

Action Plan for Open Defecation Free Dahegam

Prepared by Urban Management Centre Under the Performance Assessment System (PAS) Project

August 2015





This study has been undertaken by the Urban Management Centre under the Performance Assessment System Program (PAS)

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Outline

- Context of study
- Objectives of study
- Methodology of study
- City profile
- Assessment of individual toilets in slums
- Assessing adequacy and location of community toilets
- Summary of slum survey
- Recommendations

Introduction to Swachh Bharat Mission (SBM)

According to Census 2011, India's urban population is 377 million or 31% of the total population. These numbers are expected to increase to 600 million by 2031. The Census 2011 also showed that in 4,041 statutory towns, close to eight million households do not have access to toilets and defecate in the open (7.90 million). Unsafe sanitation has significant health costs and untreated sewage from cities is the single biggest source of water resource pollution in India. This indicates both the scale of the challenge ahead of the Indian cities and the huge costs incurred from not addressing them.

Hence the Govt. of India launched the SBM in October 2014 to achieve the following objectives:

1. Elimination of open defecation
2. Eradication of Manual Scavenging
3. Modern and Scientific Municipal Solid Waste Management
4. To effect behavioral change regarding healthy sanitation practices
5. Generate awareness about sanitation and its linkage with public health
6. Capacity Augmentation for ULB's
7. To create an enabling environment for private sector participation in Capex (capital expenditure) and Opex (operation and maintenance)



एक कदम स्वच्छता की ओर



Introduction to Mahatma Gandhi Swachh Mission (MGSM)

Mahatma Gandhi Swachh Mission (MGSM) is a state mission of Gujarat under Swachh Bharat Mission (SBM). MGSM was launched in February 2014, even before the national SBM was launched.

Mission Objectives:

1. To bring improvement in general quality of life in Urban and Rural areas.
2. Encouraging sustainable sanitation facilities through creating awareness and health education, giving inspiration to communities and Panchayati Raj Institutions.
3. Encouraging affordable and proper technology for ecological life and sustainable sanitation.
4. The schools which are not covered under Sarva Shiksha Abhiyan be covered, to provide anganwadi centers of rural area with proper sanitation and health facilities and provide active engagement about health education and sanitation facilities to students.
5. Focusing on solid and liquid waste in Urban and Rural areas for entire cleanliness, develop environmental sanitation system being arranged by community.

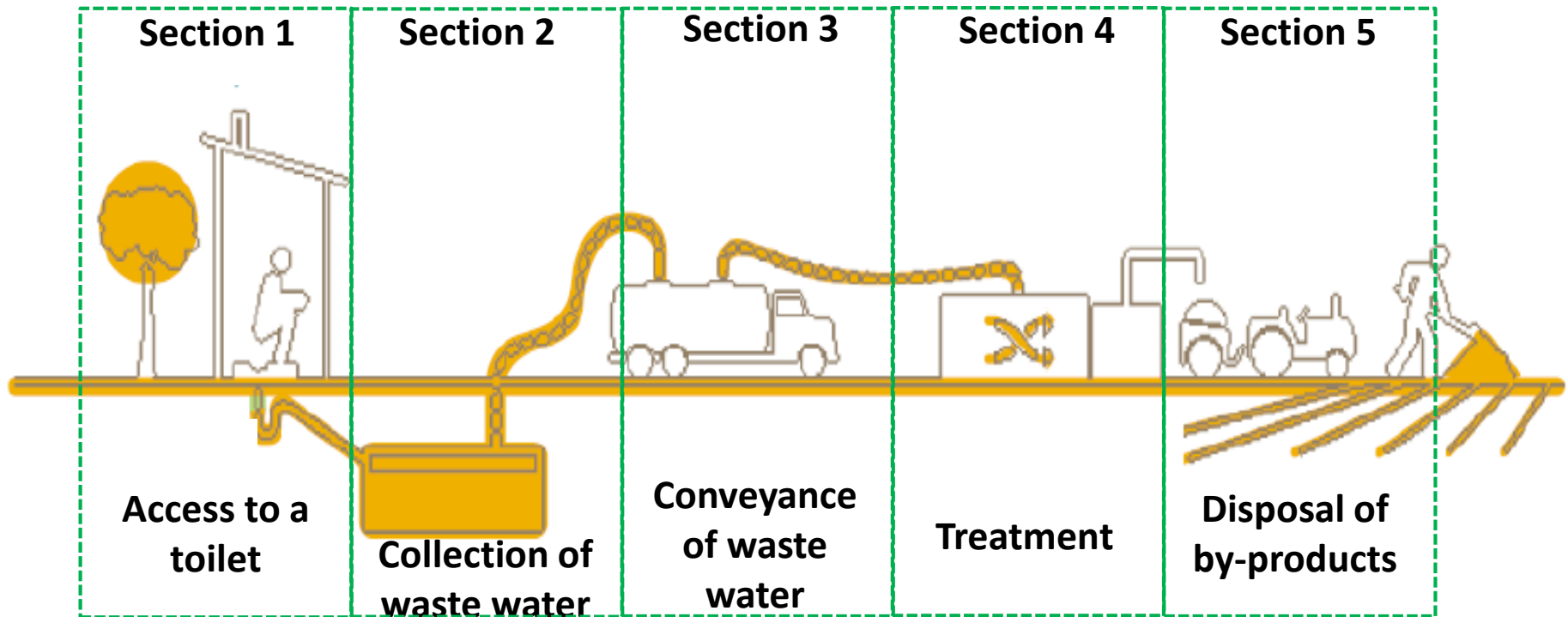


Definition of 'Open Defecation Free'

As per a recent definition by the MoDWS, OD Free can be defined as....

- No visible faeces found in the environment/village; and
- Every household as well as public/community institutions using safe technology for disposal of faeces

This indicates safe sanitation system and practices along the value chain of sanitation:



Objective of the study

The Govt. of Gujarat has emphasized the promotion of individual toilets. Following this vision, ULBs have been on a vigorous timeline to construct toilets.

Dahegam requested UMC to provide technical assistance to convert insanitary toilets to sanitary, based on assessment of existing conditions of individual toilets.

UMC team visited Dahegam with the following objectives:

- To assess the existing conditions of household toilets constructed under government program.
- To identify the areas to intervene for making city open defecation free.



Methodology of Study

- Identification of slums and slum-like settlements under ULB's jurisdiction for assessing the existing individual toilets. Meeting and consultation with Chief Officer, sanitary inspector and councilors to understand the process of provision of individual toilets.
- Assessing conditions of individual toilets by conducting household survey and mapping toilet facilities in slums. Also identification of open defecation sites and households practicing open defecation.
- Assessment of sanitation value chain including construction of individual toilets, existing conditions (in terms of sanitary and insanitary) and progress of sewer network.
- Recommending possible alternatives for each slum to convert insanitary toilets to sanitary



Consultation with Municipality

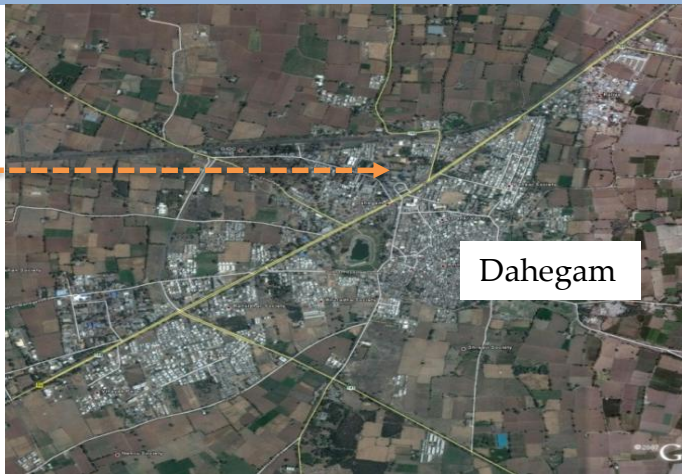


Slum survey

City profile



Source – Google Maps



Source – Google Earth

| | Census 2011 | Pas Checklist (2014-15) |
|-------------------|-------------|-------------------------|
| Population | 42,632 | 44,235 |
| No. of Households | 8,690 | 8,990 |
| No. of slums | - | 19* |
| Slum Population | 918 | 16,069 (36%) |

UMC* –July 2015

Demography

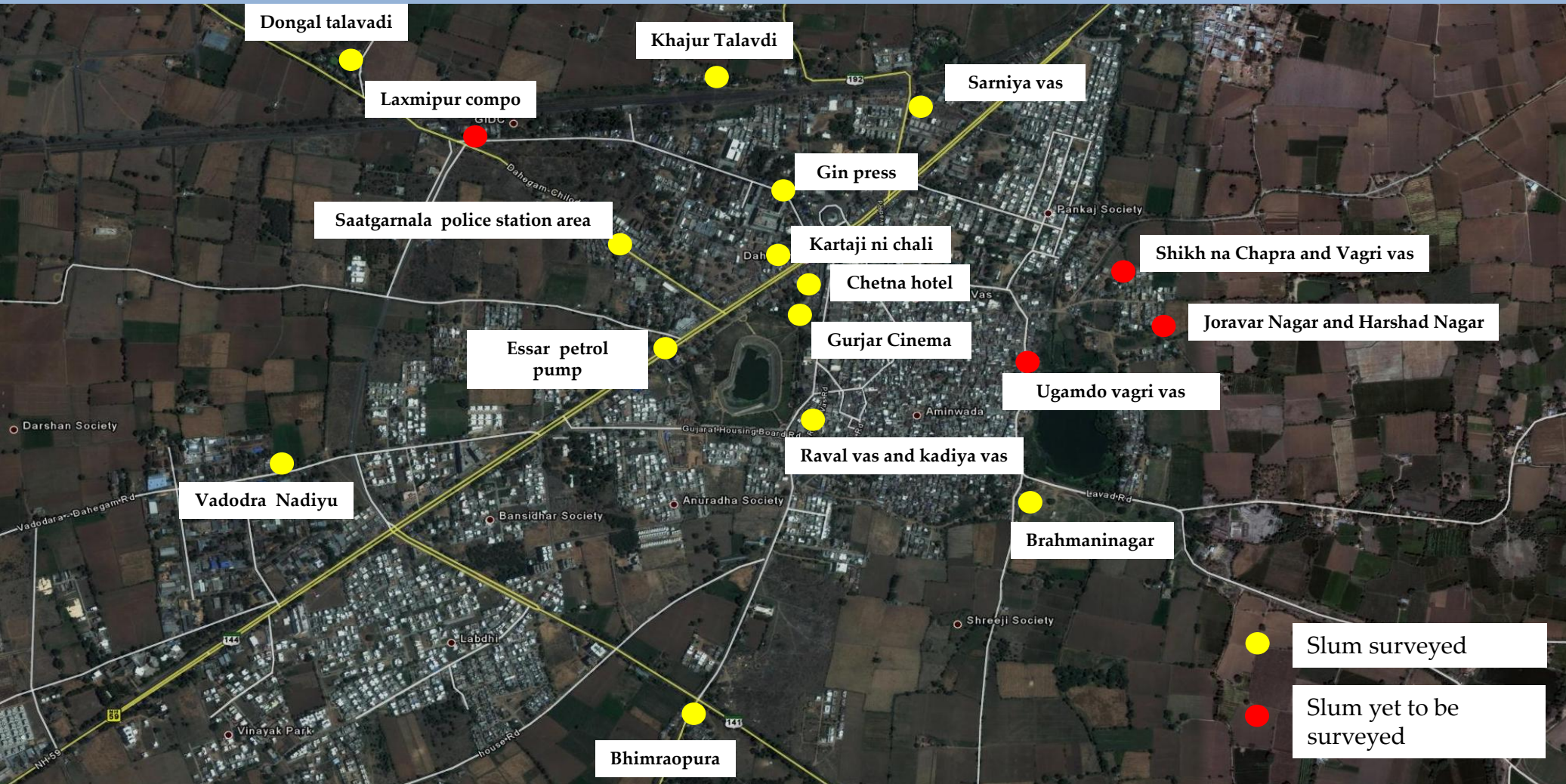
- Dahegam is class C municipality located in Gandhinagar district. It is 25.2 km from Gandhinagar and 35.4 km from Ahmedabad. Dahegam was founded in 1875 AD during Gaekwad rule. It was conferred municipality or nagarpalika status in 1987 as a part of Ahmedabad district. But when Ahmedabad district was halved in 1998, Dahegam became a part of Gandhinagar district.
- According to Census 2011, the city's population was 42,632 living in 8,690 households. As per Performance Assessment System (PAS) checklist 2014-15, the city's population is 44,235 living in 8,990 households. As per UMC primary survey 2014-15 city has 19 slum settlements.

City Infrastructure

- The coverage of individual water supply connections is 72.6% and water supply is 97 lpcd at the consumer end.
- The coverage of sewage network services is 12% and individual toilets is 59.4% in the Dahegam city.
- Dahegam has achieved over 90% of its target of providing individual household toilets** under Nirmal Gujarat Sauchalay Yojana. Majority of these toilets constructed under thus scheme are in slums and Gamtal area

Source – PAS checklist 2014-15, GMFB May 2015**

Slums and slum-like settlements along with profile




The study includes only the assessment of individual toilets in slums and slum like settlements. Map above shows location of slums in Dahegam.

Source: Dahegam ULB and UMC survey 2015

Slums and slum-like settlements along with profile

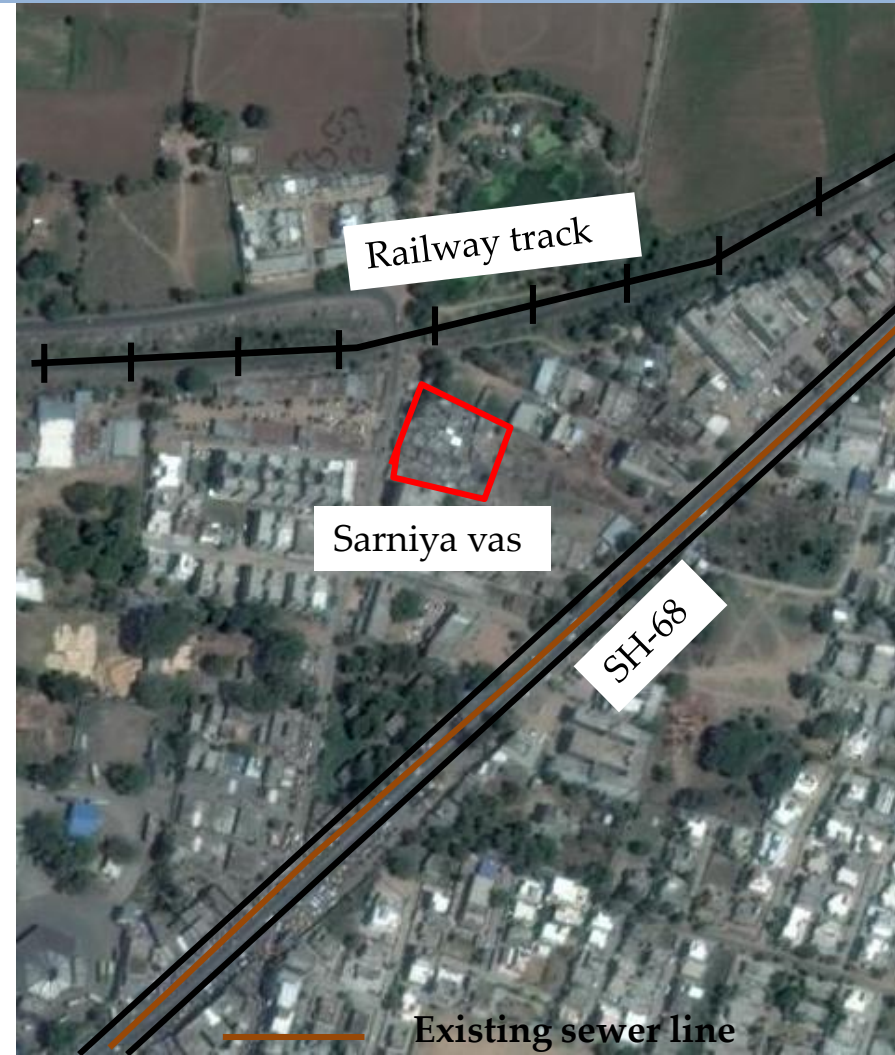
| S.No | Name | Reported no of households * | No of households based on survey |
|------|---------------------------------|-----------------------------|----------------------------------|
| 1 | Saatgarnala | 200-251 | 221 |
| | Testil marvadi vas | | |
| | Police station area | | |
| 2 | Raval vas | 125 | 60 |
| | Kadiya vas | | |
| 3 | Kartaji | ND | 48 |
| 4 | Bramaninagar | 80-100 | 83 |
| 5 | Bhimraopura | 95 | 83 |
| 6 | Essar slum | 150 | 69 |
| 7 | Gin press | 150 | 86 |
| 8 | Vadodara Naliyu | 93 | 82 |
| 9 | Dongal Talavadi | 120 | 48 |
| 10 | Khajur Talavadi | 40-50 | 35 |
| 11 | Gurjar cinema slum | 25 | Survey in process |
| 12 | Chetna hotel slum | 55 | Survey in process |
| 13 | Sarniya vas | 100-150 | Survey in process |
| 14 | Joravar Nagar and Harshad Nagar | 100 | Not surveyed yet |
| 15 | Ugamdo vagri vas | ND | Not surveyed yet |
| 16 | Shikh na Chapra | 70-80 | Not surveyed yet |
| 17 | Laxmipura Paravistar | 100-120 | Not surveyed yet |
| 18 | Laxmipura Compo | 100-120 | Not surveyed yet |
| 19 | Bariya na Chapra | ND | Not surveyed yet |
| 20 | Ganeshpura | ND | Not surveyed yet |
| 21 | Madari Nagar | ND | Not surveyed yet |
| 22 | Hajuraji na chapra | ND | Not surveyed yet |
| 23 | Ramaji na chapra | ND | Not surveyed yet |

- There are total 26 slums in Dahegam. But **Saatgarnala, Testil Marvadi vas** and **police station area** slums now considered as one. Also **Raval vas** and **Kadiya vas** considered as one due to located near to each other.
- Total no of slums are now 23 out of which 10 have been surveyed.
- **Chetna hotel** and **Gurjar cinema** does not have toilets. Slum **Sarniya Vas** have toilets but they are not connected to any disposal system.,

 List of slum given by Dahegam Municipality

Source – *Dahegam Municipality, UMC survey 2015

Assessment of individual toilets – Sarniya vas



Location of Sarniya vas slum

Toilet not connected with disposal system

Open drain

- Sarniya vas slum is located on railway land. Dahegam municipality is going to relocate the slum, under IHSDP(integrated housing & slum development programme).
- Few of the households in Sarniya vas have toilets, but are not connected to any disposal system and rest don't have toilet facilities.
- The slum dwellers defecate in the open, around the railway track.

Assessment of individual toilets – Gurjar cinema and Chetna hotel slum



Households without toilets - Gurjar cinema slum



Interaction with slum dwellers – Gurjar cinema



Existing sewerage system



Households without toilets – Chetna hotel slum



Location of Gurjar cinema and chetna hotel slum

Gurjar cinema and Chetna hotel slums are located near to SH-68. Sewer network lies within 30m of both slum. Currently none, of the households, has a toilet. They use public toilet for sanitation facilities.

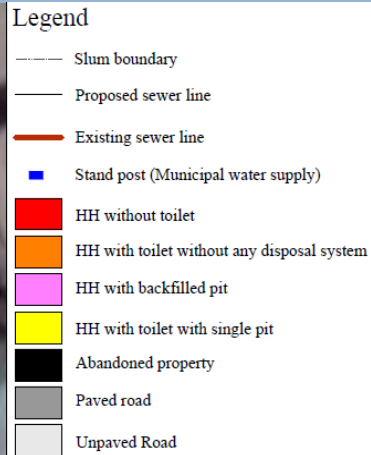
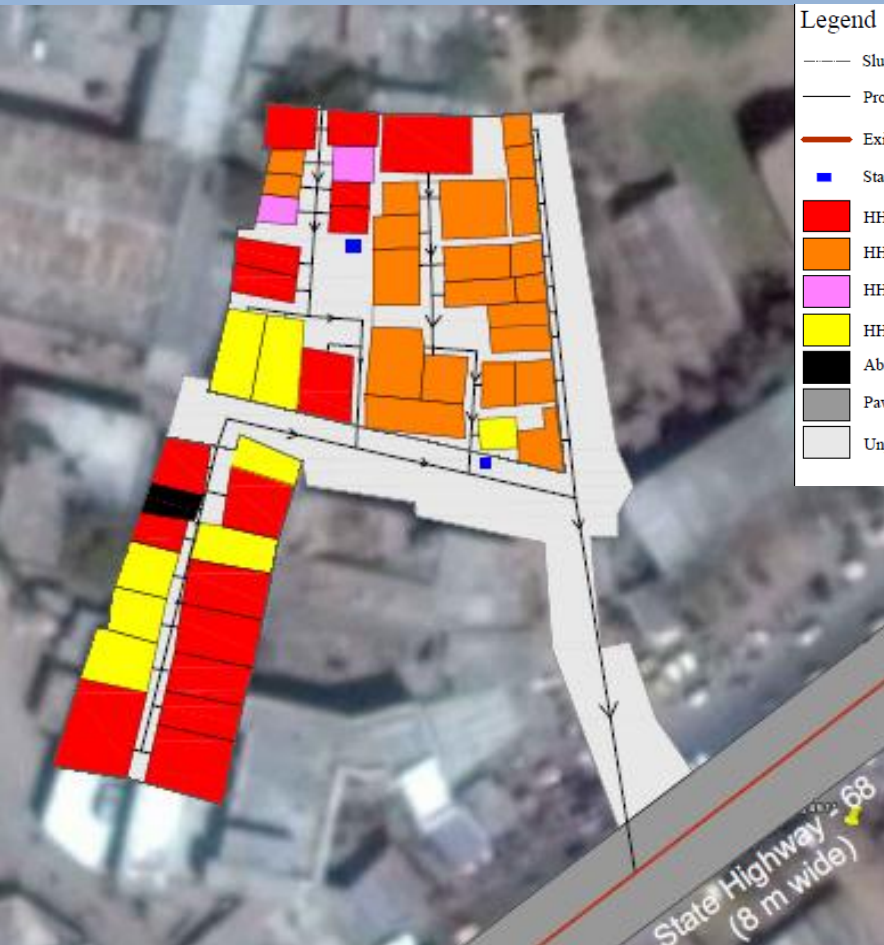
Assessment of individual toilets in Kartaji slum



Individual toilets lack connection to disposal system

- The slum has 48 households of which 31 households(65%)have individual toilets. No household has a connection with the sewer line that lies within 30m of the slum.
- All toilets are insanitary, with 8 single pit system and 23 toilets without any disposal system.
- People from 83% households defecate in open.

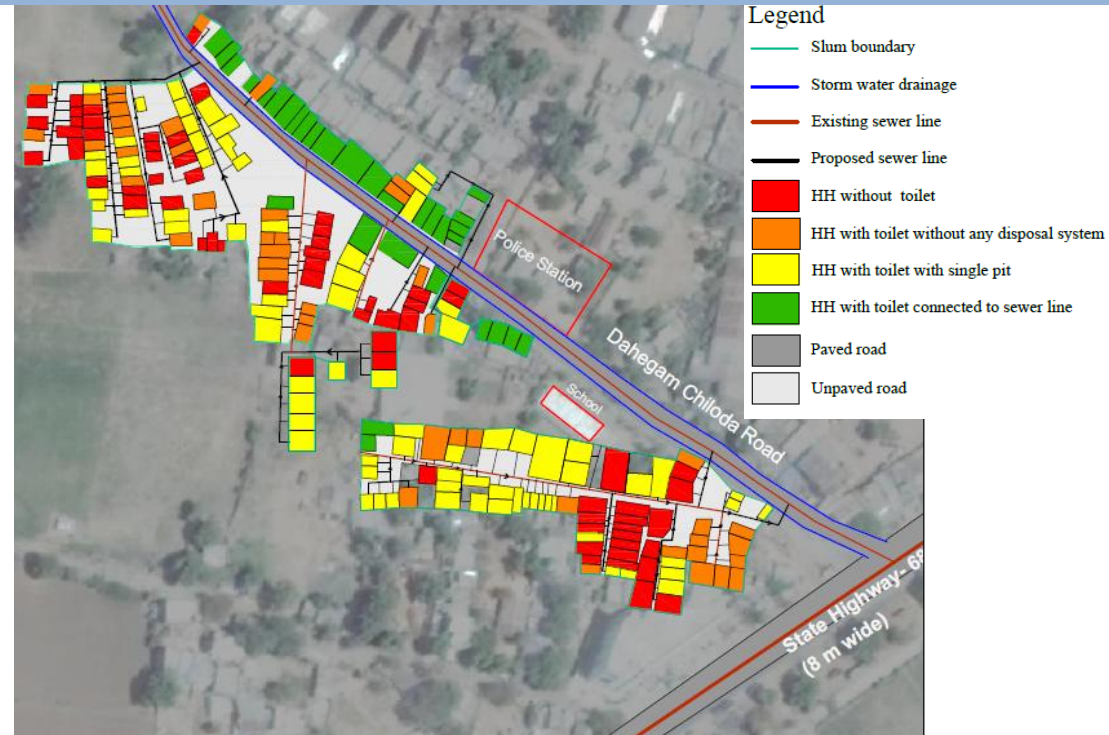
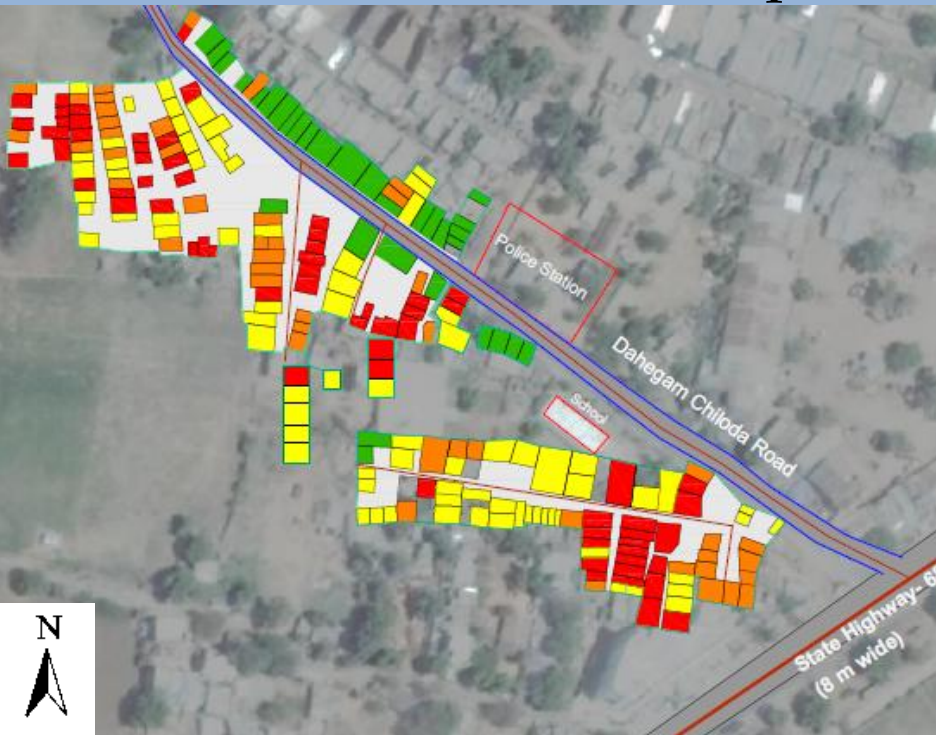
Assessment of individual toilets in Kartaji slum



Toilet connected with sewerage system

- Since Kartaji slum lies within the 30m of existing sewer line, as per MGSM guidelines toilets should be connect to sewerage system.
- Sewer line of length 210m proposed at an estimated expenditure of Rs 2.56 lakh and average expenditure Rs 5,240.
- Actual expenditure incurred Rs 2.43 lakh.

Assessment of individual toilets in Saatgarnala, Testil marvadi vas and police station area slum



- The slum has 221 households of which 154 households(70%) have individual toilets. 28 individual households toilets are connected to sewerage system.
- Other toilets are insanitary toilets, with 73 single pit system and 53 toilets are not connected with any disposal system.
- People from 54% of the households defecate in open.
- Since the slum lies within 30m of existing sewer lines, as per MGSM guidelines toilets should be connected to sewerage system.
- Sewer line of 1172 m proposed with estimated expenditure of Rs 12.30 lakh at an average expenditure of Rs 6,185 per household



VIP Latrine

Assessment of individual toilets in Essar slum



Legend

- Slum boundary
- Sewer line
- HH without toilet
- HH with toilet without any disposal system
- HH with toilet with single pit
- HH with toilet connected with sewer line
- Essar petrol pump
- Paved road
- Unpaved road



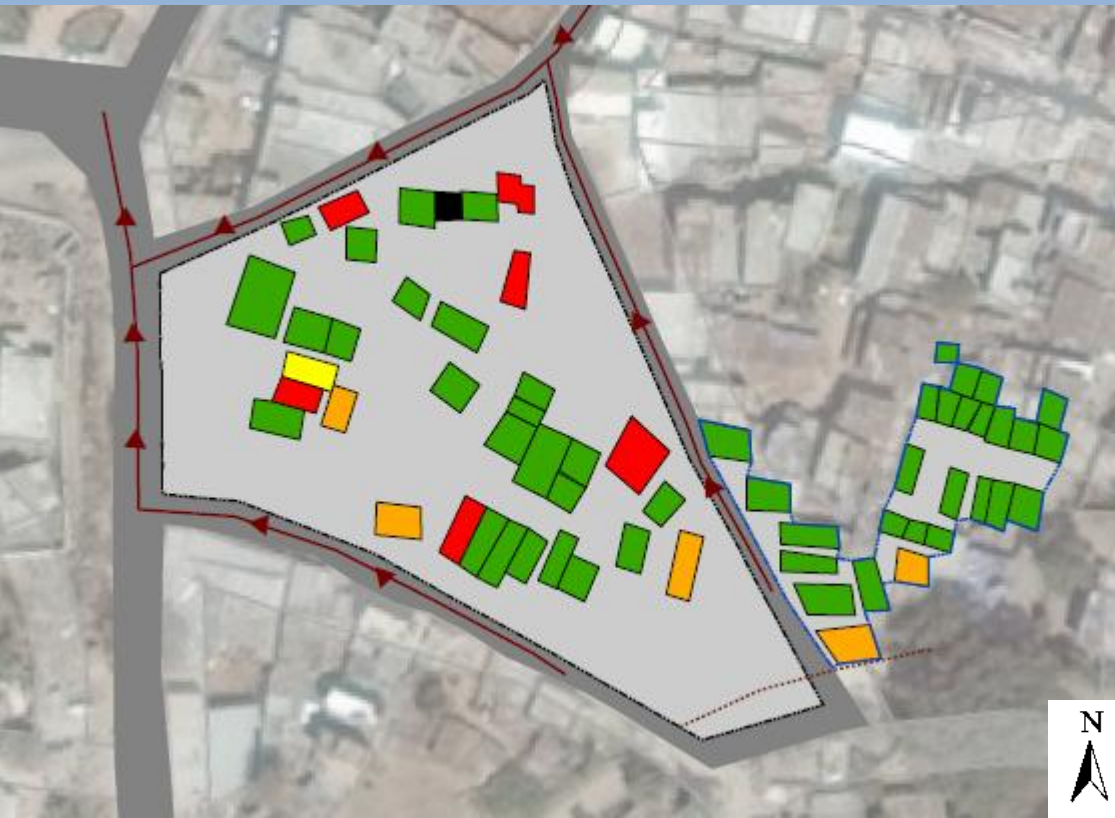
Toilet not connected with disposal system



Toilet connected with sewerage system

- The slum has 69 households of which 46 households(67%) have individual toilets. 31 households are connected to sewerage system. 15 households having insanitary toilets in which 7 have single pit and 8 are not connected with any disposal system.
- People from 16% of households defecate in open, 22% use public convenience, and 9% share facilities with neighbours

Assessment of Individual Toilets in Raval vas and Kadiya vas slum



Legend

- Raval vas Boundary
- Kadiya vas Boundary
- Open_drain
- Sewer line
- HH without toilet
- HH with toilet without any disposal system
- HH with toilet with single pit
- HH with toilet connected with sewer line
- Abandoned property
- Paved road
- Unpaved road



Functional toilet



Open Drain

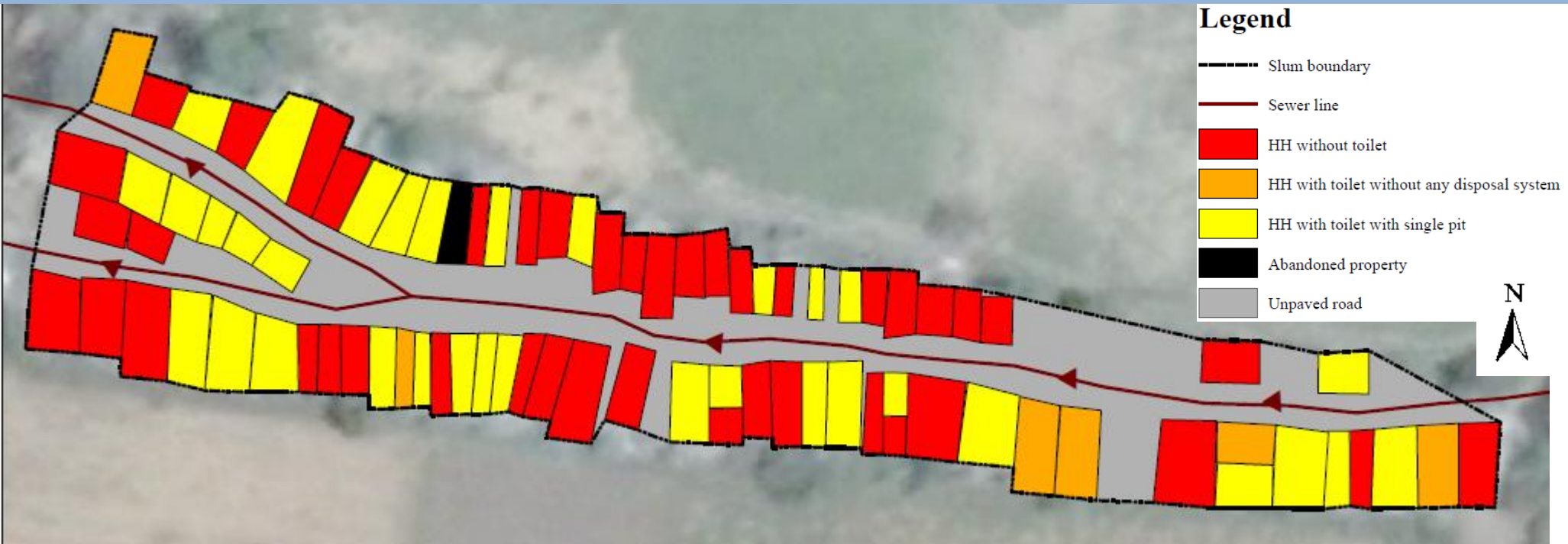


Sewerage system



- Raval vas and Kadiya vas have 60 households of which 53 households (88%) have individual toilets.
- 47 (78%) households are connected to sewer lines. 5 households are not connected to any disposal system, while only one household is having single pit.
- People from 7% households defecate in open, 2% use public convenience and 3% shared with neighbour.

Assessment of individual toilets in Brahmaninagar slum



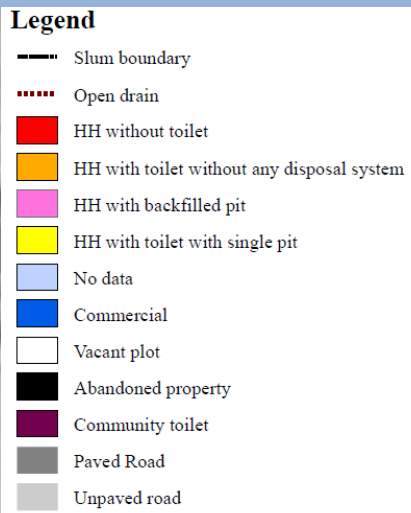
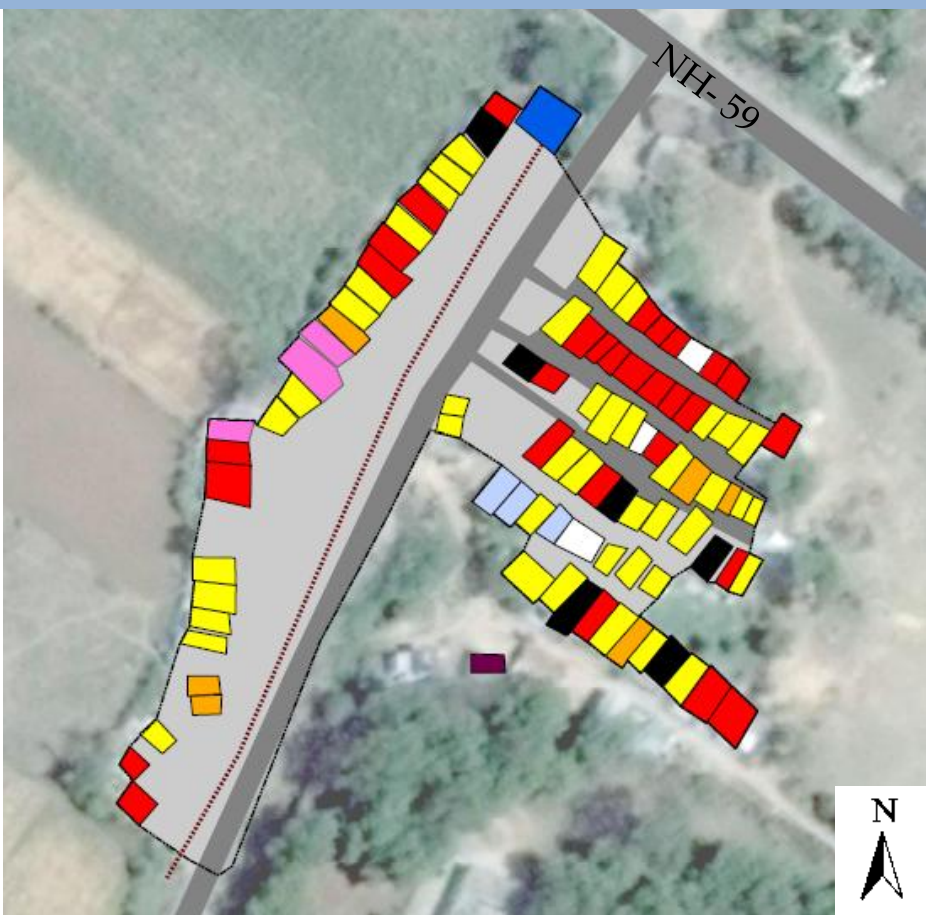
Single pit toilet



Existing sewer system

- Brahmaninagar slum has 83 households of which 40 households (48%) have individual toilets.
- Sewerage System is laid in the slum but no household is connected to it. When asked reason behind not having connection to sewerage, they said they can not afford the cost of pipe line required to connect with sewerage.
- All toilets are insanitary, with 34 single pit system and 6 toilets are not connected with any disposal system.
- 47 households (57%) defecate in the open in which 5% (4) have single pit.
- Ten households share toilets.

Assessment of individual toilets in Bhimraopura slum



Toilet with Single pit system



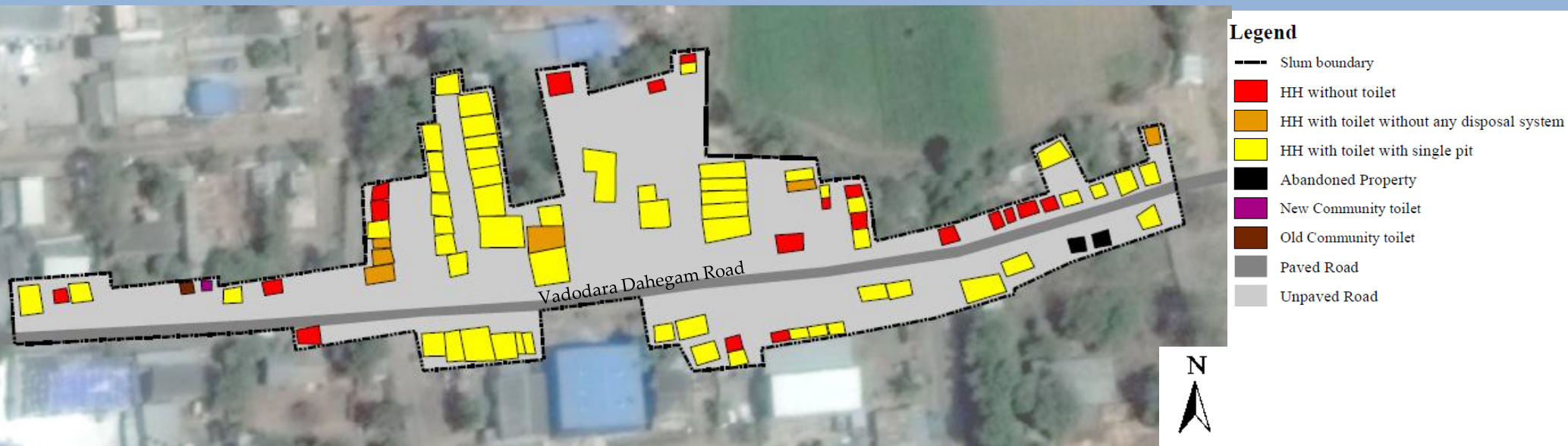
Open drain



Inadequate space for twin pit

- Bhimraopura slum is located on the NH-59 and lies on the outskirts of Dahegam. The slum has 83 households of which 54 households(65%)have individual toilets. All toilets are insanitary, with 48 single pit system and 6 toilets not connected to any disposal system.
- 10% of households defecate in open, while 45% use community toilet.

Assessment of Individual Toilets in Vadodara Naliyu



- Vadodara slum lies on both sides of Vadodara Dahegam road which is 5m in width and proposed to be increased to 20m.(source –Dahegam Municipality)
- The slum has 82 households of which 63 households(77%)have individual toilets.
- All toilets are insanitary, with 57 single pit system and 6 toilets are not connected with any disposal system.
- 60% of households defecate in open of which 61%(30) have single pit.
- HHs using single pit increase the depth of pit to 20 feet.



Toilet used for storage purposes

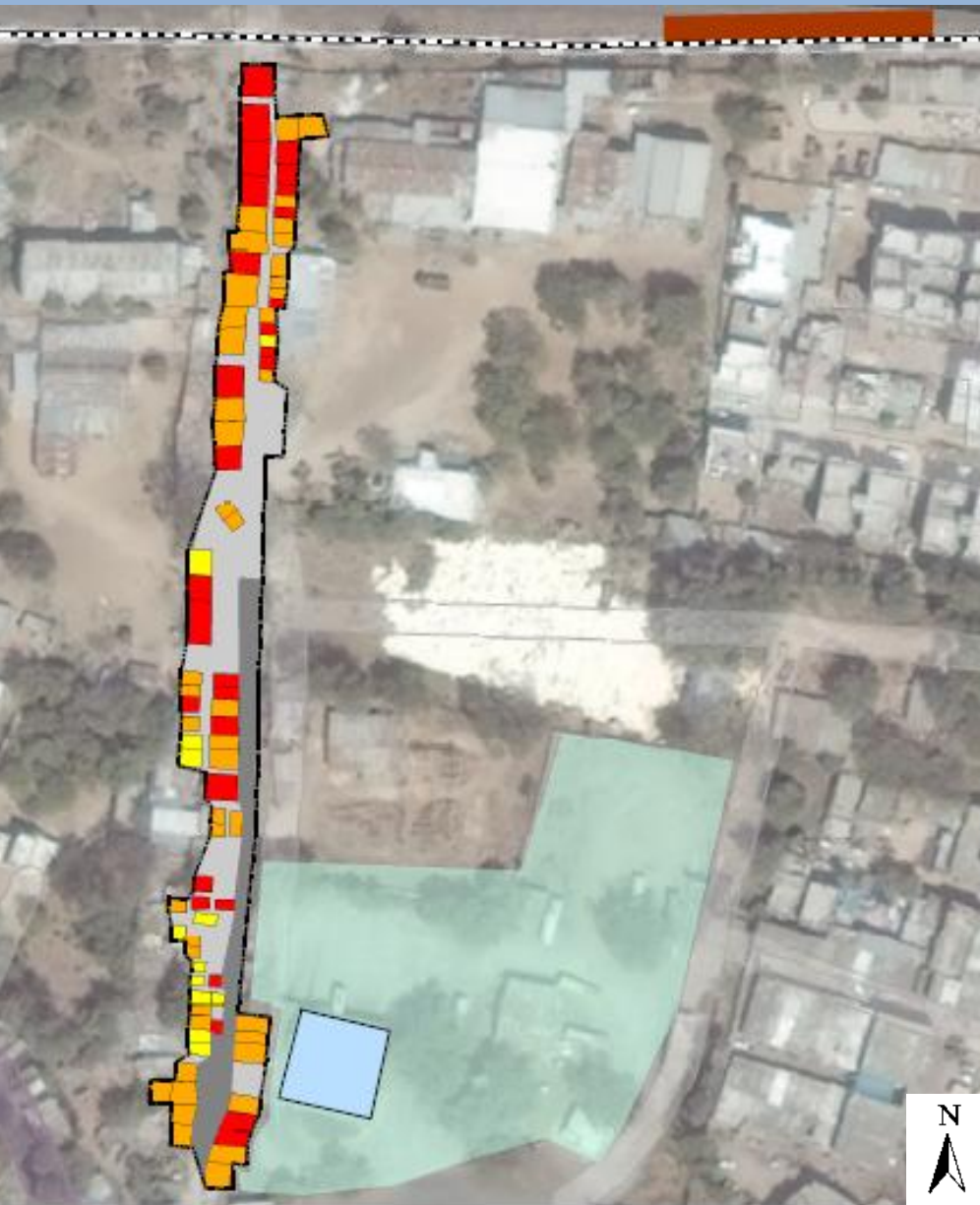


Private constructed toilet



Non - functional leach pit

Assessment of Individual Toilets in Ginpress slum



Legend

- Slum boundary
- Railwayline
- HH without toilet
- HH with toilet without any disposal system
- HH with single pit
- Public toilet
- ST bus terminal
- OD Spot
- Paved road
- Unpaved road

- The slum has 86 households of which 56 households (65%) have individual toilets. All toilets are insanitary, with 12 single pit system and 44 toilets are not connected to any disposal system.
- Out of 12 single pit only 4 are in use, as Slum dwellers believe 3-5 feet deep pit is not sufficient so they use public toilet.
- 42% HHs defecate in open and 52% use public toilet of bus stand which is behind the slum.

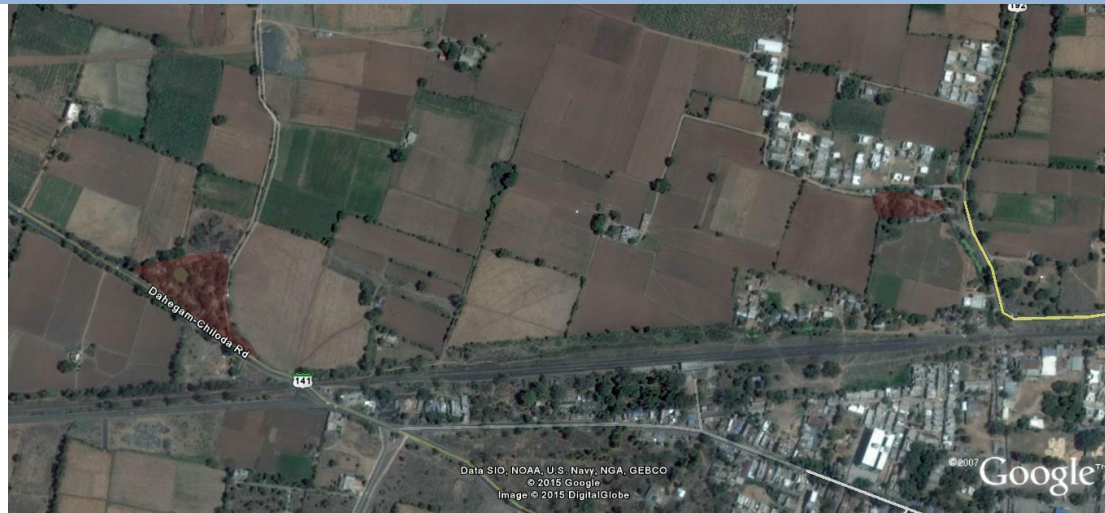


Toilet connected with disposal system used for storage purposes



Practice of open defecation

Khajur talavadi and Dongal talavadi



Stand post in khajur talavadi



Person showing water logging during monsoon in Dongal talavdi

DONGAL TALAVADI

- Dongal Talavadi has 48 households of which 19 households have individual toilets. All toilets are insanitary, 17 with single pit system and 2 HHs without disposal system.
- People from 73% HHs defecate in open which includes 27 HHs having no toilet facility and 8 HHs having single pit.

KHAJUR TALAVADI

- Khajur Talavadi has 35 households of which only 4 households have individual toilets with single pit system .
- People from 89% HHs defecate in open.
- The slum is situated in a low lying area causing water logging during rainy days.



Condition of toilet in Khajur talavadi

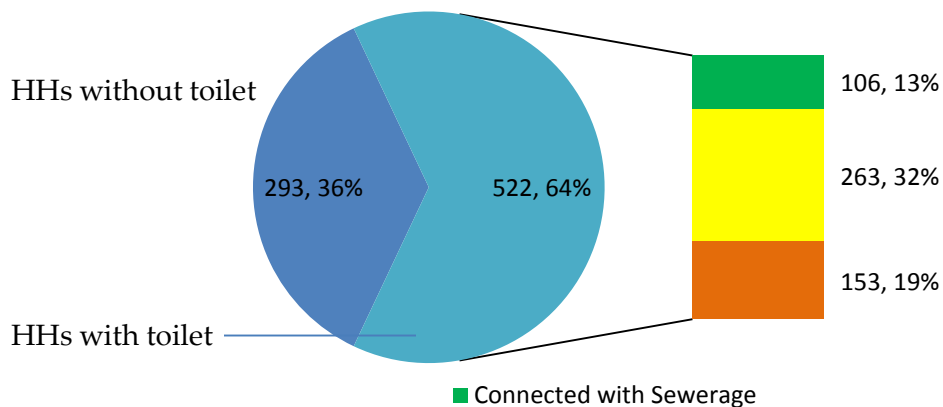


Condition of toilet in Dongal talavadi

Summary of slum survey

| Name of the slum | No of HHs | HHs who have No Toilet facility | HHs who having Toilet facility | | | Public Convenience | OD |
|--------------------|------------|---------------------------------|--------------------------------|------------|------------------------------------|--------------------|------------|
| | | | Connected With Sewer | Single Pit | Not connected with disposal system | | |
| Brahmaninagar | 83 | 43 | 0 | 34 | 6 | 0 | 47 |
| Gin press | 86 | 30 | 0 | 12 | 44 | 45 | 36 |
| Raval vas | 60 | 7 | 47 | 1 | 5 | 1 | 4 |
| Essar | 69 | 23 | 31 | 7 | 8 | 12 | 8 |
| vadodara Naliyu | 82 | 19 | 0 | 57 | 6 | 0 | 49 |
| Bhimropura | 83 | 29 | 0 | 48 | 6 | 37 | 8 |
| Saat Garnala | 221 | 67 | 28 | 73 | 53 | 0 | 120 |
| Testil Marvadi Vas | | | | | | | |
| Police Station | | | | | | | |
| Dongal talavdi | 48 | 27 | 0 | 19 | 2 | 0 | 35 |
| khajur talavadi | 35 | 31 | 0 | 4 | 0 | 0 | 31 |
| Kartaji | 48 | 17 | 0 | 8 | 23 | 0 | 40 |
| TOTAL | 815 | 293 | 106 | 263 | 153 | 95 | 378 |

Availability and condition of Toilet in slums



13% households are connected with **sewer lines**. **522 (64%)** households have individual toilets out of which, most individual toilets (**50%**) have single pit, followed by **30%** toilets don't have any disposal system and **20%** connected with sewerage system

80% toilets are **insanitary**. This includes toilets connected with a single pit system and toilets not connected with any disposal system.

Almost **46%** households **defecate in the open** while **12%** use **public conveniences**.

RECOMMENDATIONS

- Brahmaninagar , Raval and kadiya vas and Essar has sewerage system laid in the slums, hence the household toilets should be connected to sewer line.
- In case of Vadodara Naliyu ,Bhimraopura , khajur talavadi and dongal talavadi remain water logged in monsoon, hence, provision of twin pit toilet is not applicable in these slums.
- Twin pit in Ginpress slum also not applicable due to lack of space.
- Bio-digesters and septic tank at community level could be option for Ginpress, Vadodara Naliyu, and Bhimraopura.

| Possible interventions | | | | |
|--------------------------|------------------|----------------|--------------|---------------|
| Name of slum | Sewer connection | Twin pit | Septic tank | Bio-digesters |
| Brahmaninagar | Yes | Not required | Not required | Not required |
| Raval Vas and Kadiya Vas | Yes | Not required | Not required | Not required |
| Essar | Yes | Not required | Not required | Not required |
| Gin press | No | Not applicable | Applicable | Applicable |
| Vadodara Naliyu | No | Not applicable | Applicable | Applicable |
| Bhimropura | No | Not applicable | Applicable | Applicable |
| Khajur talavadi | No | Not applicable | Applicable | Applicable |
| Dongal talavadi | No | Not applicable | Applicable | Applicable |

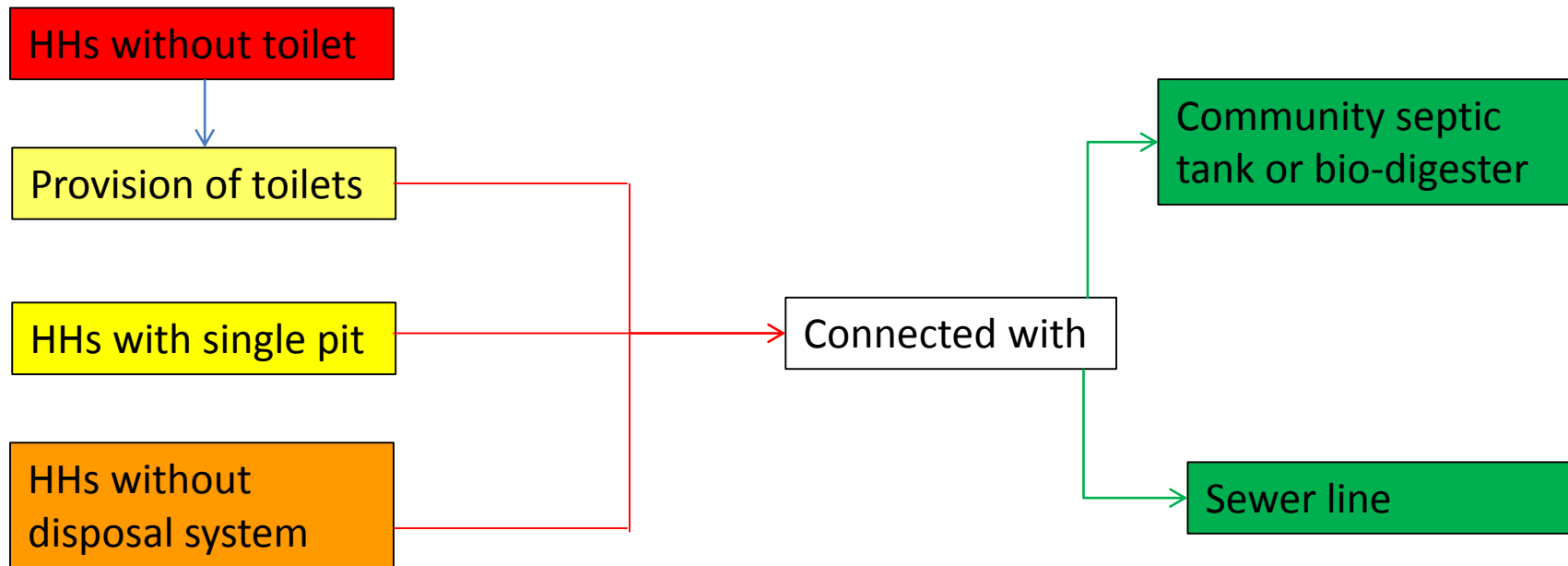
Administrative Process for ODF Declaration

According to the guidelines of Mahatma Gandhi Swachhata Mission, following is the administrative process which has to be followed for declaring any ULB as Open Defecation Free.

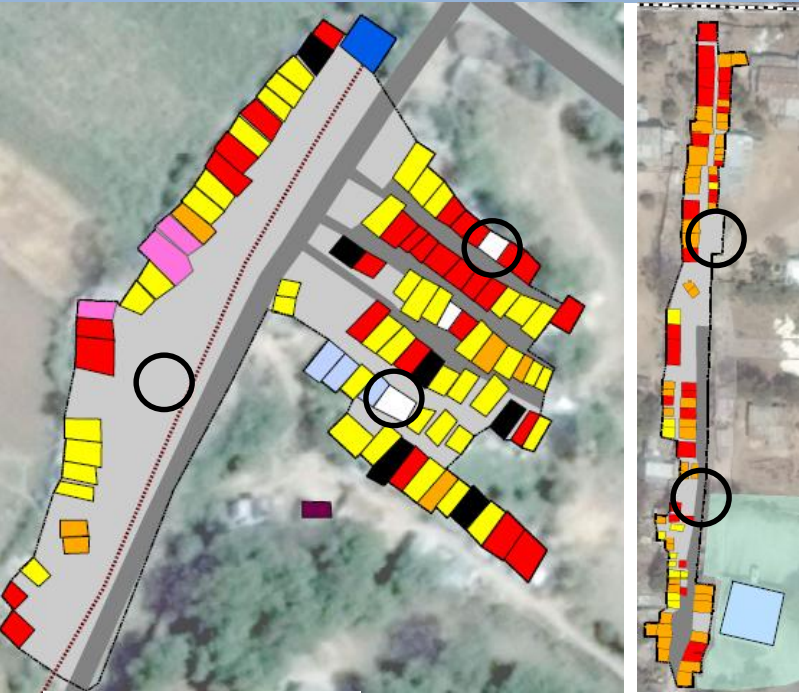
| Administrative Process | Status |
|---|----------------|
| 1. Assurance from schools that all students are using toilets in schools and at their homes as well | |
| 2. Assurance from SHG that all HHs have Individual toilets and they all are using it | |
| 3. Ward wise meetings to be done for explaining people about use of toilet | |
| 4. Advertisement for declaring ODF and inviting suggestions and objections within 15 days | May 2, 2016 |
| 5. After doing all above activities, pass the resolution in general board meeting for declaring ODF | April 28, 2016 |
| 6. Intimating to the collector about completion of target | |
| 7. TPI is to be done by the agency appointed by MGSM | |

Way Forward

- Slums where neither sewer line nor twin pit can be constructed community level sanitation facility could be given. Community level Bio Digester or septic tank could be proposed which will be connected to individual household toilets.
- Slums which lie near to sewer lines would be connected to sewerage system.
- Survey to be conducted in remaining 13 slums.



Way Forward



Brahmaninagar



Ginpress



Vadodara Naliyu

○ Area where Septic tank or Bio-digesters could be proposed

As per MGSM GR 2014, for 150 users minimum area required for septic tank is 30 sqmt. The cost of constructing the septic tank (without soak pit) is Rs 1,17,173.

| Name | No of households | No of septic tank | Area required | Cost of septic tank (without soak pit) | No of Bio-digesters | Area required | Cost of Bio-digesters |
|-----------------|------------------|-------------------|----------------|--|---------------------|---------------|-----------------------|
| Ginpress | 86 | 3 | 90sqmt | 7.5 | 3 | 30sqmt | 11.3 |
| Vadodara Naliyu | 82 | 3 | 90sqmt | 7.5 | 3 | 30sqmt | 11.3 |
| Bhimraopura | 83 | 3 | 90sqmt | 7.5 | 3 | 30sqmt | 11.3 |
| Total | 251 | 9 | 270sqmt | 22.4 | 9 | 90sqmt | 33.8 |

Way Forward

1. Community septic tank or bio-digester

| Name | No of households | No of new toilets required | Expenses for toilets | Expenses | |
|-----------------|------------------|----------------------------|----------------------|-----------------|-----------------|
| | | | | Septic tank | Bio digester |
| Ginpress | 86 | 30 | 2.4lakh | 9.9lakh | 13.7lakh |
| Vadodara Naliyu | 82 | 19 | 1.5lakh | 9.0lakh | 12.8lakh |
| Bhimraopura | 83 | 29 | 2.3lakh | 9.8lakh | 13.6lakh |
| Total | 251 | 78 | 6.2lakh | 28.7lakh | 40.0lakh |

2. Expenses for connecting individual household toilets with sewer line

| Name | No of new toilets required | Expenses for toilets | No of households required to connect with sewer line | Estimate for sewer lines |
|--------------------------|----------------------------|----------------------|--|--------------------------|
| Brahmaninagar | 43 | 5.16 lakh | 83 | 4.71 lakh |
| Raval Vas and Kadiya Vas | 07 | 0.84 lakh | 12 | 3.41 lakh |
| Essar | 23 | 2.76 lakh | 27 | 0.91 lakh |
| Total | 73 | 8.76 lakh | 122 | 9.03 lakh |