used as a source of drinking water by 15.31% of the population in the slums along major roads, while only 7.01% use tanks to obtain water in sporadically spread slums.

Toilet facilities are essential for every household. In the slums, the most common toilet facilities are flush and pit toilets (See Table 3). In Amritsar, 78.17% of slum dwellers use a flush system, while 15.63% have pit toilets in their homes. Additionally, 6.18% of slum dwellers use open grounds or farms near the slum areas for toilet purposes. Along major roads, 86.48% of slum residents have flush system toilets, while 26.36% of people in industrial slums use pit toilets. In sporadic slums, 8.77% of the population also have pit toilets. Approximately one-tenth of the population in industrial slums use open grounds and nearby farms for toilet purposes.

Waste disposal is a significant issue in slum areas, often overlooked due to the perception of these areas as backward. Proper disposal of solid and liquid waste is crucial for maintaining hygiene in these areas. In slums, water disposal facilities are either open or lack a specific drainage system. According to Table 3, 51.62% of slum dwellers have drainage facilities, which are uncovered, posing a significant health risk as water-borne diseases can easily spread through flies and mosquitoes. Additionally, 10.09% of the slum population has no facility available for water disposal, and 38.27% have no covered drainage facilities. In sporadic slums, 64.03% of people have an open water disposal facility. However, 21.21% of slum dwellers in slums along old-walled cities have closed water disposal facilities, and 4.91% of those in slums along railways also have closed liquid waste disposal facilities. Furthermore, 50% of residents in industrial slums lack special liquid waste disposal facilities, leading to potential health issues due to industrial effluents.

Electricity is undeniably one of the most crucial gifts that science has bestowed upon humanity. It has become an indispensable part of modern life; a world without it is unimaginable. In Amritsar, slum dwellers can access legal and illegal electricity supplies (Table 3). Almost 80% of people in the slums have legal electricity connections. However, approximately 11.88% of the slum population has no access to electricity, while a small percentage (3.42%) has access to electricity from illegal sources.

Along the old city's walled slums, 96.96% of the population has legal access to electricity, but 16.21% of the population in slums along major roads lacks assured access to electricity. In refugee slums, about 10% of people have access to electricity from illegal sources; in industrial slums, 1.81% use electricity from illegal sources. It is important to note that there is a higher risk of accidents from electric shocks associated with power theft.

A key component of slum upgrading involves improving basic household services, such as cooking energy and open living spaces. In Amritsar, the slum population uses

four different sources for cooking: LPG, Kerosene, Electricity, Firewood, and Dung cakes (refer to Table 3). Approximately 7.50 per cent of the slum population uses LPG, while 2.60 per cent uses kerosene for cooking. About 10.42 per cent of the population relies on electricity for cooking. Over one-third of the population uses firewood or dung cakes, with 57.57 per cent of the slums in the old walled city using LPG and 35.24 per cent of the population in railway slums using LPG. In the old walled city slums, 12.12 per cent use kerosene, while less than one-third of the population in refugee slums use electricity for cooking. Additionally, 41.81 per cent of the industrial slum population cooks with firewood or dung cakes and 4.83 per cent of railway slum residents. However, people using dung cakes and kerosene are susceptible to health-related diseases, which can increase the risk 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.
The table's figures are in percentiles, and the figures in the brackets are the number of people surveyed.
Source: Primary Survey

Levels of Quality of life

In this section, we used five essential parameters to evaluate the quality of life in the major slums of Amritsar city. To measure the quality of life, we computed a composite z-score by summing up the z-score values of all five indicators (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 rank. The X value is calculated by dividing the weightage value by 100 and then multiplying it by the percentage of the household.

Table 5

Composite Score for Slums in Amritsar City

Slum Category	X1	X2	X3	X4	X5	X6	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

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

Based on the calculation of composite z-score values (Table 5), we categorised levels of quality of life into three groups: low (composite z-score between 11.5-12.5), medium (composite z-score between 12.5-13.5), and high (composite z-score between 13.5-14.5) (Table 6). It has been observed that slums along railway lines, such as Chhota Haripura and Angarh, have a low quality of life. Slums along major roads, including those on highways or roads connecting other district headquarters, have a medium quality of life. As part of this study, we conducted the primary survey in two slums on major roads: Dhapai and Ekta Nagar. Industrial and Refugee slums also exhibit a medium level of quality of life. Interestingly, slums scattered sporadically along an old walled city in the city's centre have a high quality of life. These areas offer easy access to all the basic amenities.

Conclusions

The study demonstrates that access to basic amenities varies among different slums in Amritsar city based on their location. In most slums, people still rely on groundwater for drinking, as municipal water supply is a distant dream for many. About 45% of the slum population still does not have access to piped water from the Municipal Corporation, and approximately 22% still lack access to a toilet facility. Lack of proper waste disposal facilities and poor sewage systems are causing pollution and health-related problems in slums. Additionally, around 39% of areas in slums lack a proper drainage system, which is crucial for maintaining proper hygiene. Over half of the slum population has to face open drainage, leading to serious health issues. It is concerning that in the 21st century, people still lack access to electricity in Amritsar slums.

Interestingly, almost 50% of people use conventional energy sources to cook food. The disparity among different slums also leads to changes in the socioeconomic setup of the city. Although 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

regularisation. 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 organisations have been working to normalise the life of slum dwellers in Amritsar. The government should encourage the private sector to be involved in improving the condition of slums. There is an urgent need to minimise the variations in the availability of basic amenities by strengthening the financial resources and technical capacity for adequate provision.

Acknowledgement

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