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A Contrast to The Taj Mahal: Slums of Tajganj, Agra

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ABSTRACT: In India, cities are evolving due to various developments to fulfill the needs of the people. Most of the major cities in India are having industries as their economic backbone. Few cities have kept their heritage safe and now they are amongst the famous tourism attractions for national and international tourists. Few cities are located strategically to support trade. Agra has all these qualities and potential for further development. Despite of the fact that Agra is home to three world heritage sites, and is connected to three major cities of north India; namely Delhi, Kanpur and Jaipur. It also has most self-employed population in the state of Uttar Pradesh after Varanasi. However, Agra seems to be developing at much slower pace in spite of such favorable conditions. Almost half of the city's population is living under conditions similar to slums and struggling for basic infrastructure. There is a wide gap between the rich and the urban poor. This paper presents the condition of Tajganj slums based on the statistical analysis for vulnerability level of different slums.

Keywords: Slums, Dwellers, Infrastructure, Vulnerability Scale,

I. AGRA CITY SLUM PROFILE

Agra has 432 identified slum and other settlements without access to basic services and with poor environmental conditions. Detailed data is available for 424 slums only. These slums are distributed across 77 of 90 wards and 7planning zones of the city according to the Agra Master Plan 2021 (Fig. 1)(census 2011).

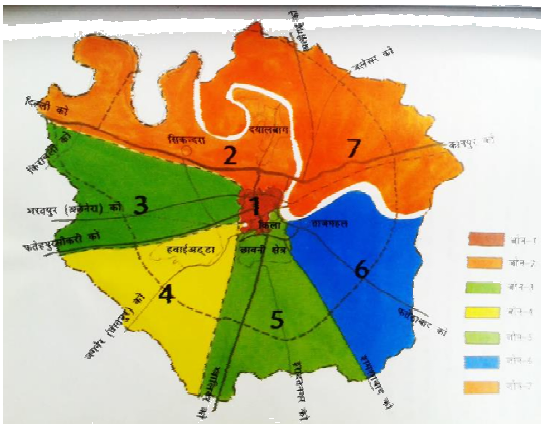


Fig. 1. Planning Zones, Agra Master Plan 2021.

Being a non-metro town, slums in Agra are atypical and have little resemblance to similar settlements in larger cities which are overcrowded and densely populated, have very small and poor quality housing with inadequate services. While slums in larger cities are usually illegal encroachments on public or private land, those in Agra are mostly low-income housing on legally owned plots. The largest number of slums is in Bodla Zone followed by the Old City and Trans Yamuna areas *(Table-1)*. Sikandra /Dayalbagh, Kheria and Tajganj have nearly 40 slums each. Rajpur has the least number of slums at 29.

While there are large numbers of slums in the Bodla and Trans Yamuna areas, these are mostly well dispersed because of the vast spatial areas of these wards. Since land in these zones is still not fully consumed, these are also susceptible to encroachments from new immigrants and are prone to be the sites for future slums.

Slums in the old city on the other hand are too compact due to space restriction. This density makes it difficult to service the slums. Besides the technical difficulties in servicing these very old and organic settlements, the old city area is also overly regulated in order to conserve the old historical monuments in the area. Distribution of slums on different assigned land use is given (*Table 3*) which shows that residential land is accommodation 86% of the total slums and very less on other land use (*CSUP Agra report- 2012*).

Table 1: Number of ward/slums in Masterplan zones.

Areas	Master plan Zones	No of Wards	No of Slums
Old city	1	22	93
Sikandra /Dayalbagh	2	12	38
Bodla	3	16	96
Kheria	4	6	40
Rajpur (Cant)	5	7	29
Tajganj	6	7	42
Trans Yamuna	7	7	86
Total		**77**	**424**

A. Slum Households and Population

Data for Agra slums has been estimated for 432 slums identified by CURE in February 2011. Detailed data for 8 slums are still not available. The data in the Plan is therefore based on 424 slums. For the newly identified slums, estimates have been developed using unit values. 123,403 households are estimated to be living in 424 slums of Agra.

II. STUDY AREA PROFILE (TAJGANJ SLUMS)

Tajganj is one of the oldest settlements of the Agra city spread from the south bank of river Yamuna towards southern-east edge of the city. It is nearly 450 years old (before the TajMahal was built). This area is also densely populated as compared to the city's density profile. Old residential areas of Tajganj are now being counted in slums because of the slum like conditions of the area. Lacking in basic infrastructure facilities i.e. access roads, safe drinking water, sanitation, education etc. the area is a black dot on the city's development. TajMahal and Agra fort are the major tourist attractions surrounded by these slums leaves very shabby image of the city and country.

There are 15 slums in Tajganj area distributed in 3 wards covering 2725 houses with a population of 18137. The average household size of 6.7 is higher than the city average of 6.08. In 2008, the CDP estimated the Tajganj slum population to be 20% of the total ward population. Recent slum surveys for Slum Free City Plan suggest that the population may be much higher at 35%.

A. Why Tajganj?

Almost half of the overall city's population is living under slums or slum type conditions which are distributed throughout the city atvarious pockets. *Tajganj* slums need urgent attention because of some reasons given below:

Old buildings and monuments: There are few old structures which need to get identified and conserved as they also have a story and historic importance inherit with them which can attract tourists interested in old buildings and history.

Contrast to TajMahal: Tajganj is the area where The TajMahal is located. Just behind the world famous TajMahal, there is a contrast in the form of slums and the poor living condition of the slum dwellers. Dirty streets, open and overflowing drains, poorly built houses, heaps of garbage, and unhealthy conditions all around them; a scene not only capable of fading the beauty of Taj but also leave a shabby image of the city and country.

Poor basic infrastructure: City administration is till date lacking in providing basic facilities and infrastructure to the people living in Tajganj slums. Whatever infrastructure is there, is not maintained properly or not functional.

Open Defecation: More than 30% (approximately) of the slum population of Tajganj is still practicing open defecation and only 50% (approx.) houses are having a toilet facility. Defecating in open causing unhealthy living environment for the residents of nearby areas. Also this area is unsafe for women and children.

Household Industries: There is a great potential for small scale and household industries in Tajganj slums which can help slum dwellers to make their livelihood. What is required is; skilled labor, raw materials, tools and a good market for sale of the product.

Potential for Tourism based industries: Tajganj have a lot of hotels and hotel based industries. These slum dwellers can actually be used as a work force for such industries.

III. PRIMARY SURVEY & DATA ANALYSIS

Primary survey was conducted to collect the primary data from the slum dwellers. Stakeholders were identified from each slum who can understand the questions of the survey. These stakeholders belong to the community itself and have a good knowledge of the area and the development work going on in the community. Public meetings were also conducted to get the idea of their problems and issues of day-to-day life of the slum dwellers. Most of the people were having common points related to the maintenance of the available facilities. Analysis has been done based on the data of the site visit and survey. Datasheet is prepared for the data and various parameters of physical infrastructure only.

Table 2: Primary Survey stakeholder detail.

Sl.no.	Name of slum	Ward no.	Total no. of Households	Total slum population	Area (sq.m.)	Area (Ha.)	Pop. Density (pop./Ha.)	HH density (HH/Ha)	Stakeholder's name	Stakeholder's occupation
1	Billiochpura	80	307	1999	64583	6.46	310	48	Khallubhai/ Rashid Ahmed	Tea shop/ Social worker
2	Telipada	80	350	2329	48163	4.82	484	73	Muveenusmani	Ward Counsellor
3	Kolhai	80	266	1748	43266	4.33	404	61	Dr. Bacchusingh	Private clinic
4	TeelaSayeed Nagar	80	202	1306	24424	2.44	535	83	Munni Begum	Beneficiary of RAY house
5	TajKhema	74	40	258	5971	0.60	432	67	Naveen Verma	contractor (construction)
6	AsadGali	74	220	1495	37363	3.74	400	59	Manish	10th student (social worker)
7	Gudhai	74	161	1166	31552	3.16	370	51	Kailash Chand	Shopkeeper
8	Dalhai	74	144	871	22986	2.30	379	63	Shivnathsingh	general store owner
9	Sheikh Bulakhi	74	59	389	12256	1.23	317	48	Manik Chand	School bus driver
10	PatiramkiBagichi	80	96	644	10614	1.06	607	90	Rajendra Singh	Fruit & Veg. Vendor
11	Hazzupura	80	337	2202	49760	4.98	443	68	Prakash Singh	Social worker
12	Diwanjikamohalla	80	160	1058	28523	2.85	371	56	Neeru	Teacher
13	Paaktola	80	217	1471	28460	2.85	517	76	Lekhraj	Graduation Student
14	Natha Nagar	7	52	382	20973	2.10	182	25	Geeta	Social worker
15	Navada	74	114	819	18613	1.86	440	61	Monu	Social worker
	TOTAL		**2725**	**18137**						

Statistical analysis was done for the different parameters to find out the vulnerability level of various slums. Roads, drains, water supply, municipal water line, power supply and sewer line are the parameters for the vulnerability analysis of the slums. Points were assigned for different parameters based on their proper functioning and present condition. More the damage or critical the problem, higher the score. Colors are also used to visually represent the level of problem or seriousness of the damage. Dark shade of the same color is used to represent the higher level of problem. Different colors are used for different parameters for easily identification and better understanding.

Table 3: Physical infrastructure (A & B) details for 15 Tajganj slums.

			Physical Infrastructure			
			A		B	
sl.no.	name of slum	Ward no.	Roads (Material)	Roads (Condition)	Condition of Drains	Maintenance of Drains
1	Billiochpura	80	old concrete	partially damaged	one side/chocked in rainy season	poor
2	Telipada	80	cement tiles	good	flooding/ damaged	satisfactory
3	Kolhai	80	old concrete/bitumen	damaged badly	Main drain choking/flooding	poor
4	TeelaSayeed Nagar	80	concrete/tiles	damaged badly	kuchha/under construction	very poor
5	TajKhema	74	kuchha road	waterlogged roads	no proper drain	very poor
6	AsadGali	74	concrete/kuchha	damaged/waterlogged	silting/choking	poor
7	Gudhai	74	cement tiles/concrete	partially damaged	improper/ damaged	poor
8	Dalhai	74	cement tiles/concrete	partially damaged	partially damaged	satisfactory

			Physical Infrastructure			
			A		B	
sl.no.	name of slum	Ward no.	Roads (Material)	Roads (Condition)	Condition of Drains	Maintenance of Drains
9	Sheikh Bulakhi	74	old concrete	damaged badly	open main drain/flooding/risky	satisfactory
10	PatiramkiBagichi	80	cement tiles/kuccha	laying under process	improper/ under construction	poor
11	Hazzupura	80	old concrete/tiles	damaged	partially damaged/ no flooding	satisfactory
12	Diwanjikamohalla	80	concrete/kuchha	damaged/waterlogged	improper/ under construction	poor
13	Paaktola	80	old concrete/tiles	damaged	flooding/ damaged	poor
14	Natha Nagar	7	cement tiles/kuccha	laying under process	open main drain/flooding	very poor
15	Navada	74	old concrete/tiles	damaged badly	improper/ damaged	poor

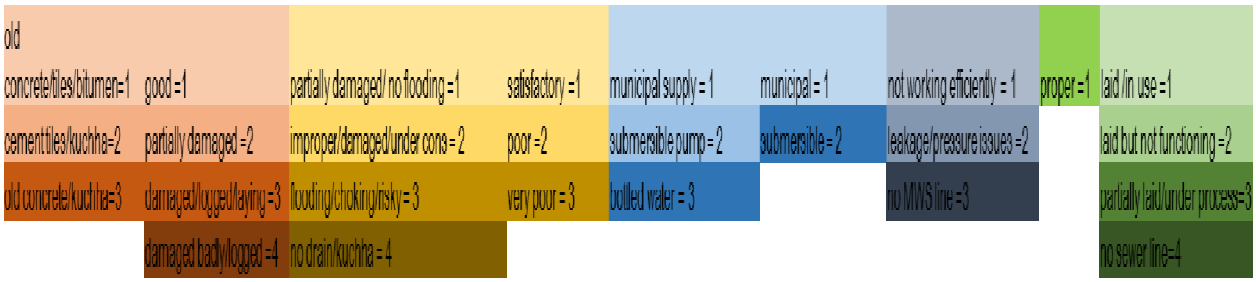
Table 4: Physical infrastructure (C,D& E) details for 15 Tajganj slums.

			Physical Infrastructure				
			C			D	E
sl.no.	name of slum	Ward no.	Primary source of Drinking Water	Source of Water for other purposes	status of Municipal Water Supply line	Power supply	Sewer Line
1	Billiochpura	80	submersible pump	submersible pump	not working efficiently	proper	laid but not functioning
2	Telipada	80	bottled water	submersible pump	no MWS line	proper	laying under process
3	Kolhai	80	submersible pump	submersible pump	no MWS line	proper	partially laid
4	TeelaSayeed Nagar	80	bottled water	submersible pump	leakage/pressure issues	proper	laying under process
5	TajKhema	74	bottled water	municipal water	not working efficiently	proper	no sewer line
6	AsadGali	74	submersible/bottled	submersible pump	no MWS line	proper	no sewer line
7	Gudhai	74	bottled water	municipal water	leakage/pressure issues	proper	laid but not functioning
8	Dalhai	74	bottled water	submersible pump	leakage/pressure issues	proper	laid but not functioning
9	Sheikh Bulakhi	74	submersible pump	submersible pump	no MWS line	proper	partially laid
10	PatiramkiBagichi	80	municipal/ submersible	submersible pump	not working efficiently	proper	laid/ in use
11	Hazzupura	80	municipal/bottled	municipal water	not working efficiently	proper	partially laid
12	Diwanjikamohalla	80	municipal/ submersible	submersible pump	leakage/pressure issues	proper	laid but not functioning
13	Paaktola	80	bottled water	municipal water	leakage/pressure issues	proper	no sewer line
14	Natha Nagar	7	bottled water	submersible pump	no MWS line	proper	partially laid
15	Navada	74	submersible/bottled	submersible pump	leakage/pressure issues	proper	partially laid

A. Vulnerability scale

Different values are assigned to the different condition existed in the slums under different parameters of physical infrastructure only. The scale represents the seriousness of the condition thus level of attention required is also higher if the value is higher. Minimum one and maximum four categories are assigned in each parameter based on different types of condition. Least damaged or properly functional system is assigned the lowest value and highest to the most critical one. Colors are also giving the visual interpretation of the same thing simultaneously. The scale helps us to understand the level of criticalness at the same time giving the overall condition after adding all the values horizontally. Thus Total value is categorized in three levels; low, medium & high vulnerable slums

Table 5: Vulnerability scale for study area.



					Vulnerability Scale									
					A		B		C			D	E	
sl.no.	name of slum	Ward no.	Total no. of Households	Total slum population	Roads (mat.)	Roads (status)	Drains (status)	Drains (maintenance)	Drinking water (source)	Source (other purposes)	Municipal supply (status)	Power supply	Sewer	TOTAL (A+B+C+D+E)
1	Billiochpura	80	307	1999	1	2	3	2	2	2	1	1	2	16
2	Telipada	80	350	2329	1	1	3	1	3	2	3	1	3	18
3	Kolhai	80	266	1748	1	4	3	2	2	2	3	1	3	21
4	TeelaSayeed Nagar	80	202	1306	1	4	4	3	3	2	2	1	3	23
5	TajKhema	74	40	258	3	4	4	3	3	1	1	1	4	24
6	AsadGali	74	220	1495	3	3	3	2	2	2	3	1	4	23
7	Gudhai	74	161	1166	1	2	2	2	3	1	2	1	2	16
8	Dalhai	74	144	871	1	2	1	1	3	2	2	1	2	15
9	Sheikh Bulakhi	74	59	389	1	4	3	1	2	2	3	1	3	20
10	PatiramkiBagichi	80	96	644	2	3	2	2	1	2	1	1	1	15
11	Hazzupura	80	337	2202	1	3	1	1	1	1	1	1	3	13
12	Diwanjikamohalla	80	160	1058	3	3	2	2	1	2	2	1	2	18
13	Paaktola	80	217	1471	1	3	3	2	3	1	2	1	4	20
14	Natha Nagar	7	52	382	2	3	3	3	3	2	3	1	3	23
15	Navada	74	114	819	1	4	2	2	2	2	2	1	3	19

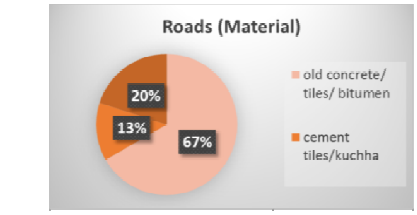
B. Vulnerability scale outcomes

Dark shades are very common in the table-20 (Vulnerability mapping) that means the criticality of the parameters is very high in most of the areas. By adding all the parameters (A+B+C+D+E) we can get a value which is the vulnerability level of the community. For better understanding we have categorized the scale in three different levels; Low, Medium and High vulnerable areas.

Table Level of Criticalness at Vulnerability scale

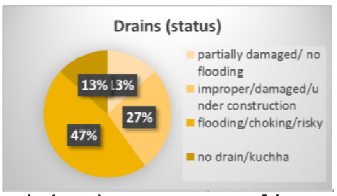
Total (A+B+C+D+E)	Level of Criticalness
13 - 16	Low vulnerability
17 - 20	Medium Vulnerability
21 - 24	High Vulnerability

IV. DATA ANALYSIS



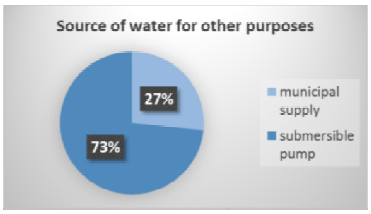
Roads (material)	No. of slums
old concrete/ tiles/ bitumen	10
cement tiles/ kuchha	2
old concrete/ kuchha	3

- 10 slums have roads made of either cement concrete or cement tiles.
- Kuchha roads are still there in some areas.



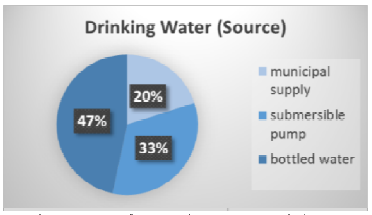
Drains (Status)	No. of slums
partially damaged/ no flooding	2
improper/ damaged/ under construction	4
flooding/ choking/ risky	7
no drain/ kuchha	2

- 2 slums out of 15 slums don't even have pukka drains.
- 11 communities have drains but facing problems like flooding, choking, open main drains etc.
- 2 slums have drains in comparatively better condition.



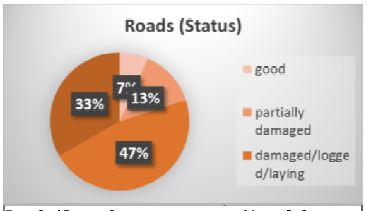
Water source for other purposes	No. of slums
municipal water supply	4
submersible pump	11

- Private submersible pumps are used to fulfill the water demand of the communities.
- Few pumps are being installed by govt. but are maintained by residents only.



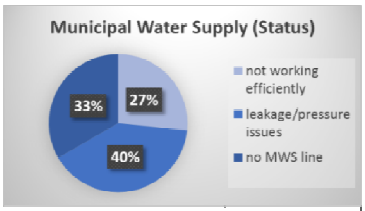
Drinking Water (Source)	No. of slums
municipal supply	3
submersible pump	5
bottled water	7

- Municipal water for drinking purposes is limited to very few areas.
- Mostly areas are catered by either bottled water supplied by some private agency or privately owned submersible pumps.



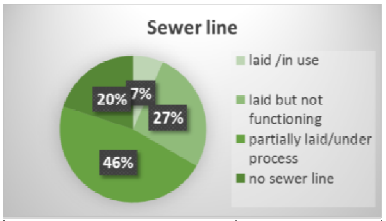
Roads (Status)	No. of slums
good	1
partially damaged	2
damaged/logged/laying	7
damaged badly/logged	5

- Condition of roads is poor in terms of maintenance.
- 12 out of 15 slums have roads damaged or waterlogged in rainy season.



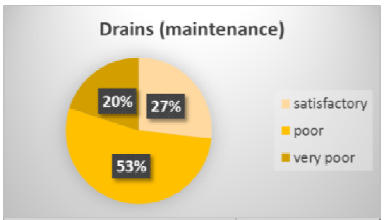
Municipal water supply (Status)	No. of slums
Not working efficiently	4
Leakage/pressure issues	6
No MWS line	5

- 5 slums don't have Municipal water supply line.
- Areas having MWS line have issues related to leakage, pressure, or illegal connections etc.



Sewer line	No. of slums
Laid /in use	1
Laid but not functioning	4
Partially laid/under process	7
No sewer line	3

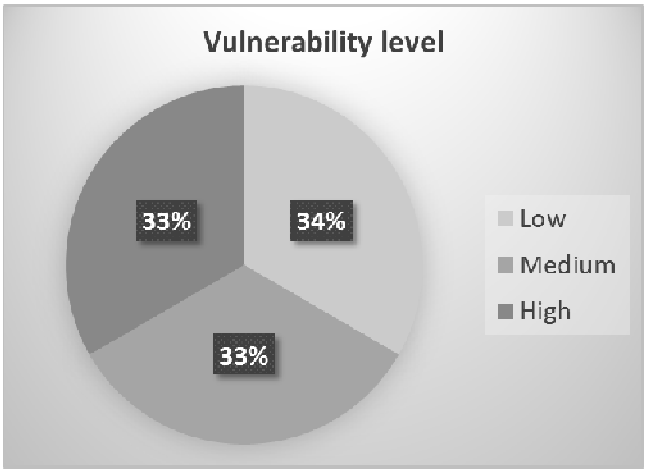
- Sewer line is there in most of the areas of Tajganj slums but is not yet started. Laying work is still under process in many areas.
- This is one major reason behind people going for open defecation.



Drains (Maintenance)	No. of slums
satisfactory	4
poor	8
very poor	3

- Maintenance of the drains is very poor in most of the areas as the sweepers appointed by the municipal corporation comes very often.
- Private/ hired sweepers have lack of resources or tools but use to come regularly.

Fig. 2. Vulnerability scale for selected parameters with respective color coding.



Vulnerability level	No. Of Slums
Low	5
Medium	5
High	5

- Based on the statistical analysis for vulnerability level of 15 Tajganj slums, priorities can be defined as per the level of infrastructure in that particular community.
- Overall 5 slum communities *(Billochpura, Gudhai, Dalhai, Patiram ki bagichi, Hazzupura)* have **lower degree of vulnerability**.
- **Medium** level of vulnerable slums (*Telipada, Sheikh bulaki, diwanji ka mohalla, paak tola, navada*).
- Slums having **highest degree of vulnerability** are (*Kolhai, Teela sayeed nagar, Taj khema, Asad gali, Natha nagar*).

A. Findings from Primary Survey

[1.] Most of the slums are having access roads made of concrete, cement tiles, bitumen etc. but they are lacking in proper maintenance.
[2.] In few areas roads are damaged so badly that there is a severe problem of waterlogging in rainy as well as non-rainy seasons.
[3.] Drains are also damaged at many places resulting in dirty water coming onto the streets and degrading the environment.
[4.] Main Taj east drain crossing few slum areas is very dangerous as they are open and risk of falling in it is very high in some areas.
[5.] Municipal water for drinking purposes is limited to very few areas. Mostly areas are catered by either bottled water supplied by some private agency or privately owned submersible pumps.
[6.] Few pumps are being installed by government but are maintained by residents only.
[7.] Slum dwellers who are actually incapable of spending more money have to pay much more amount for day-to-day water facility than the rest of the city residents capable of paying.
[8.] Ground water table is going down very fast in the city. This is again a serious issue for availability of water in coming days.
[9.] Poor maintenance of supply lines causing leakages and pressure loss in the supplied water.
[10.] Sewer line laying work is under construction for a long time (approx. 7-8 years). Pace of work is very slow.
[11.] 20% of the slums still don't have sewer line. 30-40% areas are still under laying process.
[12.] This is a reason why people are practicing open defecation till today in open fields or along the drains.
[13.] This leads to overall environment degradation and creates insecure and unhealthy living conditions.

B. General Inferences

[14.] Slums in India are majorly affecting big cities and its economic growth.
[15.] Slums in sub-urban areas and rural areas have fewer problems as compared to the slum in urban core of the city.
[16.] Avoiding slums in a city or an industrial town is not possible, so better to make policies for a planned growth and prevent more slums to appear.
[17.] Most of the slums appear after independence because of two major reasons – migration from Pakistan & Industrial revolution.
[18.] Other reasons were different growth rate of rural and urban areas which lead to a big rural to urban migration.
[19.] Schemes for the growth of urban poor came very late as it was a neglected sector for the government for a long time.
[20.] Major problem is at the base level i.e. identification of the slum. Each and every slum pocket should be notified so that government schemes can benefit them.
[21.] Schemes related to Housing for poor can be promoted or reframed so to make it more acceptable and implementable.

[22.] In-situ development is relatively cheaper and better option for slum up-gradation rather than relocate the slum dwellers to another place. Although both type of practices are common in India.
[23.] Relocating & Rehabilitation can be done phase wise and priority wise in a defined timeline by proper planning.
[24.] Basic minimum infrastructure must be there in every slum area like education, healthcare facility, police check post, proper streets and drainage facility.
[25.] Education and awareness can actually improve the scenario drastically.
[26.] Connectivity to the city should be on prime focus to increase the employment opportunity in the city for the people residing in slums.
[27.] People's participation is very necessary to make any scheme effective to a longer period.

Fig. 3. Open drains, damaged streets, water logging, and risky main drain.

Fig. 4. Waiting for water from public submersible pumps, Bottled water for drinking.

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