

Alternative Approaches for Sustainability of Slum: A Case Study of Surat City

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Abstract—Urbanization and faster speed of our life have let us live a happy and smooth life but with accordance to the advancement there adds a discomfort to the city life. The urban population in India has increased significantly from 62 million in 1951 to 285 million in 2001 and is estimated to grow to around 560 million by the year 2021. It would be touching 37% of the total population in next 15 years. Many cities have slum population as high as 35% to 40%. The city of Surat is one of the fastest growing cities in the world. The present population of the city is 44.62 lacs with an area of 326.52 sq. km. This paper examines how the rights of slum can and must be met for present and future generations and highlights the sustainable planning for slum dwellers and their housing strategies. Using the human rights framework, the paper analyses states common approaches to its water and sanitation, particularly in adopting measures both during times of normalcy and during economic and financial crises, and shows how those approaches often fail to incorporate sustainability. In this paper, we tried to reach the stack holders and users to get the problems according to them rather than studying it or classifying it as a whole. The purpose reach from the classification of their problems and providing sustainable temporary solution to them such that the time till they are living there they should live not suffer their living. As a part of the conclusion to the paper we have declared the feasible sustainable solution to the problems they face.

IndexTerms—Dwellers, Planning, Population, Slum, Sustainable, Urbanization.

I. INTRODUCTION

Significantly, in spite of substantial amount of literature available on urban planning and problems in the country, it becomes difficult to spell out a definition of slums in clear terms. Various authors, Commissions and Acts define such locations differently, often in a broad and unclear fashion. For example, the Maharashtra Slum Areas Act, 1971, define such pockets as ‘any area in the state which is unfit for human habitation’. According to the Commissioner of Madras Corporation (1961), ‘a slum is taken to mean hutting areas with squalid surroundings. It may also be defined as a ‘thick cluster of small Kachcha houses or huts built on open land in an unauthorized manner. Minimum basic amenities are lacking in these areas. Protected water supply and drainage arrangements do not exist in these areas’.

Given such various sets of meanings, it appears that the definitions have been varying, based mainly on (a) the purpose; (b) the context and (c) the time of the study. Importantly, however, albeit in a somewhat loose fashion, three common attributes that characterize such areas are, (i) those that refer to specific human geographic spaces or situations and not to isolated physical units; (ii) those which are also identified by a combination of physical attributes and not with reference to any one single attribute and (iii) the ones that exist with a considerable range of variations with regard to the manifestation of each one of the physical attributes, significant among which are substandard houses, high density and congestion, excessive and unproportionate load on amenities, insanitary conditions and often absence or serious lack of services like protected water supply, electricity, drainage, sewerage and clearance of garbage.

Generally, such locations are inhabited by the poor and their 1 growth “has often occurred independent of any surge in prosperity through large-scale industrialization. Hence the level of urbanization (i.e. the percentage of urban to total population) and the rate of urban expansion (i.e. the percentage increase in the urban population) may not always be caused by the ‘pull’ of economic prosperity and opportunity in the cities; it is sometimes caused by the push from the rural areas due to significant changes in the mode of production in agriculture... in which there is a steady increase in the proportion of the rural population who are compelled to seek a living outside agriculture.

II. OBJECTIVE OF STUDY

The objective of study is to study the existing condition or scenario of slum as well as slum dwellers of West Zone of Surat and to rehabilitate that slum pocket from that zone as well as to become slum free by giving certain suggestions and recommendations to Surat Municipal Corporation (SMC).

Following are the objectives of study:

1. To study the existing scenario and socio-economics of slums of west zone of city Surat.
2. Obtaining details about the slums and slum people from SMC.
3. Survey of facilities and amenities existing in slum of West Zone of Surat city.
4. Survey of their income, its source and expenditure.
5. Application to Surat Municipal Corporation for providing required facilities and amenities.

III. STUDY AREA

Surat, one of the oldest mercantile Centre of the south Gujarat region has witnessed a long history of trade and commerce since the early decades of the seventeenth century. However, from such a prominence during this period it fell to the position of a sub-regional urban centre by the end of the eighteenth century. The causes underlying this decline were a combination of various geographical, economic and political factors ranging from Tapi's increasing incapability to house ships in its harbour due to excessive silting to plunders by Shivaji, the fall of Mughal empire and shift of trade southwards to Bombay. Though the decline of trade took away its cosmopolitan trading character, it did not take a long time for a section of the local traders to find avenues of capital employment especially in small scale industries within and around the region. The potential of the Jari industry was realized and revived. Same was true of kinkhab (silk and gold cloth) which had, though limited, but a sure market especially in U.P., Bengal, Punjab, and South India including Deccan and was soon picked up as an important potential sector. Such goods also found their ways to markets in South Africa, Thailand, China and pockets in Persian Gulf. Handloom woven fine cotton cloth too was another major important item of export from the city.

This however was not true of the handloom sector, for most of it turned into power looms. Though during this time, the power loom sector also grew in other parts of the country such as Mysore, Madhya Pradesh and Maharashtra, it was Gujarat that recorded a continuous growth with the city of Surat having its largest share in the state. The sector received a further boost by the governmental policy of decentralizing and providing impetus to the small scale industries since 1956. This robust boost to small enterprises coupled with the recommendation of the Textile Enquiry Committee (1954) to convert ordinary looms into power looms as well as introduction of certain excise concessions to clothes produced in these units aided a substantial growth of this sector in Surat.

Surat has been divided into 7 zones. Population has grown by 74% in West zone from 2001 to 2011. The reason behind that is this zone is near the Hazira Industrial Area and connected to National Highway 6 so in the past only the employees of these industries resided in the West zone. But over the recent times, the scenario has changed. Now more population is attracted towards this zone and it has good recreational facilities like gardens, etc. which creates good sustainable environment for living. Most awaited project of outer Ring Road of Surat city has its major portion attached to west zone making it the most demanded zone in near future for living and business

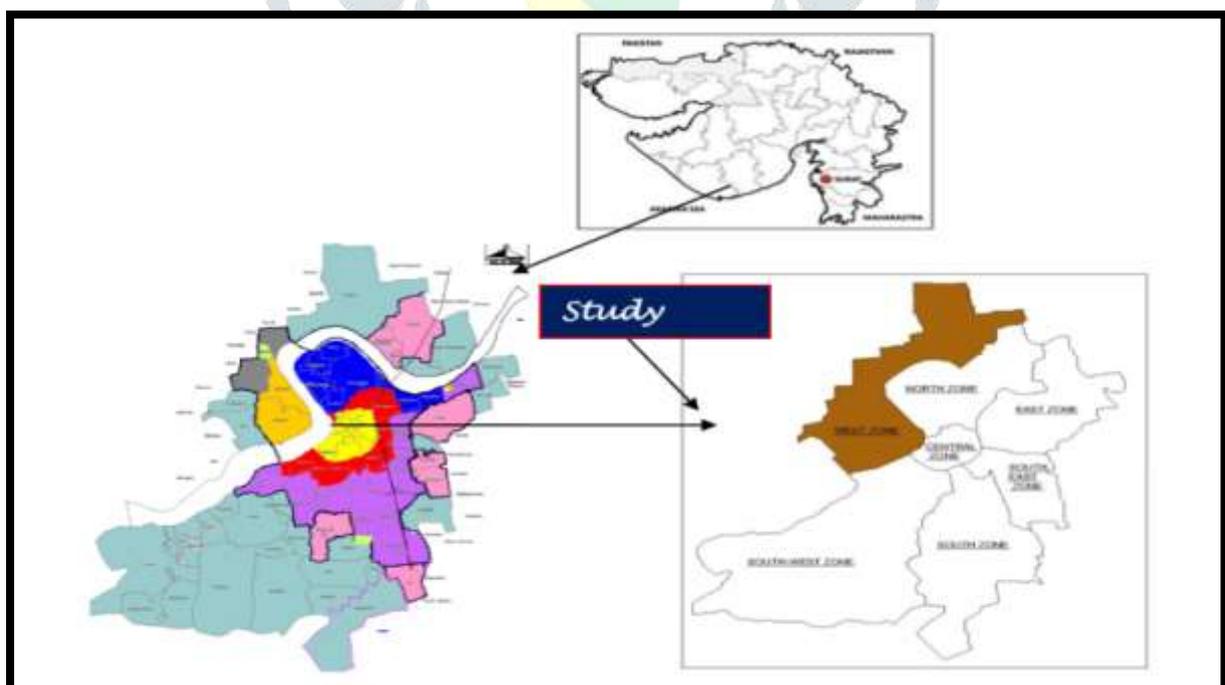


Figure 1 - Map of Study Area

Table 1- Zone Wise Slum Pocket

Zone	No. of Slums	Slums Population (2011)	% of Slum	Slums area In Hectare	% of Area	Slum Density SPPHA
West	55	86775	13.78	44.28	14.76	1276
Central	36	40415	9.02	54.44	18.15	781
North	61	68100	15.28	15.12	5.04	2811
East	59	104920	14.78	36.05	12.02	2545
South	98	120385	24.56	49.33	16.44	1899
South-East	60	202285	15.07	79.29	26.43	2490
South-West	30	45550	7.51	21.49	7.16	2089
Total	399	668430	100.00	300	100	1897

In the three zones of Surat viz., old city, inner periphery and outer periphery, the spatial distribution of population has over the time been changing. Proportionately, 8 unlike in the earlier decades, the old city now houses a much lower population. This has mainly been owing to (i) increasing growth of residential areas in the inner periphery; (ii) bulk of the migrants entering the slums of its outer suburbs; (iii) residential mobility of a section of high and middle income groups towards specific localities in its periphery, and (iv) changes in the actual area of the Corporation limits influencing the related figures. Such spurts in growth within particular wards located especially in its outer suburbs have been in response to the growth and concentration of power looms, diamond processing, petty trade, small industrial units as well as easier availability of dwelling areas in and around the zone. A large proportion of 9 these workers are migrants located mainly in the slum pockets of the city's eastern half. A larger proportion of the slum population is that of males with a share of 58 percent as against 42 per cent of females. This proportion however varies across different migrant groups with a predominance of males among those who have come from the states of Uttar Pradesh and Orissa. Around 60 per cent of the total population belongs to the age-group of 15 to 50 years with a markedly low proportion (4 per cent) of people above 50 years of age. The substantially low sex-ratio of 725 is characterized by even low figures ranging from 520 to 570 in many of the slums in its eastern suburbs and dominated by male migrants of younger age-groups. Significantly, as high as 38 per cent of female and 35 per cent of male children in the 6-14 year's age group have never attended school. Among the rest, the drop-out rate among boys is slightly higher than that of the girls.

Table 2- Growth Trends in Slum Population within Surat City

	YEAR			
	1973	1982	1983	1992
Total City Population	5.3	8.5	9.2	15.7
Annual Growth Rate	6.7	8.2	7.8	
Total Slum Population	0.92	1.54	1.87	4.34
Annual Growth Rate	7.5	21.4	14.6	
Slum Population as Percentage of Total Population	17.3	18.1	20.3	27.5

Note: Figures related to total population are based on growth rates of corresponding inter-census periods whereas population figures related to the city slums and pertaining to 1973, 1982 and 1983 have been drawn respectively from ORG (1973), SMC (1982) and Core Consultants (1983) studies. The 1992 figures are drawn from Biswaroop Das (1994).

IV.METHODOLOGY

During the visit of slum in West zone of Surat city, it was being observed that there were open urinals and drainage. People throw wastage in open. They are not even provided with proper water supply and cleanliness is not maintained. Roads are also not available for better transportation. The main elements for that we observed for the conditions were poverty, un-education and unavailability of job.

This slum is over crowded with many people crammed into very small living spaces. There are shanty shelters, there squatting and pavement dwelling is another form and is commonly available. The slum we are talking about is located beside the SMIMMER hospital, Sahara Darwaja in Surat. There are much seasonal effects observed due to climatic change. There is excessive heat during summers and water dripping problems and rain water clotting observed during rainy season. There are no provisions of safety to public property and public, many cases were reported. The presence of many buildings and a hospital around there it adds as a dark spot on city premises.

Many people or we can say most of people in slum are going on daily basis wages as they don't have any other source of income, and what has been see in movies seems to be a bitter dramatically truth that 60% of the ladies over there have the same complaint that their husband or family member does not do anything else than alcoholic consumption. Therefore, how much income comes into their houses are 40 % only, in which they run their houses. There are much more Government properties available, railway

tracks and water supply system are the examples of few objects involved. Due to unavailability of sanitation facilities they answer nature's call on rail tracks, since there is no wastage disposal facility the wastage is thrown in open space.

Figure 3 – Opened Urinals



Figure 4 - Wastage



Figure 5 - Huts

Figure 6 – Waste Water



Figure 7– Damage to Government Property

V. PROBLEM OCCURS

Following are the problem occurs:

- Because of not provided toilet blocks, people of slum use railway tracks for nature's calls. It makes railway tracks so dirty and because of that many disease occurs.
- Because of no provision of services or dustbins for waste disposal, they use to throw their waste things in open and on railway tracks. That open waste becomes the sources of generation of insects and spreading the infections to nearby human being.
- Because of not provided proper drainage lines, waste water from drainage line comes to the slum area and it spreads the bad smell in the atmosphere. That bad smell disturbs the nearby road users also.
- Sometimes the gas generated from open waste and open drainage, makes the atmosphere unclear and increase the air pollution.
- People of slum dump the waste into open area and because of some liquid and chemically active products it affects the land.
- There is no guardrail on the sides of railways tracks, therefore there is no safety of people of slum for crossing the railway track and go another side.
- There are mostly illiterate and unemployed people. If they are workers, they will be on daily bases wages. Mainly unemployment in slum occurs due to lack of guidance about work. There are no any awareness or guidance system, by use of that they can get a better employment and make their life some better than present.
- Slum is the scenario of city, which is full of dirtiness, anywhere disposed waste, improper provision of facilities and amenities. This makes the negative effect on the aesthetics of city.

VI. POSSIBLE SOLUTIONS

Following are the possible solutions:

- By providing toilet blocks, people will use that toilet block, so response to nature's call in openly and onto railway tracks will be decrease.
- By providing proper disposing services and dustbins, open waste generation will decrease and area will look cleared. Therefore, there will be an open land remain which may be useful to any other purposes. There will be no any source, which will act as source of generation of disease.
- By provision of proper covered drainage lines, there will be a decrement into open waste water. This will make the atmosphere clean and clear. Bad smell will also decrease along with that, so the generation of infective insects will decrease.
- Slum area is lack of basic facilities, so there should be daily water supply and electricity. How much the needs are required to be fulfilled, health is also important as the needs are, so there should medical facility provided. Because, if there will be a medical facility available, then health of people will increase and it may affect the health of city.
- By providing proper guidance services it may helpful to get employment to the people of slum. So they can fulfill their needs.
- By providing education to children of slum area and materials required, illiterate rate can be decreased. This makes a different image of city.
- While observing the crossing of railway tracks without any safety. It is noticed that if there will be a guardrail on both sides of railway tracks with passing space at some intervals, the safety of people who use the railway track to cross and walk will be increase.

VII. TECHNIQUE POSSIBLE TO BE IMPLEMENTED

1. Ventilated Improved Pit (VIP):-

The single VIP is a ventilated improved pit. It is an improvement over the single because continuous airflow through the ventilation pipe vents odours and acts as a trap for flies as they escape towards the light. Yet, the single remains among the simplest and cheapest toilet systems. Thus, the danger of groundwater contamination due to soil infiltration persists, especially in densely populated area.

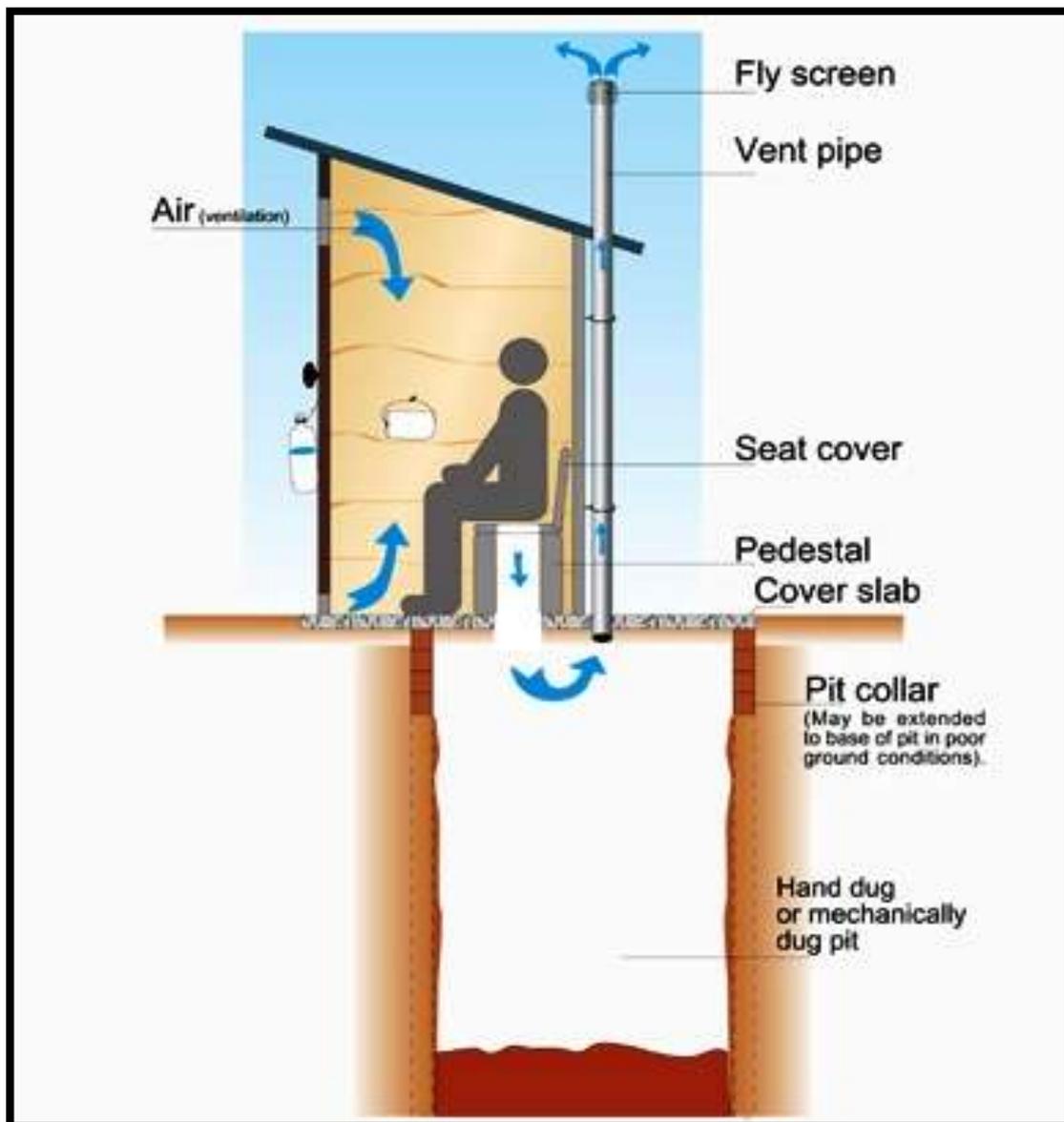


Figure 8– Proposed Ventilated Improved Pit

2. Effective Drainage Channels:-

An open channel or drain system generally consists of a secondary drainage system, with a network of small drains attached (micro-drainage). Each serves a small catchment area that ranges from a single property to several blocks of houses. These small drains bring the water to a primary drainage system, composed of main drains (also called interceptor drains), which serve large areas of the city. Thereafter these drains are generally connected with natural drainage channels such as rivers or streams.



Figure 9– Proposed Drainage Channel

CONCLUSION & RECOMMENDATIONS

The purpose of the paper was to highlight not just the overall status of the Surat slums but give an inter-zonal picture regarding the issues. With regard to factors affecting health conditions and the health care parameters it is observed that the residents faced problems of sanitation because of open canals and ill connected drainage conditions.

The following strategy may be looked into for improving living conditions in slums.

- Wherever in situ development is feasible, such slums shall be identified and taken up for in-situ improvement for the provision of basic facilities to make the areas habitable.
- The slums located in congested and unhygienic areas of the urban centers wherein equitable distribution of space is not feasible should be cleared and tenement schemes put up.
- Wherever neither tenement scheme nor in-situ development is feasible, rehabilitation nor should resettlement in tenements in nearby locations be adhered to.

It has been hoped that if the recommended shelter strategies are implemented based on the affordability level of the slum dwellers of the West zone of Surat, they shall get a chance of having affordable house, which will be not only fulfilling one of the basic needs of human survival but also pave the way for steady socio-economic development in their lives.

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