Quality of life in slums: A case study of Chakdaha municipality

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Abstract: The process of world urbanization is an inseparable part of the development that is taking place throughout the globe today. Though it has a major role in the development process itself, certain consequences are opposite to development in character. Slums or the growth of slums along with rapid urbanization is one such phenomenon that can be seen in any major urban center of the world today. Billions of people are living in these slums which are congested, overpopulated, and polluted with zero access to basic urban amenities that are needed to sustain the basic quality of life. Developing countries like India are going through the process of rapid urbanization itself where slum growth in every major city is seen. A somewhat similar picture has been seen in the Chakdaha town of Nadia district in the state of West Bengal where people from the surrounding areas are coming to the town for settling down influenced by different factors leading to the growth of slums. Due to continuous unplanned growth and management, the present quality of life is not satisfactory here. Being a new area in human geography and other social sciences quality of life is important as it is related to the general aspirations of an individual related to personal development based on different factors which represent the interplay between population and the space of an area. This relation also determines the type of urban development happening in the area itself. Thus the present study focuses on the assessment of the quality of life present in the slums of Chakdaha town in Nadia district based on statistical methods and to determine the main problem areas concerning the quality of life in slums.

Key Words: Quality of life, slum development, urbanization, composite index.

1. INTRODUCTION:

Rapid urbanization has forced the majority of the population to live in urban areas. As part of this urbanization, the slums are growing in every major urban area throughout the world. As a huge population is living in urban areas, the issue of the quality of life of urban dwellers is of much importance. Thus as the slum population today also constitutes a major portion of any urban population, the condition of their present quality of life is also of much significance. Now, by the quality of life, one can mean many things. Simply, it can be said that Quality of life means the condition of the general well-being of an individual or a society, it includes everything such as the condition of physical and mental health, education, employment, condition of the environment, safety, wealth, etc which determines their behavior and perception about the society. According to the World Health Organization (WHO), quality of life is defined as the individual's perception of their position in life in the context of the culture and value systems in which they live and concerning their goals. The quality of life in slums as we know is not very impressive, caused by the main lack of basic infrastructure and facilities and proper planning, making the slum community socially excluded from the urban system, which is driving them and the whole urban society toward an unsustainable future.

2. STUDY AREA:
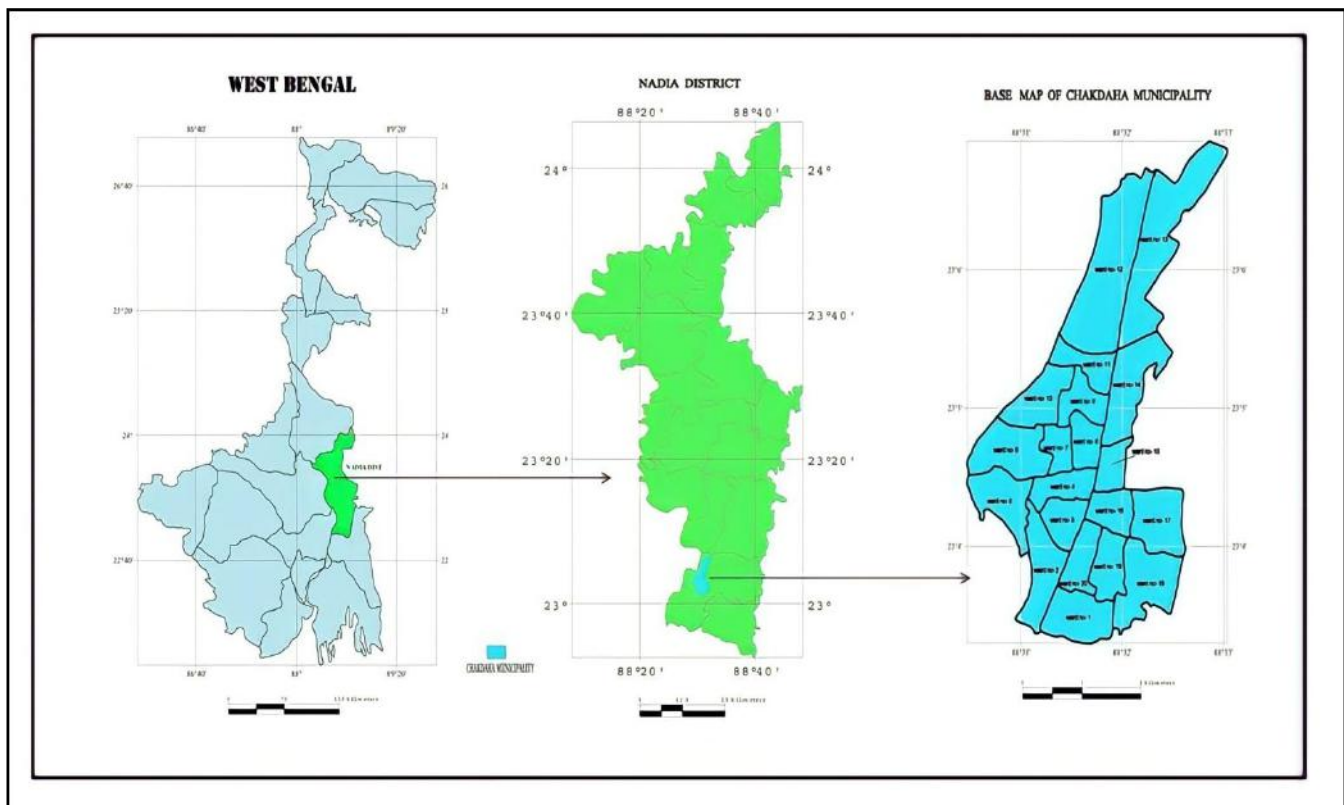
Figure 1: Location of the Chakdaha Municipality Area (source: compiled by author)

The town of Chakdaha is located between 22° 15´47" North latitude and 88° 18´52" East longitude. In 1886 it became a Municipality. 62 km North of the State Capital of Kolkata, in the Nadia district, Ganga flows along the western boundary of the Chakdaha town. The district's headquarter lies at Krishnanagar which is about 38 km away. Presently the Municipality consists of 20 Micro Urban Units covering an area of 15.36 sq. km with a population of 95,203 as per the recent Census.

2,1. RATIONALITY BEHIND SELECTION OF THE AREA:
- In the last few years, Chakdaha has recorded high growth in slum population, especially from 2015-2020 according to the ULB.
- It is a major market town of the district which attracts more migrants from the surrounding region in search of various jobs.
- Many small farmers and agricultural laborers are coming to the town to sell their produce in the large market and work in the agricultural fields adjacent to the town. Generally, these people are residing in the slums of Chakdaha.
- At present, some new small and medium-scale industries are established in the marginal areas of the town, which is attracting labor from the surrounding areas, and they are setting there creating slum pockets.
- Lack of low-cost housing by ULB, and slow development of basic facilities for the slums.

2.2. OBJECTIVES:
- Determine the present quality of life in the slums of Chakdaha.
- Compare the quality of life in the slums based on basic indicators.
- Determine the main constraints or problem areas in the slum infrastructure that lowers the Quality of Life (QOL) in slums.
- Suggest some measures for developing the present quality of life by improving the slum infrastructure.

3. DATABASE AND METHODOLOGY:
As the study focuses on the both social and physical aspects of life for measuring the quality of life in slums, an intensive survey method was taken to collect the data for analysis. The simple Random Sampling method has been

used to interview dwellers from each household of the selected slums. The raw data has been arranged in a master table systematically with the help of statistical techniques. Further, the CDP or City Development Plan has been collected from the office of the Chairman, Chakdaha Municipality to get an exact idea of slums location and amenities available there, also District Census Handbook, Nadia 2011 and other reports of Chakdaha municipal office were analyzed. For determining the quality of life in slums, the composite index and standard deviation method have been used. 10 variables were chosen to determine the quality of life in slums marked X1, X2, and so on. Proper weights were assigned to each of them. Composite scores of the variables were taken as X and then the mean and standard deviation (SD) is calculated. It has been further clubbed into different classes and compared to determine the QoL in slums. The study is based on 120 households from 6 selected slums of Chakdaha municipality.

4. FACTORS OF SLUM GROWTH:

The town of Chakdaha has been serving as one of the main junction points for the Nadia district. Further, its growth as a market town based on the concentration of agro commodities has increased its importance in the last few years. Well, connectivity is another reason as serving as a junction point the town now has developed bus transport with areas like Bangaon, Bishnupur, etc. few main points for slum growth have been mentioned below:

- Rapid rural to urban migration from surroundings.
- Increase in land prices
- Shortage of low-cost housing by govt.
- Establishment of small to medium industrial units, trade, commerce, etc.
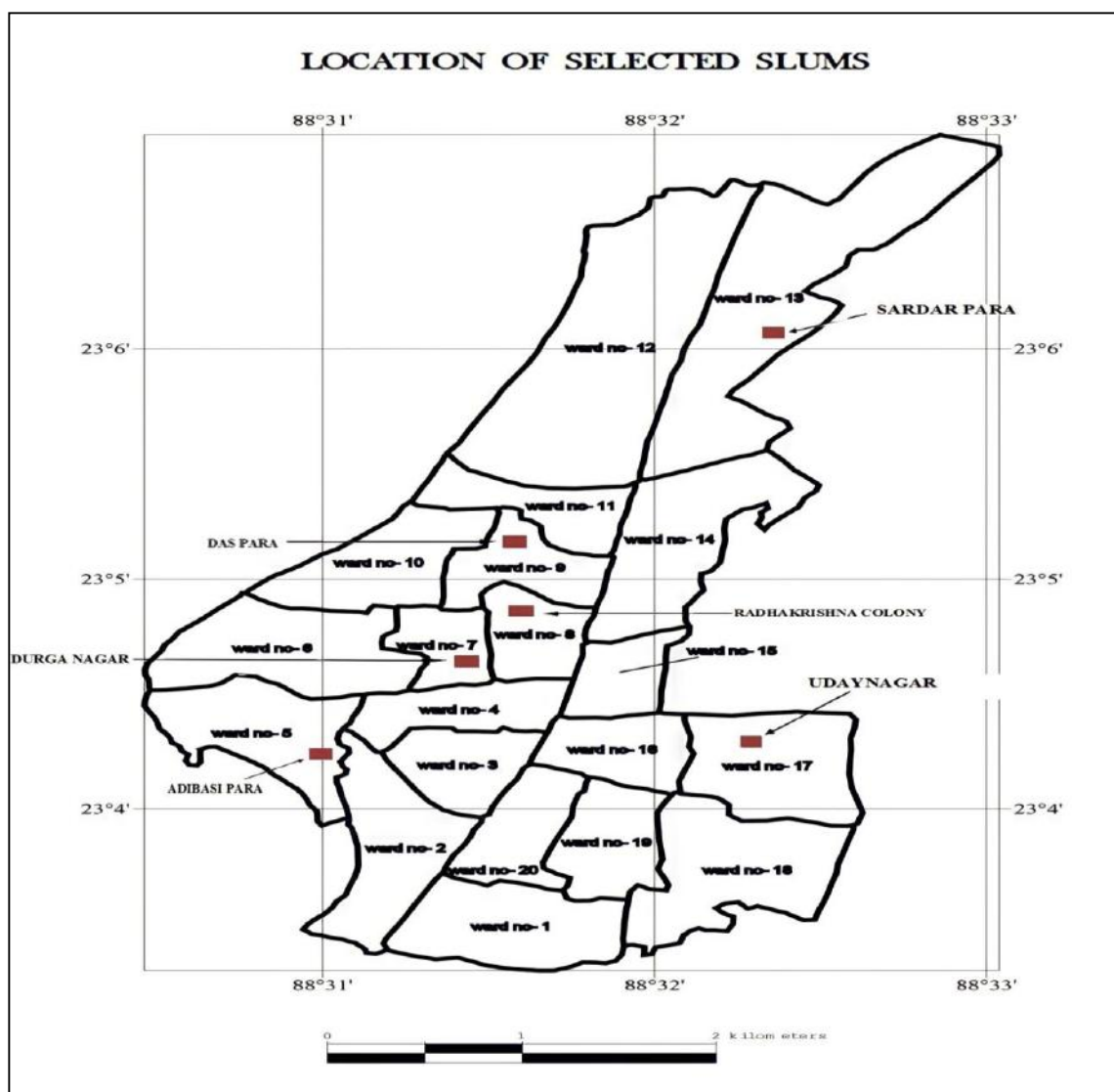
Figure 2: Location of Selected Slums (source: compiled by author)

5. PRESENT SCENARIO:

The town itself is growing as it is one of the major markets for the surrounding region, mainly for agricultural goods. In the last decade, the slum population of Chakdaha has recorded a rapid increase. In 2011 it was around 31000, but in 2021 it increased to around 34500, mainly due to migration rural to the internal and fringes of the town (Fig.2).
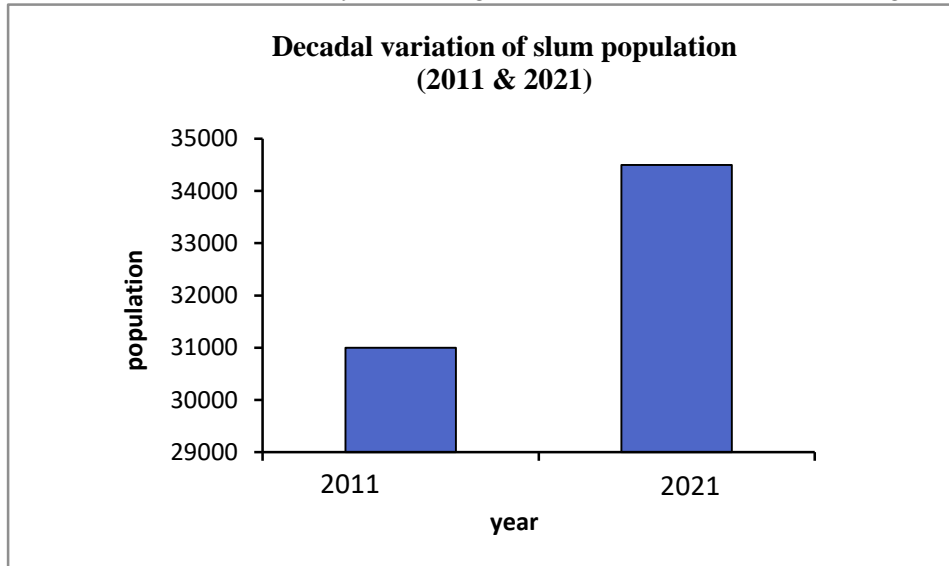

Figure 3: (source: compiled by author)

This has led to high growth in the slum population which in turn has created many new slums. In 2011 the no. of the recognized slum in the town was 52, but in a decade it increased to more than double and recorded 74 slums in 2021 (Fig.3).
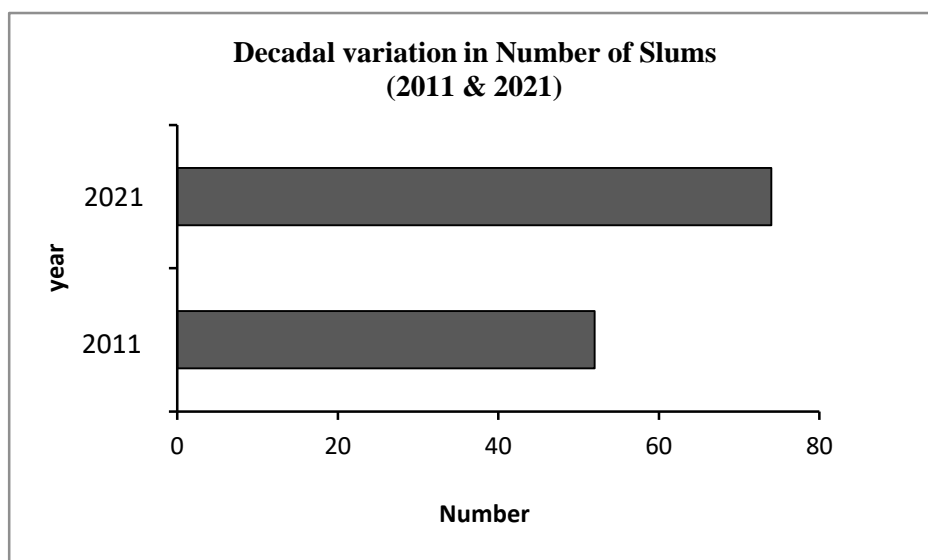

Figure 4: (source: compiled by author)

5.1. PARAMETERS:

Some general basic parameters are taken to measure the quality of life in slums –

Table no.1: parameters for quality of life

Parameters	variables
Source of lighting	X1
Type fuel used	X2
Source of drinking water	X3
Type of dwellings	X4

Condition of sewage disposal	X5
Condition of waste disposal	X6
Medical facilities	X7
Literacy	X8
Female literacy	X9
Type ration card holding	X10

Based on these parameters the present condition of QoL in the slums will be measured through the composite index method.

6 ANALYSIS: For determining the QoL in slums, each parameter (variables) was separately analyzed for each of the slums selected.

6.1. SOURCE OF LIGHTING (X1):
         Having an electricity connection in a household is considered one of the main indicators of quality of life. Among the selected slums we can see that Uday Nagar(90%) has the highest percentage of electrified households, followed by Durga Nagar and Das para which both have 85% of electricity connection. the lowest connection is found in Adibasi para(40%). 60% of the slum households in Adibasi para use kerosene as a light source, which is the highest. It is followed by Radhakrishna colony(25%). The lowest percentage of kerosene consumption is in Udaynagar(10%). Thus it can be said that the majority of the dwellers of Adibasi para and Radhakrishna colony don't have access to proper electricity connection indicating a lower development.
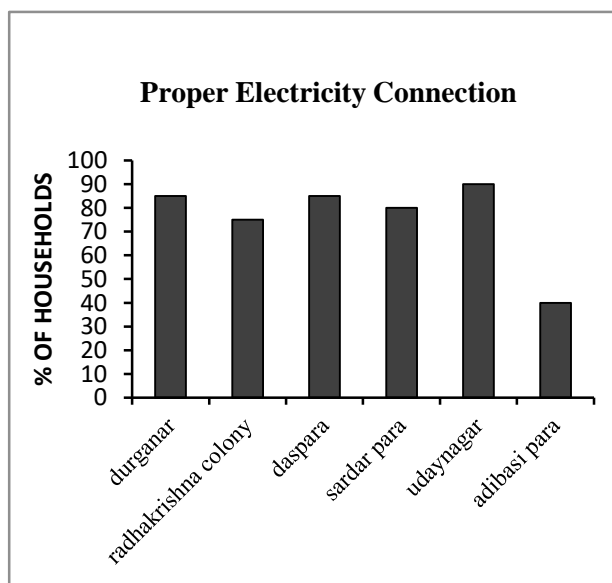

Figure 5 (source: compiled by author)   Figure 6 (source: compiled by author)
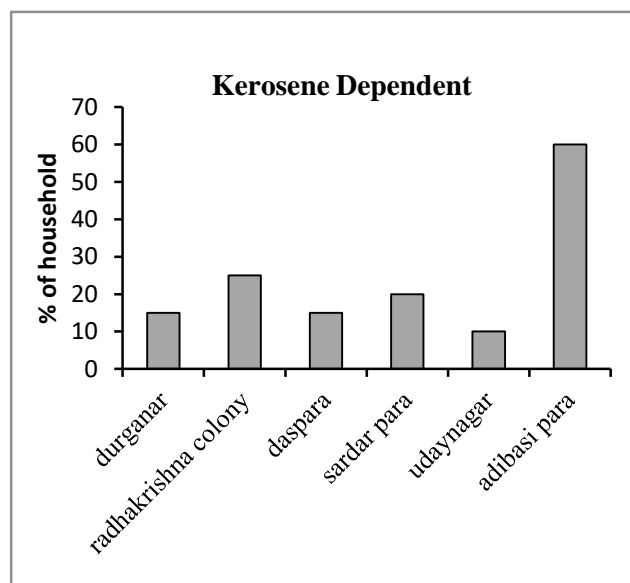
6.2. TYPE OF FUEL USED (X2):
         The type of fuel daily used is an indicator of both quality of life and pollution, and the health of households. It is seen that the highest 65% of the slum dwellings have an LPG connection. About 20% of the residents use electricity. Also, the highest use of kerosene, coal and other fuels is about 30%. The lowest no. of LPG connections is found in Adibasi para, where a majority of the respondents depend upon coal and other fuel types for daily purposes. This indicates a low-income situation compare to the other slums.

Figure 7 (source: compiled by author)

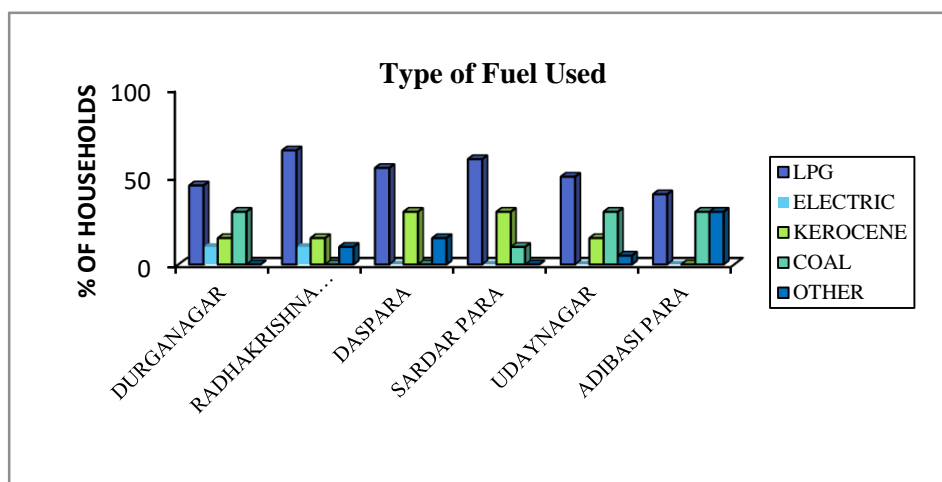### 6.3. SOURCE OF DRINKING WATER (X3):

The Source of potable drinking water is a basis for maintaining health, thus it influences the individual QoL. In the study areas, 80% of households in three slums are depended upon the tap established by the local body as the source of drinking water. In Udaynagar 75% of the dwellers collect drinking water from the hand pump, followed by 60% in Adibasi para slum. This is due lack of lack municipal taps there. Due to the presence of arsenic in some areas the water from hand pumps is not very healthy to consume.
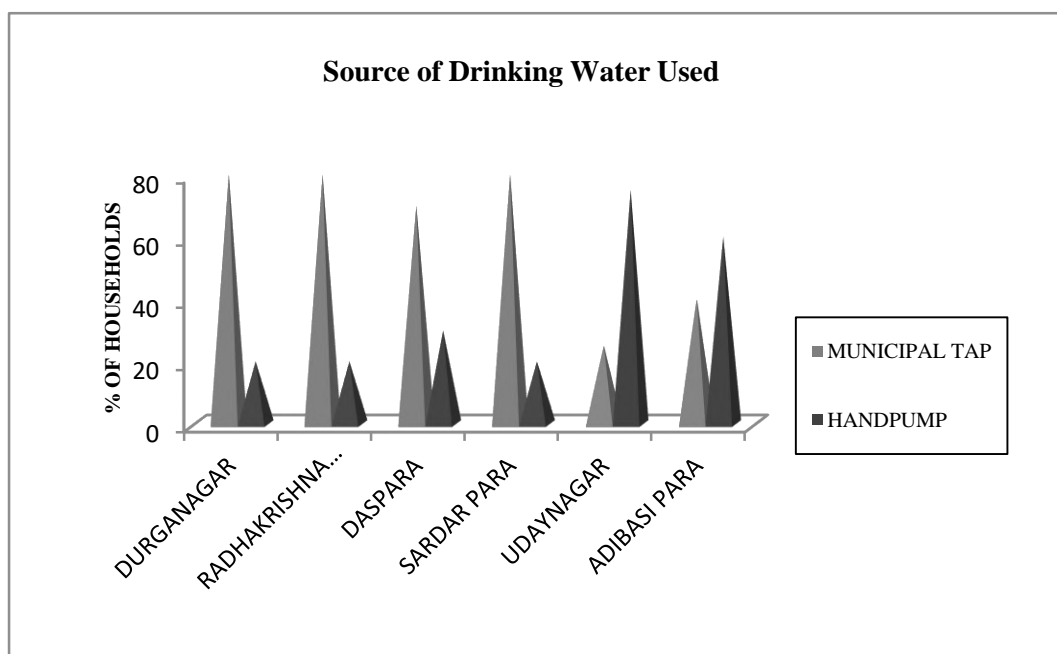
Figure 8 (source: compiled by author)

6.4. TYPE OF DWELLING UNITS (X4):

Inadequate housing is one of the main characteristics of slums. It also indicates the condition of quality of life. In the study area majority of the slum households(80%) both Daspara and Udaynagar recorded semi-pucca type of households. among the six slums, five of them recorded kutcha dwellings, which is highest in both Adibasi para (40%). Radhakrishna colony recorded a high percentage of pucca households. In the case of housing condition thus we can say Adibasi para, Das para, and Udaynagar needs the development of housing structure.

Figure 9: (source: compiled by author)

6.5. SEWAGE DISPOSAL (X5):

A proper sewage facility is very important for the health and quality of the environment. Also, it reflects the condition of QoL one has. Among the slums we can see from the graph, Adibasi para has the highest percentage of poor sewage (90%). Followed by Udaynagar, on the oth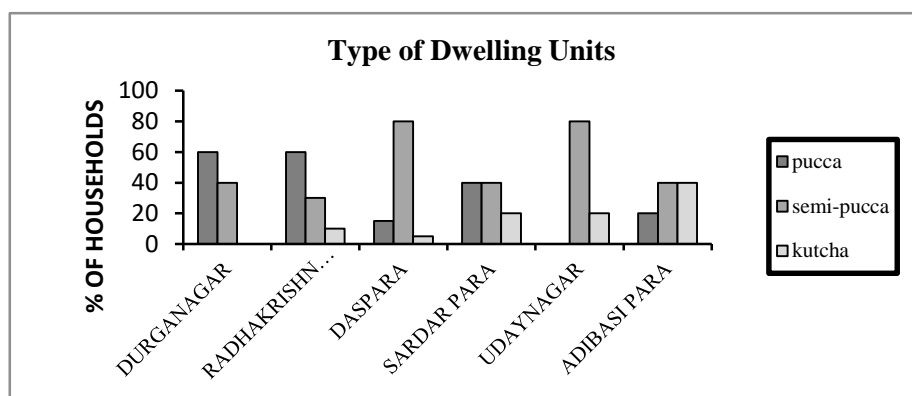er hand, Durganagar has the highest percentage of respondents (45%), who said that the sewage condition is satisfactory. This indicates that Adibasi para, Udaynagar is in a dire need of sewage facility development.
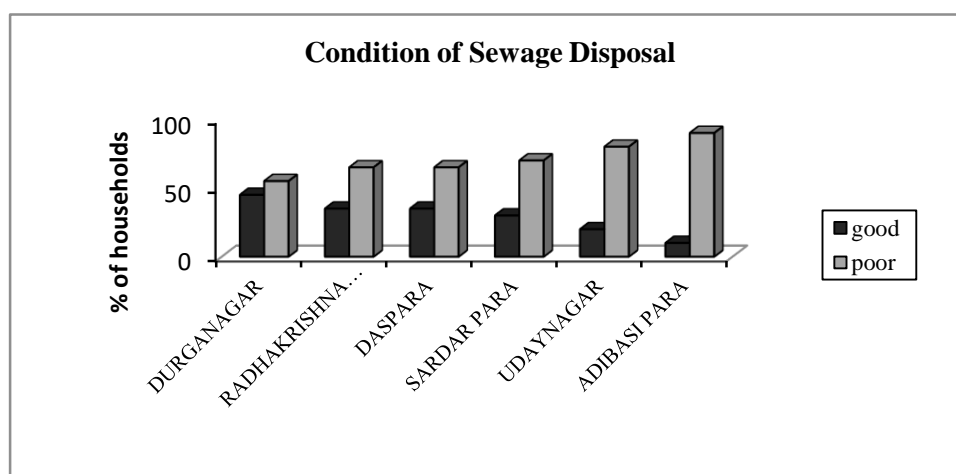
Figure 10: (source: compiled by author)

6.6. WASTE DISPOSAL (X6):

Among the slums highest 85% dump the daily garbage on roads. On the other hand, 75% and 70% of households in Radhakrishna colony and Adibasi para dump the daily waste at a place fixed by the local body. But in all the slums the collection of daily garbage is very inconsistent. Also only in Das para, about 20% of the households dump their garbage in the nearby water body. Among all the slums we can say that the garbage dumping and garbage collection system is not up to the mark.

6.7. LITERACY (X7):

Literacy influences one's capacity to enhance the level of QoL. In the study area, the highest level 90% literacy is found in the Durganager slum, followed by Das para(75%). The worst condition is seen in Udaynagr and Adibasi para. In these areas, the QoL is influenced by mainly the low income and low social development of the dwellers.

6.8. FEMALE LITERACY (X8):

Female literacy is another important indicator of QoL, also it is the status of women in society. Surprisingly the condition of female literacy in the area Is satisfactory with the highest 65% and 60% in Durganagar and Radhakrishna

colony. Condition is not so good in Sardar para and Adibasi para where 75% and 70% of female illiteracy is seen. The low literacy condition in these slums various problems in women's lives.
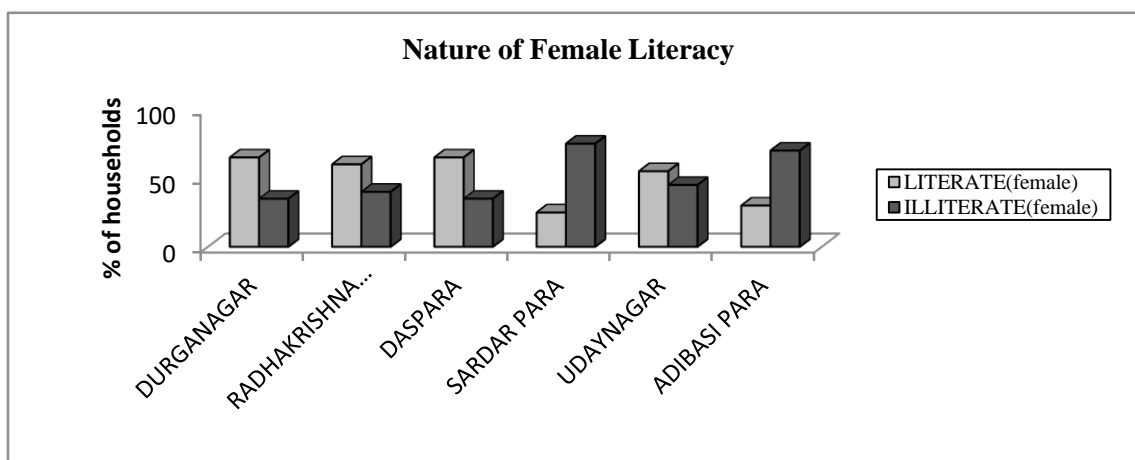

Figure 11: (source: compiled by author)

Table no.2: selected variables for quality of life in slums of Chakdaha and respective X value

VARIABLES	PARAMETERS	INDICATORS	WEIGHT	DURGANAR		RADHAKRIS-HNA COLONY		DASPARA		SARDAR PARA		UDAYNAGAR		ADIBASI PARA	
x1	SOURCE OF LIGHTING	ELECTRICITY	2	% of household	x value	% of household	x value	% of household	x value	% of household	x value	% of household	x value	% of household	x value
				85	1.7	75	1.5	85	1.7	80	1.6	90	1.8	40	0.8
		KEROSENE	1	15	0.15	25	0.25	15	0.15	20	0.2	10	0.1	60	0.6
x2	TYPE OF FUEL	LPG	5	45	2.25	65	3.25	55	2.75	60	3	50	2.5	40	2
		ELECTRICITY	4	10	0.4	10	0.4	0	0	0	0	0	0	0	0
		KEROSENE	3	15	0.45	15	0.45	30	0.9	30	0.9	15	0.45	0	0
		COAL	2	30	0.6	0	0	0	0	10	0.2	30	0.6	30	0.6
		COW DUNG CAKE	1	0	0	10	0.1	15	0.15	0	0	5	0.05	30	0.3
X3	DRINKING WATER	MUNICIPAL TAP	2	80	1.6	80	1.6	70	1.4	35	0.7	25	0.5	40	0.8
		HANDPUMP	1	20	0.2	20	0.2	30	0.3	65	0.65	75	0.75	60	0.6
X4	HOUSING	PUCCA	3	60	1.8	60	1.8	15	0.45	40	1.2	0	0	20	0.6
		SEMI-PUCCA	2	40	0.8	30	0.6	80	1.6	40	0.8	80	1.6	40	0.8
		KUTCHA	1	0	0	10	0.1	5	0.05	20	0.2	20	0.2	40	0.4
X5	SEWAGE	GOOD	2	45	0.9	35	0.7	35	0.7	30	0.6	20	0.4	10	0.2
		POOR	1	55	0.55	65	0.65	65	0.65	70	0.7	80	0.8	90	0.9
X6	WASTE DISPOSAL	FIXED AREA	3	55	1.65	75	2.25	0	0	30	0.9	15	0.45	70	2.1
		ON ROADS	2	45	0.9	25	0.5	80	1.6	70	1.4	85	1.7	30	0.6
		NEAR WATER BODIES	1	0	0	0	0	20	0.2	0	0	0	0	0	0
X7	MEDICAL FACILITIES	GOVT.HOSPITAL	3	85	2.55	35	1.05	95	2.85	75	2.25	80	2.4	75	2.25
		PRIVATE CLINIC	2	15	0.3	45	0.9	5	0.1	25	0.5	20	0.4	25	0.5

		TRADITIONAL PRACTITIONER	1	0	0	20	0.2	0	0	0	0	0	0	0	0
X8	LITERACY	LITERATE	2	90	1.8	65	1.3	75	1.5	60	1.2	35	0.7	45	0.9
		ILLITERATE	1	10	0.1	35	0.35	25	0.25	40	0.4	65	0.65	55	0.55
X9	FEMALE LITERACY	LITERATE	2	65	1.3	60	1.2	65	1.3	25	0.5	55	1.1	30	0.6
		ILLITERATE	1	35	0.35	40	0.4	35	0.35	75	0.75	45	0.45	70	0.7
X10	RATION CARD	APL	3	15	0.45	30	0.9	0	0	20	0.6	0	0	0	0
		BPL	2	85	1.7	70	1.4	90	1.8	80	1.6	90	1.8	95	1.9
		NO CARD	1	0	0	0	0	10	0.1	0	0	10	0.1	5	0.05

Table no.3: composite scores of the slums

SLUMS	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X	X-⁻X	(X-⁻X)²
DURGANAR	1.85	3.7	1.8	2.6	1.45	2.55	2.85	1.9	1.6	2.15	22.5	1.75	3.06
RADHAKRISHNA COLONY	1.75	4.2	1.8	2.5	1.35	2.75	2.15	1.65	1.60	2.3	22.0	1.3	1.69
DASPARA	1.85	3.8	1.7	2.1	1.35	1.8	2.95	1.75	1.65	1.9	20.85	0.1	0.01
SARDAR PARA	1.8	4.1	1.35	2.2	1.30	2.3	2.75	1.6	1.25	2.2	20.85	0.1	0.01
UDAYNAGAR	1.9	3.6	1.25	1.8	1.2	2.15	2.80	1.35	1.55	1.9	19.5	-1.25	1.56
ADIBASI PARA	1.4	2.9	1.4	1.8	1.10	2.70	2.75	1.45	1.3	1.95	18.75	-2	4
TOTAL											⁻X = 20.75		10.33

The mean value of the composite score is 20.75 and the calculated standard deviation is 1.31.

Based on these the levels of quality of life are -

Table no.4: Levels of Quality of Life in slums of Chakdaha Municipality

LEVELS	STATISTICAL VALUE	COMPOSITE SCORE	SLUMS
GOOD	to +2	22.O6 – 23.37	DURGANAGR
SATISFACTORY	to +	20.75 – 22.06	DAS PARA, SARDAR PARA, RADHAKRISHNA COLONY
LOW	to -	19.44 – 20.75	UDAY NAGAR
VERY LOW	to -2	18.13 – 19.44	ADIBASI PARA

By the composite score method, four levels of quality of life have been founded in the study area. According to the table, we can see that the Durganagar slum has the highest quality of life for others. Das para, Sardar para, and Radhakrishna colony have a somewhat satisfactory or medium quality of life. Some facilities such as housing, and source of water supply are more developed here. On the other hand, the Udaynagar and Adibasi para has recorded low and very low quality of life. The condition of waste disposal and drinking water facilities is not up to the mark. The majority of the slums belong to the satisfactory and medium quality of life.

7. PROBLEMS: Based on the analysis the major problems of the slums are indentified as -

7.1. WATER SUPPLY: In the majority of the slums, a good percentage of people recorded water supply problems, as their main source of drinking water is a Hand pump. Especially the quality of water is not very good, sometimes it

becomes reddish, also there is a problem of arsenic contamination. Also, the slums which have a municipal connection, are not properly connected with the pipe network of the ULB, leading to long queues and irregular water supply. Especially in Das Para and Sardar Para slums.

7.2. ELECTRIFICATION: The selected slums recorded some households that don't have electricity connection, especially in Adibasi Para which is the highest. Thus it can be said that infrastructure regarding electric connection is not much developed. Due to their low economic condition, some of the households rely on kerosene and some other fuels for lighting, also some go for illegal hooking but they did not admit it wholly.

7.3. DRAINAGE AND SEWERAGE: in most of the slums a high percentage of respondents claimed that the sewage and drainage condition is not very good. Though all the drains are pucca, due to non-eco-friendly practices and very irregular cleaning of the drains all the time stagnation of filthy water can be seen, and in the rainy season, it takes a nightmare form.

7.4. WASTE DISPOSAL: it has been noted that a higher portion of people in a majority of the slums dumps their daily waste on the roads nearby. The main reason is the absence of a fixed place, also a heap of waste is very irregularly collected by the ULB, sometimes more than 3 weeks, according to the dwellers. Especially in Udaynagar and Das para.

7.5. SOCIAL PROBLEMS:
        To identify the social problems in the slums, the condition of female literacy comes out as one of the prominent ones. Due to a lack of knowledge most women are suffering from problems like harassment, domestic violence, and the poor economic situation of the family. According to a majority of women respondents, most of them has to work outside as maids, housekeepers, and other small part-time jobs to sustain their family as their husband do not work properly, and if they do they contribute very less to household expenditure, the education of children. Thus not having a basic degree is standing as an obstacle to opportunities for women in the study area. Consumption of intoxicants mainly alcohol among males is another problem that is further creating less productivity among them affecting their health and the economic condition of the family.

8. SUGGESTIONS:
        For holistic development of the slums and to upgrade the quality of life further in the present context involvement of both the government and private party is needed. Through the policies of slum development, we have to focus not only on the upgradation of physical infrastructure or settings but also on the development of the social environment in the slums. Other countries of the developing world with slum situations handle the growth and maintenance of the slums in a systematic way involving cooperation between the urban local govt. Or body, the national government, and specific non-governmental organizations. The plan should first identify the actual problem areas concerning physical and social infrastructure, then design a specified method or technique to deal with these problems. Apart from that to ensure proper quality of life in slums some interventions like, skill development camps with proper job placement, camps for development of a small household industry or business, night schools for increasing literacy, health camps for basic health check-ups and awareness, workshops and camps for social development including creating awareness against domestic violence, substance abuse, etc should be arranged regularly by the urban local body and the NGO's. Further, the study itself has identified some areas that can be looked for upgradation –

- First of all proper and regular cleaning of the drains within and surrounding the slums is needed very much. The ULB should take a look into this.
- Infrastructure related to electricity connection in the slums should be upgraded. Which will develop the condition of the dwellers and also it will lower the propensity of hooking.
- the waste disposal practices in most of the slums are not environment friendly, as the majority of the dwellers dump their daily
- Waste on the roads. This is mainly due to a lack of proper vats for waste dumping, and also in some slums the vats are not properly cleaned and maintained. They are broken, degraded, and filled with waste which eventually takes place on the roads. So the ULB immediately should look into these.
- Also, door-to-door collection of waste from within slums is needed, also at present garbage heaps from the roads regularly needed to be collected.
- Water supply connections to the slums and the establishment of new municipal taps in some areas are needed.

Lastly, it can be said that India being a part of the UN-MDG or the United Nations-Millennium Development Goals has identified some goals to set up the quality of life in slums concerning both physical and social infrastructure. The document of India Vision-2020 also identifies some targets to achieve respect for education and health. In the study area, it has been found that female illiteracy is 75% and overall illiteracy is also high. Thus on a larger scale, the study area is far behind concerning the quality of life and overall development compared to both national and international goals.

9. CONCLUSION:

The present condition of quality of life in the slums of Chakdaha is on a downward path. In the study, we can see that some slums are a step ahead of another in some respect, but again the overall condition of the infrastructure is not properly developed. Also as the town's influence is growing, more migrants are coming from the surroundings and they are generally residing in the slums. According to the ULB, many new slums have been recorded in fringe areas of town. The ULB has constructed some pucca houses with proper floor areas within some slums, but a majority of the dwellers did not receive it. Thus the ULB on its own at first should take some proper infrastructure plans where slum dwellers will be incorporated to assess the problems firsthand.

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