POVERTY MAPPING

A Situation Analysis of Poverty Pockets in Gwalior

UN-HABITAT   INDORE MUNICIPAL CORPORATION   WaterAid

Foreword

The Government of Madhya Pradesh has accepted the Municipal Action Plan for Poverty Reduction (MAPP) as an instrument for slum level intervention. A city wide poverty mapping exercise for identifying the poor and creating a data base of their condition is a primary requirement for this purpose.

I am happy to learn that on the request of Government of Madhya Pradesh, UN-HABITAT and Water Aid India in Partnership with our Municipal Corporation has for the first time carried out a city wide Poverty Pocket Situational Analysis (PPSA) for mapping the poverty and environmental infrastructural deficiencies in each poverty pocket for prioritizing interventions in our cities in Madhya Pradesh. This survey assumes greater significance for the reason that it takes into account all poverty pockets of the city instead of only those slums that exist in municipality records. This has resulted in the identification of a large number of Poverty Pockets which are still not notified and presently therefore not entitled for municipal services provisions. There is a large concentration of the poor in these areas, which underscores the importance of formalizing the non-notified and the urgent need to take the facilities and entitlements to the large concentrations of poor in these pockets.

It is understood that this survey is part of the Slum Environment Sanitation Initiative (SESI), jointly implemented by UN-HABITAT under its Water for Asian Cities Programme, along with Water Aid India, its local counterpart NGO and our city Municipal Corporation. The overall purpose of this project is to demonstrate and develop approaches for slum improvement (with focus on water, sanitation and hygiene education), which could influence investments in these areas resulting in access to services for the marginalized. The PPSA will serve as a very useful planning tool for the preparation of proposals under the Integrated Housing & Slum Development Programme of Government of India as well as for preparing the Municipal Action Plan for Poverty Reduction (MAPP).

On behalf of our Municipal Corporation, I reaffirm our commitment to extend all possible cooperation to the collaborative efforts of UN-HABITAT and Water Aid India for making interventions in selected poverty pockets totaling five thousand households in our city with a target of achieving zero open defecation in these selected pockets. It is my hope that this tool, lessons learnt and the follow up interventions will be an eye opener for the citizens of the city and thus help promote the full and active participation of all stakeholders in the attainment of the Millennium Development Goal 7, target 10 of halving by 2015 the proportion of people without sustainable access to drinking water and basic sanitation.

Vivek Narayan Sejwalkar
Mayor
Gwalior

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ABBREVIATIONS

ADB	:	Asian Development Bank
BPL	:	Below Poverty Line
DFID	:	Department for International Development
FGDs	:	Focus Group Discussions
GoI	:	Government of India
GoMP	:	Government of Madhya Pradesh
GMC	:	Gwalior Municipal Corporation
HH	:	Households
ICDS	:	Integrated Child Development Services
MDGs	:	Millennium Development Goals
MDM	:	Mid-Day Meals
MP	:	Madhya Pradesh
MoU	:	Memorandum of Understanding
NGO	:	Non Government Organisation
PP	:	Poverty Pockets
PLA	:	Participatory Learning and Action
PPSA	:	Poverty Pocket Situation Analysis
SSEI	:	Slums Environmental Sanitation Initiative
ULBs	:	Urban Local Bodies
UPAI	:	Urban Poverty Alleviation Initiatives
UN-HABITAT	:	United Nations Human Settlements Programme
WAC	:	Water for Asian Cities
WAI	:	WaterAid India

CONTEXT OF POVERTY MAPPING

The Water for Asian Cities (WAC) Program is a collaborative initiative between the United Nations Human Settlements Program (UN-Habitat), the Asian Development Bank (ADB) and Governments of Asia. Launched in March 2003 via a Memorandum of Understanding (MoU) between ADB and UN-HABITAT in Madhya Pradesh WAC is expected to leverage its experience in urban water governance and capacity building as well as ADB's operational experience and lessons from evaluation of impact in other cities. Under this program UN-HABITAT is mandated to develop a strategy for Pro Poor Water and Sanitation Governance in Madhya Pradesh for contributing to attain the Millennium Development Goals (MDGs) on water and sanitation and slum upgrading with a special focus on the urban poor. In India, Water for ASIAN Cities Programme is supporting the Madhya Pradesh Urban Water Supply and Environment Improvement Project in the cities of Bhopal, Gwalior, Indore and Jabalpur.

1.1 Slums Environmental Sanitation Initiative: A Joint Program of WaterAid India, UN Habitat and Municipal Corporations

A Workshop on Pro-Poor Urban Water and Sanitation Governance was organized in March 2005 in Bhopal with the key objective to bring together primary and secondary stakeholders to discuss and decide on the approach and strategy to be adopted by UN-HABITAT in the implementation of the Water for Asian Cities Programme in Madhya Pradesh. The main actions with regard to environmental sanitation to be taken by UN-HABITAT based on the workshops recommendations are as below : -

- Citywide integrated environmental sanitation and waste management programmes, including need based low-cost sewerage and on-site sanitation, aiming at improved health and hygiene behaviour change. This will be through initial assessments of the sanitation situation followed by demonstration pilots and scaling up to city wide programmes

- Mapping the urban poor in its entirety, generating high quality GIS maps and development of a city specific pro-poor water and sanitation governance strategy

As a follow up of these recommendations a pilot Slums Environmental Sanitation Initiative (SESI) in the slums of the four project cities was proposed to be executed. The project would demonstrate an integrated approach to environmental sanitation, waste management, low-cost sewerage and/or on-site sanitation, for improved change in health and hygiene behaviour.

This pilot project is being executed in a tri-partite partnership model, bringing together resources and expertise from the UN-HABITAT, Water Aid India, SAMBHAV Social Service Organization and Gwalior Municipal Corporations for approximately 5000 households which are lacking in infrastructure viz. access to water supply, improved sanitation, grey water disposal etc.

The Government of Madhya Pradesh (GoMP) has accepted the Municipal Action Plan for Poverty Reduction (MAPP) as an instrument for slum level intervention. The MAPP is an instrument to prioritize the slums for investment based on poverty and environmental infrastructure deficiency matrix. On the GoMP's request UN-HABITAT carried out a citywide Poverty Mapping exercise for mapping the poverty and environmental infrastructural deficiencies in each pocket for prioritizing interventions in Gwalior.

1.2 Poverty Pocket Situation Analysis (PPSA): Purpose And Approach to Study

In the first phase of the UN-HABITAT and WaterAid India's SESI program, a detailed slum enumeration exercise was carried out during November December 2005 called **Poverty Pocket Situation Analysis.** The final objective of this exercise was two fold:

1. In consultation with the Gwalior Municipal Corporation (GMC) select Poverty Pockets (PPs) covering 5000 households which were poorly placed on the Millennium Development Goal 7 target 10 i.e. halve by 2015, the percentage of households with access to improved water source and percentage of households with access to improved sanitation.

2. To collate the data on all PPs on availability of environmental deficiency parameters for kick starting the MAPP process by the Municipal Corporations.

This study is not a household survey but the data under this study has primarily been derived from key informant interviews/ group discussions and reflects the multiple and overlapping perspectives of different stakeholders in poverty pockets. This has been triangulated by qualitative survey using participatory exercises for community's direct feedback from six Poverty Pockets for final analysis.

As far as estimate of 'access' to infrastructures in poverty pockets is concerned, this study does not claim to be one that explores issues of the city in all their complexity and against any benchmark of accessibility. It does not look at differential access to facilities or the current status of facilities as much as the availability of facilities or lack of it, for designing interventions in the most water and sanitation facilities deficient areas. The study, however, understands access to mean the availability of useable and quality infrastructure in any given locality. The following analysis (especially the cross tabulation) and ranking has been undertaken keeping this understanding of access in mind.

Qualitative feedback however uncovers different nuances of 'access', helping us to identify areas of most concern in the perception of surveyed communities. This feedback has been interwoven with quantitative data in order to define issues of access access for the environmental infrastructure deficiency indicators have been considered:

Categorizing PPs on the MAPP pockets:

1. Percentage of length not covered with pucca drains,
2. Percentage deficiency of pucca road,
3. Percentage deficiency in street lights,
4. Percentage of households not covered with piped water supply,
5. Percentage of hourly water supply available to population,
6. Percentage of households not covered with toilets and
7. Percentage of households with access to improved way of disposal of grey water.

Categorizing PPs on MDG platform:

1. Access to improved sanitation
2. Access to improved water supply
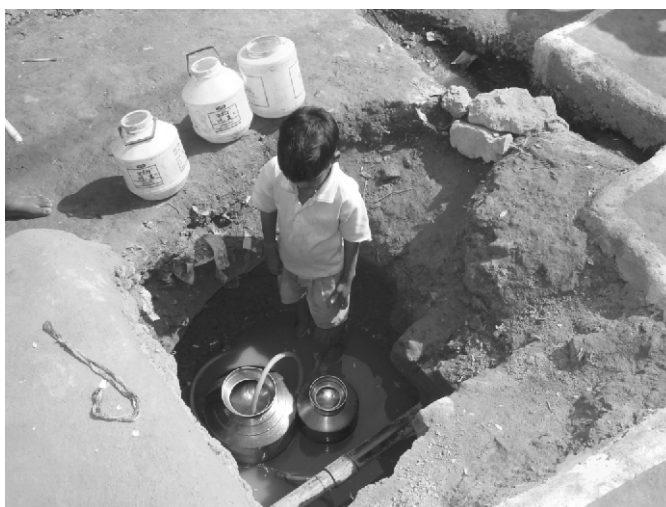
PPSA METHODOLOGY

2.1 PPSA Poverty Pockets Mapping

Stage 1:

The process of slum mapping started in November in Gwalior. A format was jointly developed and adopted uniformly by partner NGO Sambhav, Gwalior Municipal Corporation, UN-Habitat and WaterAid India for gathering the necessary data. Field teams comprised of two NGO staff and one municipal corporation staff in each team to carryout the survey.

Stage 2:

An orientation workshop was conducted in early November 2005 with all the team members to discuss and clarify the format of the survey. WAI, UN-Habitat, Gwalior Municipal Corporation and Sambhav attended the workshop and oriented the teams about the program and importance of the correct information collection through focus group discussions, transect and observations in the PPs.

Stage 3:

The survey covered 229 PPs in Gwalior. In the process of data collection Sambhav and Gwalior Municipal Corporation officials verified the collected data with their signatures. UNH and WAI team members also cross-verified the data collected in the forms by NGO and Municipal Corporation field staff. Each team filled in the survey form and signed on each of them for authenticity. The data was then compiled by the partner NGO Sambhav and sent to WaterAid India for analysis and poverty pocket ranking.

The questions asked were mainly bordering on population (no of households, no of families below poverty line, total population etc.), presence of infrastructure (roads, street lights, schools, anganwadi, balwadi, health centers etc), access to water supply (hours of water supply, no of individual and community water connections, quality of water etc) and access to sanitation (individual and community toilets, open defecation practice, solid waste management etc). The data analysis provided information on PPs with least access to water and sanitation and where the number of people living below poverty line was high apart from access to infrastructure. Based on individual poverty pocket's information on these counts, PPs were categorized and ranked.

Stage 4:

In order to triangulate the quantitative data as well as to collect information on quality and status of available infrastructure and basic services impacting quality of life in PPs, qualitative survey was undertaken separately using participatory tools.

Tools used included:

- Focus Group Discussion
- Observation
- Transect Walk
- Individual Interaction

The data analysis provided information on slums with least access to water and sanitation and where the number of people living below poverty line was high apart from access to infrastructure. Qualitative data was collected through transect walks, FGDs, observations and individual transations from the following locations:

- Mahalgaon (Mari Mata), Zone-10, Ward-31 (Near Phool Bagh Chowk)
- Ranipura, Zone-12, Ward-37
- Gomati Ki Pahadi, Zone-18, Ward-54
- Marghat Pahadi, Sciendia Nagar, Zone-9, Ward-29
- Banjara Shah Ka Nala, Zone-16, Ward-45
- Jati Ki Lane (Balmiki Basti), Zone-3, Ward-8

Section 3
A CITY WIDE ANALYSIS

3.1 Overview

Gwalior is the fourth largest city of Madhya Pradesh (MP) and, as per the Standing Committee of Parliament on Urban and Rural Development, is the only city in MP to be developed as a 'counter magnet' to dilute the influx of population into the National Capital Region (NCR).[1]

Gwalior District has a population of 1.6 million out of which 0.9 million people stay in urban areas (Census, 2001). As in the case of Bhopal no significant study exists for non notified PPs in Gwalior, and in that sense this initial analysis provides key leads into the status of poverty and water, sanitation infrastructure in this urban agglomeration. The poverty situation of Gwalior is relatively better when compared to main cities like Bhopal. In contrast to Bhopal where 48% of households in the PPs lived below the official Poverty Line, here the number is significantly lower at 17.19%. However, in terms of total population, almost one third of Gwalior's residents, nearly 33.7% stay in the PPs under study, indicative perhaps of the disjoint between urban population growth and availability of basic services.[2]

Qualitative data from six PPs in Gwalior highlighted key differences between it and the MP capital, Bhopal. The PPs of Gwalior are very old, some older than 100 years, and spread along side the 'Swarna Rekha Nala' - a main drain across the city. These poverty pockets largely look like unauthorized settlements (see footnote 2). Nearly hundred percent of the houses are almost 'pucca' or permanent structures and spacious.

3.2 Scenario in Poverty Pockets

3.2.1 Below Poverty Line Households

After extrapolating the percentage of BPL households overall in relation to Gwalior's total population the approximate figure of 17%[3] is in line with the poverty levels in identified PPs. The consistent problem of finding a basic comparator in the context of poverty enumeration for notified and non notified PPs, i.e. in relation to the city as a whole, is an issue which requires further assessment   as any under- enumeration on this aspect in the PPs could have significant long term implications in mitigating issues of access.

Table 3.1: Number of Households and Below Poverty Line (BPL) Households			
Total Number of PP	Total No. of Households	No. of BPL Households in PP	% of BPL Households in PP
229	60787	10452	17.19

In Gwalior Trends in Access to Services Follow Trends in Poverty:

Of the six zones ranked highest in terms of number of poor households, five also ranked highest in terms of lack of access to piped water supply and four also ranked highest in terms of lack of access to toilets. In fact there was commonality even in terms of zones where households reported that they did not have access to improved water sources. Most of the zones reported 100% access, and four of the zones where BPL concentrations were highest, reported that less than 95%[4] households had access to improved water sources.

1. Eleven such cities have been identified in India to help ease the pressure on NCR i.e Delhi and its adjoining areas.
2. Gwalior Nagar Nigam states that its slum population is just over 16% again indicative of the gap between estimations for notified and non notified PPs (www.iclei.org)
3. Taking district estimates of BPL cards as per Department of Food and Civil Supplies and a rough total household number extrapolated on the basis of population assuming 5 persons per household.
4. The least % of households reporting that they did not have improved access to water being 90%.

3.2.2 Status of Water Availability:

An overwhelming 72% of the PPs (165 in total) reported they had no access to public stand posts. The scarcity of water has significant gender implications and an adverse impact on health. This is revealed in qualitative feedback which also showed that in most of the randomly selected PPs, the water table was extremely deep.

Table 3.2: Drinking water supply sources				
Total Number of PP	No. of Public Stand Posts	No. of Wells	Number of Hand Pumps	Number of Tube Wells
229	160	101	462	207

Pipeline is available but with very low pressure. Water is a serious problem; most of the families have linked pumps with the main line to lift water. There are water taps but all are ineffective. The girls have to go to other colonies to fetch water, which requires about 2 hours at the cost of their schooling. During the focus group discussion, it was revealed that in Mahalgaon 75% of the children go for schooling at primary level but only 50% girls are enrolled in the schools.

In Gomati ki Pahadi the community has made provisions of water on a contributory basis from a tubewell. But the pipeline passes through the nala (drain) is contaminated and not suitable for drinking. Consequently, skin diseases and water borne diseases are very common. In Ranipura there is one bore well jointly bored and managed by 15 families. Water pipes pass through the drain causing contamination.

3.2.2.1 Drinking Water Supply:

In the surveyed PPs a large proportion of households (31%) depend on public stand posts, boreholes, wells, springs etc for drinking water which have been designated as a safe source of drinking water. 65% have access to piped water. Only four percent rely on relatively unsafe sources of water such as tankers and vendors providing water or unprotected wells and springs.

But of the 39599 households that do have access to piped water, more than 82% are in areas where water supply is only available for upto 2 hours and that too at low pressure, and 17% reported water supply largely between 2-3 hours representing the limited usability of available infrastructure.

Table 3.3: Drinking Water Supply Scenario			
Total Households	No. of households having access to piped water	No. of households using public stand posts/taps, borehole or pump, protected wells, prote cted springs or rainwater/hand pumps	No. of households depending on tankers, vendors providing water or unprotected wells and springs
60787	39599	18822	2366

Drinking Wate Supply Scenario
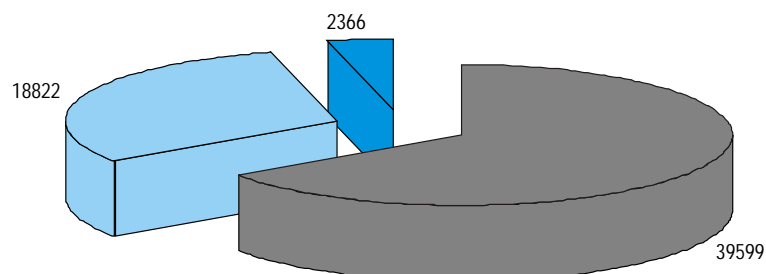
18822

2366

39599

- No. of households having access to piped water
- No. of households using public stand posts/taps, borehole or pump, protected wells, protected springs or rainwater/hand pumps
- No. of households depending on tankers, vendors providing water or unprotected wells and springs

3.2.2.2 Water Quality

While the quality of water available in the PPs is sound (92% of the PPs reported the availability of sweet water) the fact remains that the vast majority (80%) of the PPs are dependent on 0 -2 hrs of water supply. There are overlapping of sweet water and salty water due to presence of both, supply water and handpumps in the slums.

Table 3.4: Water Quality			
	Sweet test	**Salty**	**Taste less**
Number of PP	212	55	8

3.2.3 Status of Sanitation

### 3.2.3.1 Availability of Toilets:

32% of the households defecate in the open, 62% have individual toilets and only 6% use community toilets, showing that community toilets have not really replaced open defecation due to various reasons.

Table 3.5: Status of Toilet			
Total Households	**Individual**	**Community**	**Open Defecation**
60787	37734	3901	19152

Status of Toilets

19152

37734
3901

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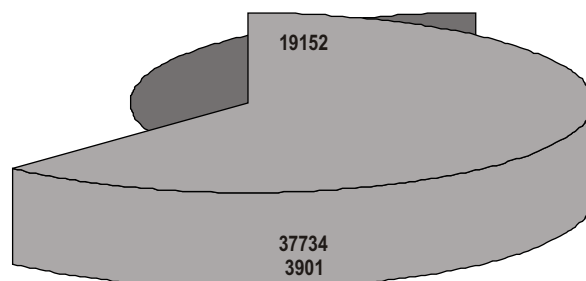
In Mahalgaon about half of the community has sanitary latrines. Government has also provided one sulabh toilet of 12 seats but lack of water remains concern for sanitation of these toilets. Still a large number of people defecate in the open on the plateau. But they too face problem because of a temple constructed on the plateau PLA Mahalgaon.

Four of the six PPs covered in the focus group discussions reported that open defecation a major health and sanitation hazard, was common.

3.2.3.2 Availability and Operation of Community Toilets

While 50% of PPs have access to community toilets only 10% of these are linked with reliable water supply. This explains to some extent the reason for less usage of community toilet facilities. Only two of the toilets actually have a bathing facility. Where private bathing space is not available in a community, gender issues are likely to abound. Again nearly half the toilets were not linked at all to sewerage creating unsanitary conditions. What worsens the condition of community toilets is the low level of maintenance and the pressure of population per toilet. Data reveals how the maximum number of toilets fell into the not maintained but used category.

Table 3.6: Community Toilets: Availability and Access:						
Total No. of PP	Total Number of Community Toilet /Seats	Total Seats		Have a permanent water supply facility	Have a bath facility	Connected to a septic tank or sewerage
		Male	Female			
229	115/826	415	411	12	2	65

Community Toilets : Availability & Access

Availability and Access of Community Toilets
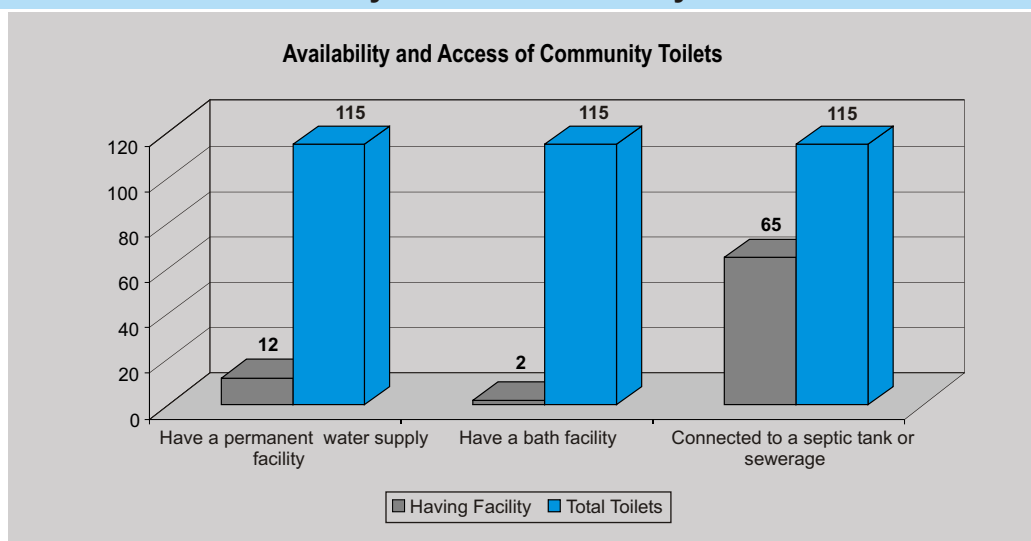
Table 3.7: Community Toilets: Status and Use					
Total No. of PP	Total Number of Community Toilet	Not maintained/not useable	Poorly managed but used	Maintained but overcrowded	Maintained and not crowded
229	115	37	57	14	7

Community Toilets: Status and Use
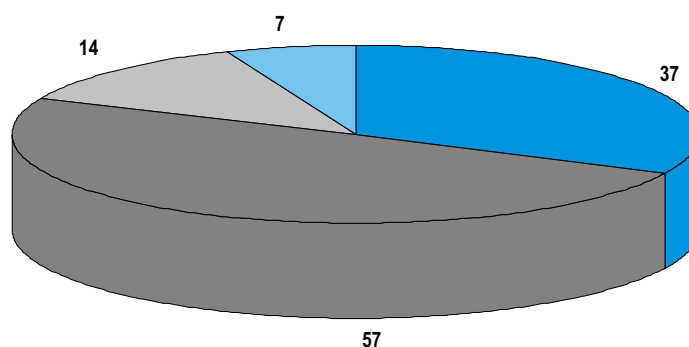
■ Not maintained/not useable ■ Poorly managed but used
□ Maintained but overcrowded ■ Maintained and not crowded

On going through the above data, it is evident that the scenario in Gwalior is quite unsatisfactory with 94 out of 115 CTs is poorly maintained and not maintained category.

3.2.3.3 Paying for Community Toilets

Unlike Bhopal, Gwalior has a larger number of community toilets whereas 35% of toilets were pay and use in the capital, Bhopal, in Gwalior only 2 toilets out of 115 (1.7%) of the toilets were pay and use. This seems to indicate that municipal authorities have not really institutionalized the practice of pay and use toilets rather this is a one off initiative that remains underutilized in relation to improving the maintenance and increasing community ownership on local sanitation efforts.

Table 3.8: Status of Pay and Use Toilets in PPs			
Total Number of PP	Total Number of Community toilet	Users paying for the services	Users Not paying for the services
229	115	2	113

Status of Pay and Use Toilets in PPs
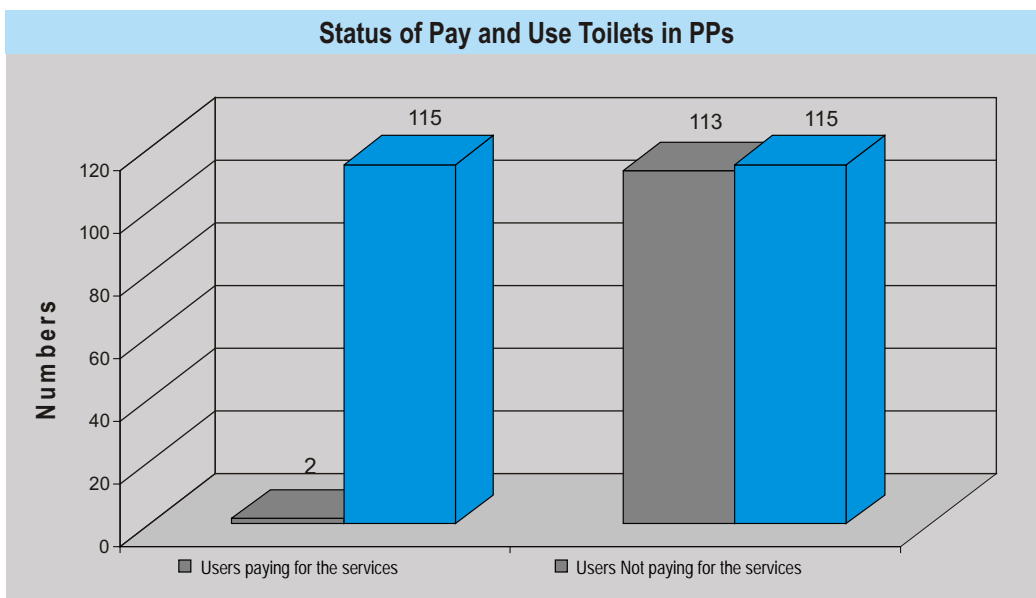
3.2.4 Status of Drainage and Water Logging Status in PPs

3.2.4.1 Drainage

Table 3.9 shows that nearly 40% of drains (which are limited in terms of coverage in any case) are not lined. Tables 3.9& 3.10 are shown together to indicate the co-incidence of lack of lined drains and water logging which occurs in 44% of the PPs. Since nearly half the PPs reported water logging we calculated the number of households reporting that they threw garbage in the open in PPs reporting water logging and also in PPs reporting no water logging.

Nearly double of the number of households reported that they threw garbage in the open in water logged PPs indicative that this is the main reason for water logging which exacerbated by other sanitation issues such as lack of lined drains.

Table 3.9: Condition of Drains		
Total Number of PP	Total Length of Drains in Km	Length of Lined Drains
229	313	196

3.2.4.2 Water Logging

Water logging, was reported as an area of concern in four of the six randomly selected PPs (Gwalior PLA). Skin diseases and other health problems are reported as being the main impact of this issue.

Table 3.10: Areas Prone to Water Logging		
Total Number of PP	**No. of Water Logged PPs**	**No. of PPs free from Water Logging**
229	103	126

Areas Prone to Water Logging
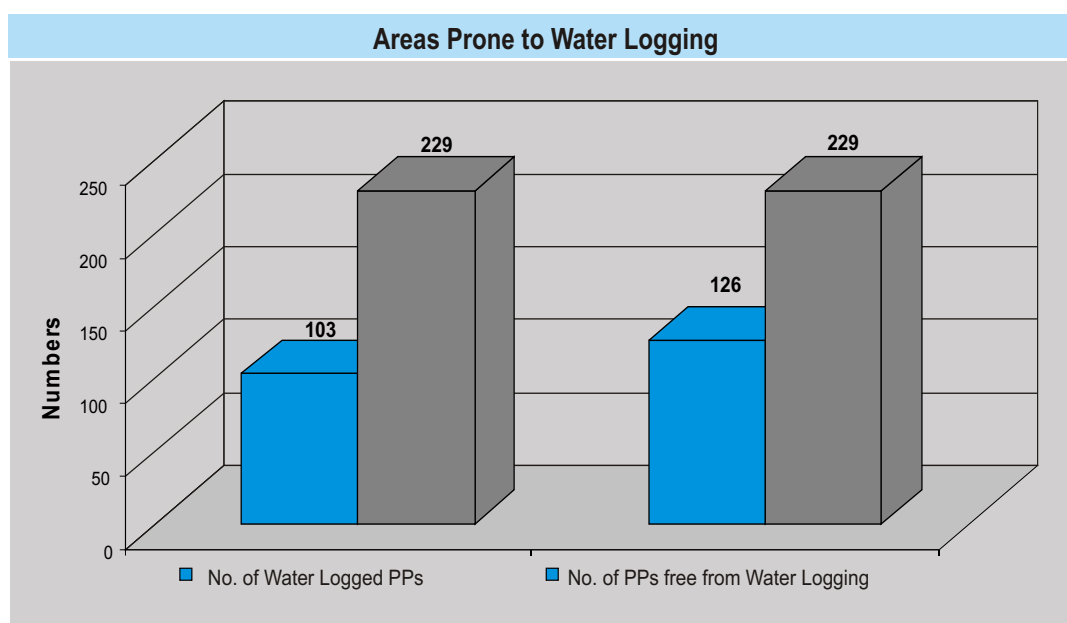
3.2.5 Status of Grey Water and Solid Waste Disposal

3.2.5.1 Disposal of Grey water (waste water from household chores):

Only 18% of the total households have access to a sewer or septic tank in which to dispose grey water. 82% of the households let waste water flow into open drains and streets, causing a major health hazard.

Table 3.11: Grey Water Scenario				
Total Households	No. of households letting it out into the streets	No. of households disposing in open Drains	No. of households disposing to septic tanks	Number of households disposing in the sewerage system
60787	13046 (21%)	37176 (61%)	3068 (5%)	7497 (13%)

Grey Water Scenario
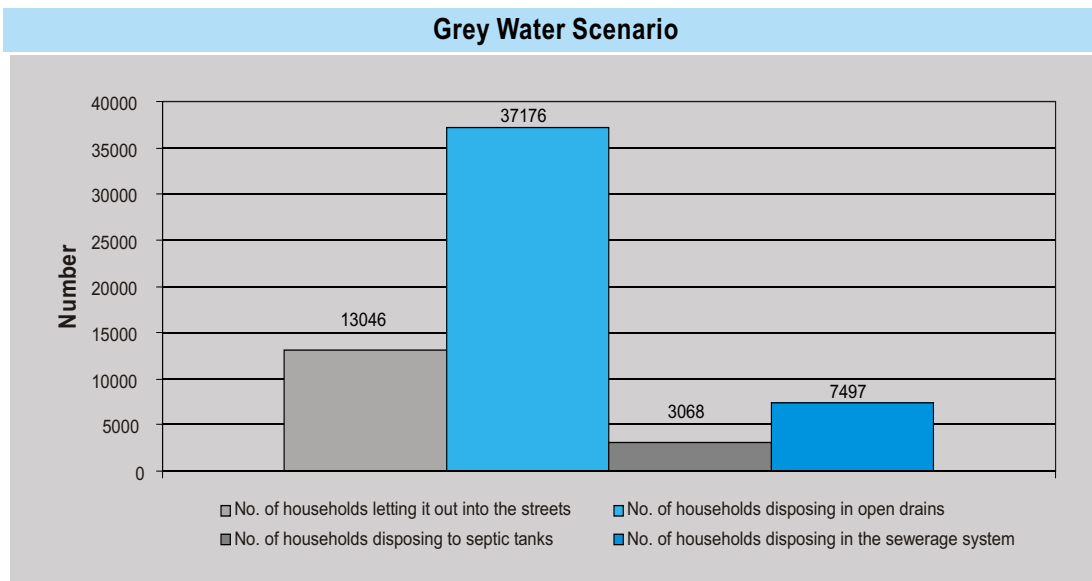
3.2.5.2 Disposal of Solid Waste Management:

Nearly 38% of the households dump waste in the open and 15% let it flow into drains. Again taking a median of 10 households in PPs where less than 10 households dumped waste in drains only a total of 39 PPs experienced water logging whereas in PPs where more than 10 households dumped waste in drains 63 PPs reported standing water suggesting this may be a direct cause of water logging.

A substantial proportion (32%) of the households is receiving doorstep facility (possibly due to the large percentage of *'pucca houses'*) of solid waste collection and 15% are taking the garbage to neighborhood points.

Table 3.12: Solid Waste Scenario				
Total Number of HH	No. of households having the facility of solid waste collection at their doorstep	No. of households having the facility of solid waste collection at neighborhood points	No. of households dumping solid waste in the open	No. of households through solid waste into the drains
60787	19257	9095	23355	9080

Solid Waste Scenario
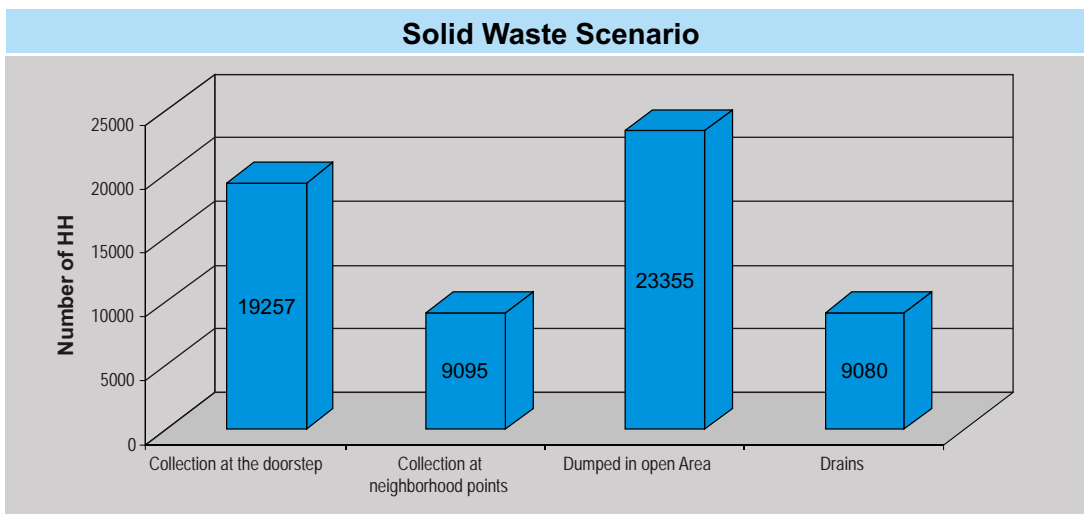
3.2.6 Status of Roads, Street Lights and Community Activity Area:

3.2.6.1 Roads:

63% of the total road length is metalled or pucca. However the lack of lined roads in remaining areas causes real issues for slum dwellers especially women. This is exacerbated by the absence of street lighting and electricity as can be seen from the following analysis.

Table 3.13 : Condition of Roads		
Total Number of PP	Total Length of Road in Km	Length of Pucca Road in km
229	338	214

Marghat Pahadi - There is no means of public transportation. People have to travel upto 2- 2 ½ kilometer for public transport. The incidences of looting are very common because of distance and lack of electricity. Women in particular are not safe especially in the evening hours.Three of the six PPs randomly selected to understand qualitative dimensions of access reported that they did not have pucca roads.

3.2.6.2 Streetlights:

An additional issue is that approximately 60%[5] of roads were not covered by street lights. The entire sample of PPs had a total of 4345 functional street light poles. (Data was not available for the total number of electricity poles). The PLA's have revealed that the lack of electricity has led to increased looting and made women particularly vulnerable given the direct relation this has to safety and security of inhabitants, particularly women, this constitutes a serious concern in the PPs.

Table 3.14 Number of Functional Street Light Poles	
Total Number of PP	Functional Street light poles
229	4345

3.2.6.3 Community Activity Areas:

A community activity area here refers to any common area such as a playground, or park for use by PP inhabitants. A large majority (28%) of the Poverty Pockets did not have a community activity area. The PLAs revealed that children would largely stay at home after school and a community activity area would mean obvious improvements in quality of life for children for example.

Taking a population median[6] of 1300 we found that for PPs with less than 1300 population there were only 12 PPs with the incidence of at least one community activity areas whereas for PP with more than 1300 population there were 35 such PPs. While data is not available for physical size of habitation or PP this would seem to imply a direct relationship between the two.

Table 3.15: Community Activity Area		
Total Number of PP	No. of PPs having a Community Activity Area	No. of PPs without a community activity area
229	165	64

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5 Assuming that there should be a minimum of 1 street light for every 30 meters
6 Median being the (n+1)/2th **value**, where **n** is the number of values in this dataset.

Community Activity Area

64

165

| No. of PPs having a Community Activity Area | No. of PPs without a community activity area |
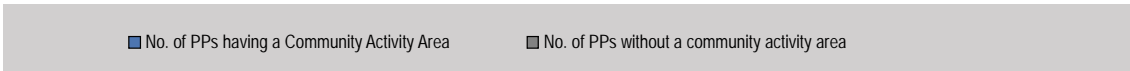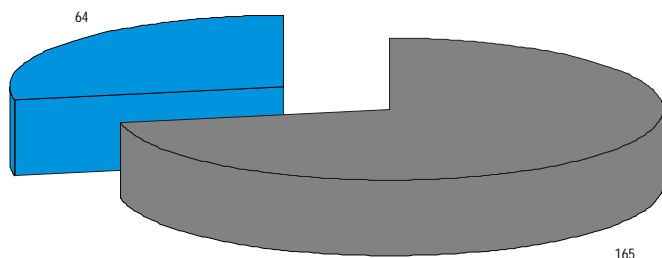
3.2.7 Status of Schools, Aanganwadis, Baalwadis and Public Health Centre Service

3.2.7.1 Schools:

346 primary schools existing in the slums are not evenly distributed and 63% of the PPs have no primary schools. As mentioned earlier presence of primary schools in the area does not automatically ensure enrolment, retention and regular attendance. Infrastructural issues are a key concern and the primarily the availability of basic drinking water and toilet facilities especially in the context of girl children. In the primary schools 18% do not have basic drinking water facilities and 40% do not have toilet facilities. Nearly 80% of the schools do not have separate toilet facilities for girls and boys a key factor in low enrolments and retention of girl students.

Table 3.16: Water and Sanitation in Schools				
Total Number of PP	No. of Primary School	No. of Primary School having drinking water supply	No. of Primary School having Sanitation facility and water supply	Number of Primary School having Separate toilets for girls and boys
229	346	281	208	66

Qualitative data from the PPs emphasizes the interrelatedness of poverty, lack of basic services and access to schooling for children. Mahalgaon for example shows that only 5% of the girls are enrolled in schools due to the paucity of water which girls have to fetch for their households from a very young age. In Gomati ki Pahadi only 30% of the children are going to school while 20% are engaged in activities to supplement family income; 33% of children in Marghat Pahadi and 50% of children in Banjara Shah ka Nala go to school. In Jati Ki Lane there was no report of school going children but due to extreme economic hardship child labour is rampant.

3.2.7.2 Aanganwadis and Baalwadis:

There is a much higher degree of access to aanganwadis in the PPs (97%) as compared to Baalwadis (25%). In both the aanganwadis and baalwadis the lack of toilet facilities (approximately 48% aanganwadis and 5% baalwadis lack toilet facilities) can be seen as a major issue of concern.

Table 3.17: Conditions of Aanganwadis and Baalwadis				
Total Number of PP	No. of Aganwadis	No. of Aganwadis having toilets with water supply	No. of Balwadis	No. of Balwadis having toilets with water supply
229	224	110	58	3

Conditions of Aanganwadis and Baalwadis
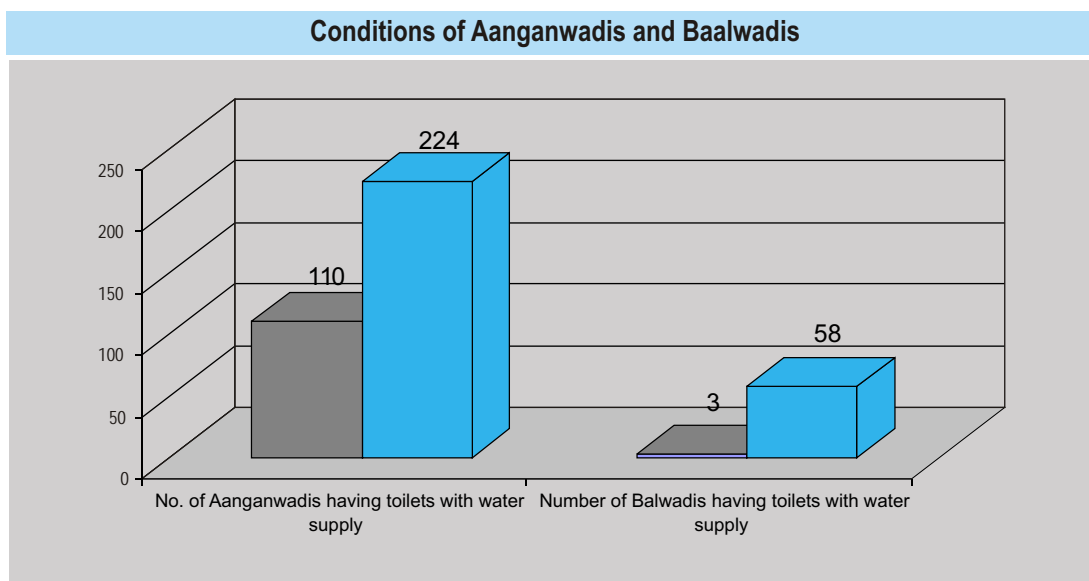
3.2.7.3 Distance to the closest Sub Health Centre:

Of the total 229 PPs, around 21% had reported to have the sub health center within around 0.5 kilometers while 24% of the pockets have it at a distance of 0.5 to 1 kilometer. Around 31% of the PPs reported to access health sub center at a distance of 1-2 kilometer while for 23% of the pockets, it is more than 2 kilometers.

| Table 3.18: Distance to the closest Sub Health Centre				
Distance	0-0.5 Km	0.5-1 Km	1-2 Km	> 2 Km
Number of PP	49 (21%)	55 (24%)	71 (31%)	54 (23%)

INTER POVERTY POCKET DISPARITY STATUS

4.1 Categorisation of Poverty Pockets on MAPP parameters.

4.1.1 Roads:

Of the PPs surveyed an 11% were not completely covered by pucca roads. Out of a total of 338 Kms of road only 214.5 Kms were pucca. Only approximately 28% were completely covered by Pucca roads. Complete coverage by Pucca roads implies that of the total length of road 100% is Pucca for a particular PP.

Table 4.1: Percentage of Pucca Roads							
Percentage of Pucca Road	0	0 < 25%	25% to 50%	50% to 75%	More than 75% but less than 100%	100%	Total
No. of PPs	26	12	43	40	43	65	229
Percentage	11	5	19	17	19	28	100

Percentage of Pucca Roads

□ 0 ▣ < 25% ▣ >25% to 50% ▪ > 50% to 75% □ > 75% but less than 100% ▪ 100%
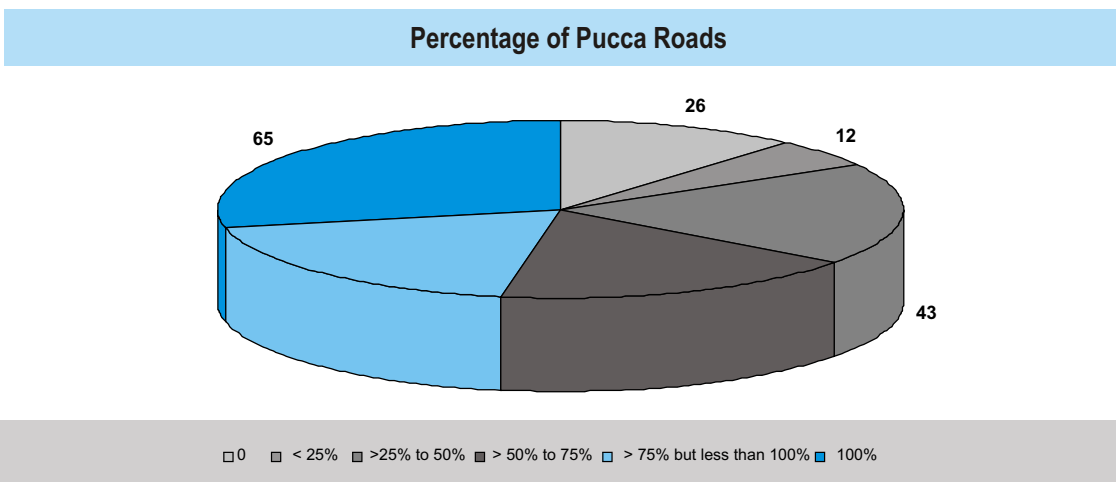
4.1.2 Drainage:

A positive factor in Gwalior is that, a small percentage of poverty pockets (16%) remains deficient in terms of coverage by lined drains but only 1% of the PP are fully covered by lined drains. Coverage here is the length of lined drains in relation to road length. The length of lined drains is 196 Km approximately in relation to the total length of 313 km drains which is 62% of the total drainage length. This in itself is an indicator of the potential for sanitation problems to emerge in the slums indicated also by the incidence of water logging.

Table 4.2: Percentage deficiency of Lined Drains							
Percentage of deficiency of Lined Drains	0	0 < 25%	25% to 50%	50% to 75%	More than 75% but less than 100%	100%	Total
No. of PPs	2	9	10	129	43	36	229
Percentage	1	4	4	56	19	16	100

Percentage deficiency of Lined Drains
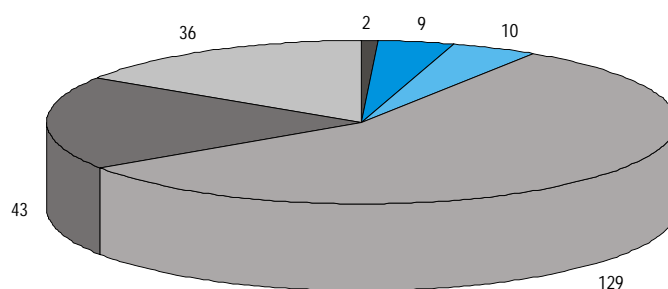
0 ■ <25% □ 25% to 50% □ 50% to 75% ■ More than 75% but less than 100% □ 100%

4.1.3 Street lights:

In order to assess whether the above availability of street lights were sufficient the standard measure adopted was one street light for every 30 metres of road. A large number of PPs proved to have insufficient lighting against this benchmark. Nearly 23% of the PPs falling in the categories where there was 75% or above deficiency in street lights. Only 4% of the PPs showed 100% deficiency in the presence of this infrastructure.

Table 4.3: Percentage deficiency of street lights							
Percentage of deficiency of Street Lights	0	0 < 25%	25% to 50%	50% to 75%	More than 75% but less than 100%	100%	Total
No. of PPs	0	22	55	90	53	9	229
Percentage	0	10	24	39	23	4	100

Percentage Deficiency of Street Lights

No. of Poverty Pockets
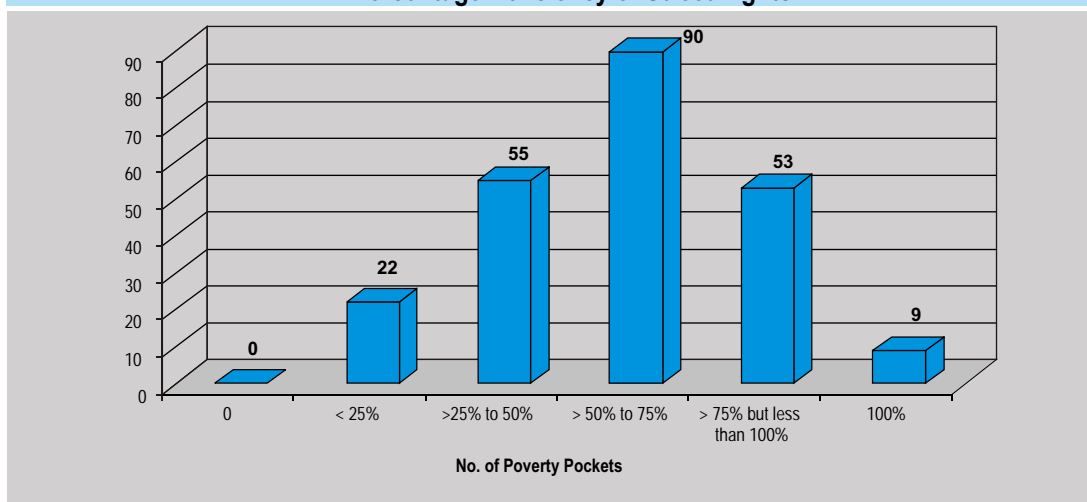
4.1.4 Grey Water Disposal:

In terms of disposal of grey water a large majority (55%) of the Poverty Pockets report that they do not have improved ways to dispose grey water. This is indicative of how pervasive this issue is across the entire city needing particular attention and being linked as it were to the overall issue of lack of drainage.

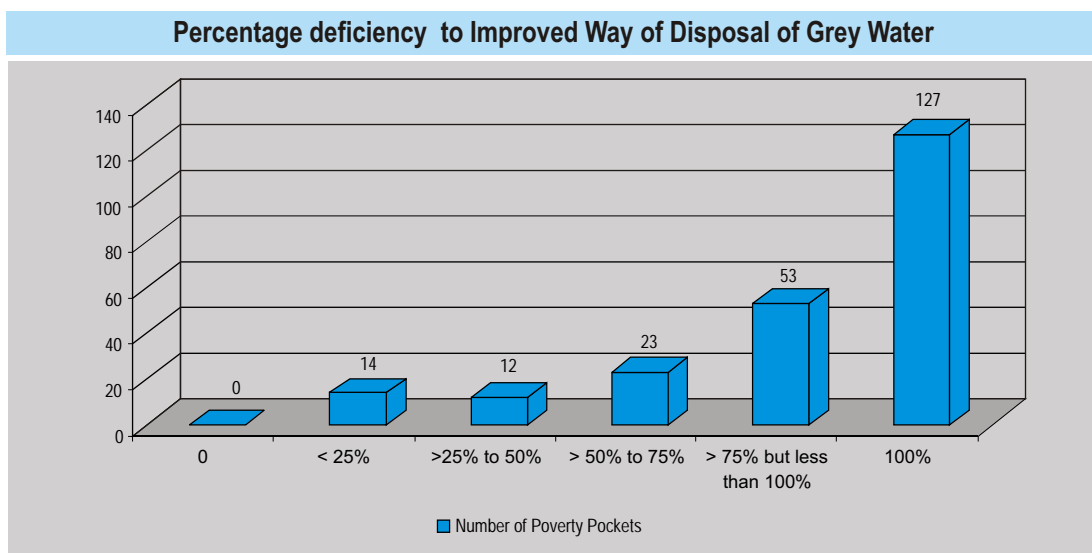| Table 4.4 : Percentage deficiency of grey water disposal							
Percentage deficiency to improved way of Disposal of Grey Water	0	0 < 25%	25% to 50%	50% to 75%	More than 75% but less than 100%	100%	Total
No. of PPs	0	14	12	23	53	127	229
Percentage	0	6	5	10	23	55	100

Percentage deficiency to Improved Way of Disposal of Grey Water

Number of Poverty Pockets

4.1.5 Access to Piped Water Supply

The inter PP analysis brings out issues of distribution in this context. 16% are without any access to piped water. A positive finding is that PPs where deficiency of supply is 0% has a larger number of households (over 15000) compared to PPs where the supply is 100% deficient implying that a smaller gap in access has to be filled in relation to say Bhopal where the reverse was true. However, this survey does not necessarily make a difference between private and public sources of water nor does it indicate quantitatively how far a community member has to travel to obtain water except in the qualitative data where the typical case cited is that people walk one kilometer away from the slum and back loaded with water in order to meet daily requirements.

In the absence of the above parameters this study assesses the issue of quality of access through a deeper look at water supply issues, and quality of water.

Table 4.5: Drinking Water Supply Scenario: Inter PP analysis							
Percentage of deficiency of Piped Water	0	0 < 25%	25% to 50%	50% to 75%	More than 75% but less than 100%	100%	Total
No. of PPs	69	66	30	13	14	37	229
Percentage	30	29	13	6	6	16	100

Percentage deficiency of Piped Water Supply
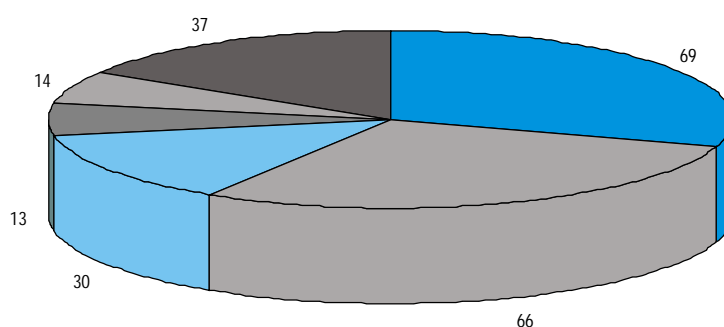
□ 0   □ 0<25%   □ 25% to 50%   □ 50% to 75%   □ More than 75% but less than 100%   □ 100%

4.1.6 Hourly Water Supply

While the quality of water available in the PPs is sound (91% of the slums reported the availability of sweet water) the fact remains that the vast majority (45%) of the PPs are dependent on 1-2 hrs of water supply and many slums (37%) have no water at all. Given the pressure of population on each source this low level of supply (a total of 82% of PPs in the 0-2 hrs supply categories) creates extreme hardship for the families.

Table 4.6 Availability of Water						
No. of Hrs supply per day from stand posts/piped water supply	No water supply through pipeline (assuming 0 1 hr amounts to no supply)	Between 1-2 hours per day (including 2 hrs)	Between 2 – 5 hours per day (including 5 hrs)	Between 5 - 10 Hrs per day (including 10 hrs)	>10 hours	Total
No. of Poverty Pockets	85	104	39	1	0	229
Percentage	37	45	17	0.4	0.0	100

4.1.7 Individual Toilets

The survey data on the sanitation behaviour of the PPs revealed that nearly 43% of the poverty pockets are 25-100 % deficient in toilet facilities. There is need for awareness creation for the behavioural change towards adoption of low cost sanitation units.

Table 4.7: Percentage deficiency of Individual Toilets							
Percentage of deficiency with individual toilets	0	0 < 25%	25% to 50%	50% to 75%	More than 75% but less than 100%	100%	Total
No. of PPs	45	84	43	21	28	8	229
Percentage	20	37	19	9	12	3	100

Percentage deficiency with Individual toilets Number of Poverty Pockets
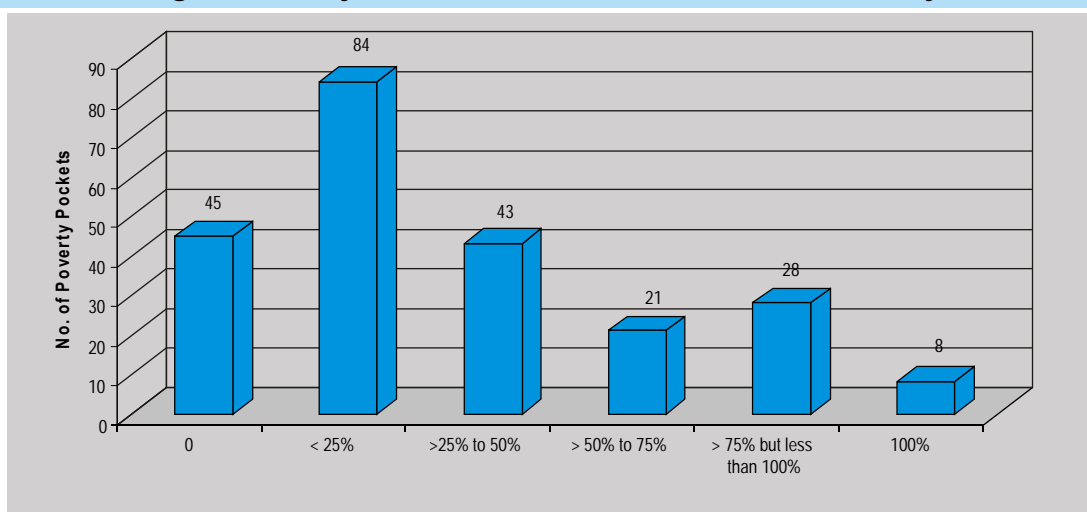
4.2 Categorisation of Poverty Pockets on MDG parameters

4.2.1 Access to Improved Sanitation

8 PPs out of 229 do not have access to improved sanitation at all while in 58 PPs only 50% population have access to improved sanitation.

Table 4.8: Access to Sanitation Scenario : Inter PP analysis							
Percentage Population having access to improve sanitation	0	0 < 25%	25% to 50%	50% to 75%	More than 75% but less than 100%	100%	Total
No. of PPs	8	28	22	44	82	45	229
Percentage	3	12	10	19	36	20	100

Percentage population having access to improved sanitation

Percentage population having access to improved sanitation
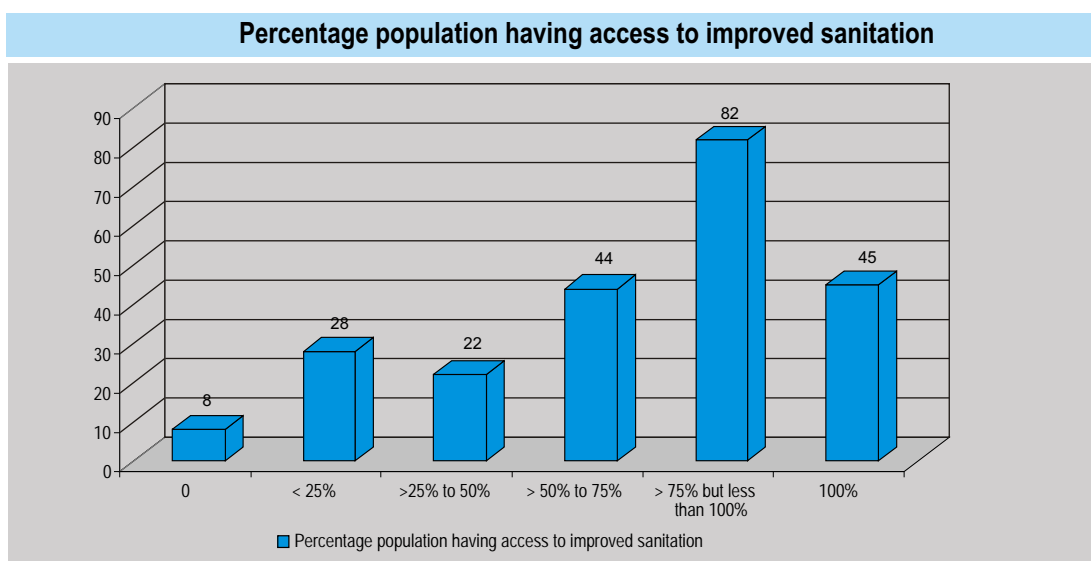
4.2.2 Access to Improved Water Source: -

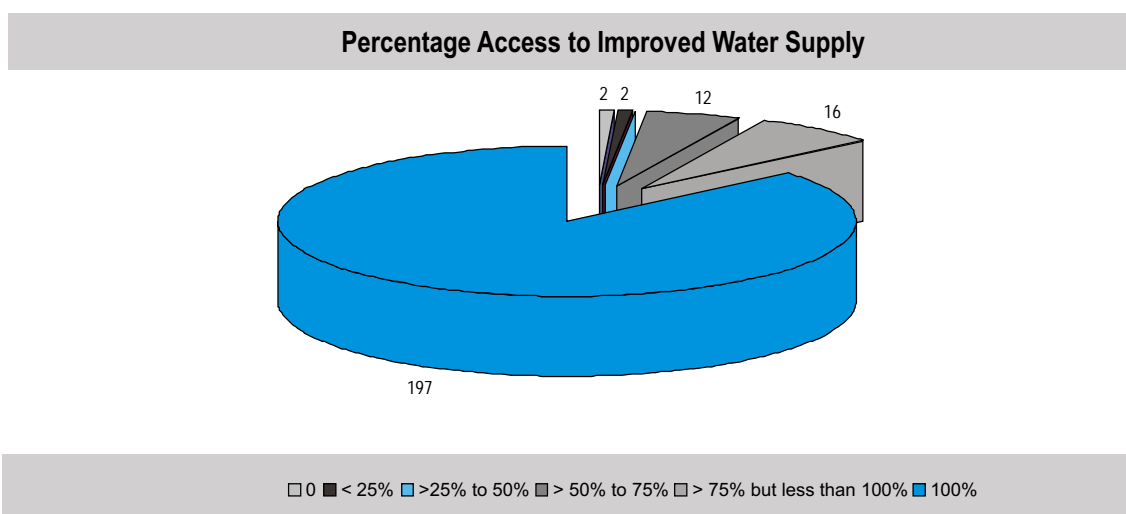The large number of Poverty Pockets (88%) with 100% reporting access to improved water supply is not necessarily borne out by quantitative and qualitative data for drinking water supply and water for sanitation as has been discussed in previous sections. This would seem to indicate that reporting on improved water sources needs to be more detailed and qualitative in order to bring out the real issues of access across Bhopal slums.

Table 4.9: Access to Improved Water Source							
Percentage Access to Improve Water supply	0	0 < 25%	25% to 50%	50% to 75%	More than 75% but less than 100%	100%	Total
No. of PPs	2	2	-	12	16	197	229
Percentage	1	1	-	5	7	86	100

Percentage Access to Improved Water Supply

☐ 0 ■ < 25% ☐ >25% to 50% ☐ > 50% to 75% ☐ > 75% but less than 100% ■ 100%

Percentage Access to Improved Sanitation	Percentage Access to Improved water Supply						
	0	1-25	26-50	51-75	76-99	100	Total
0	1	-	-	-	7	-	8
1-25	1	1	-	2	4	20	28
26-50	-	-	-	1	2	19	22
51-75	1	-	-	6	5	32	44
76-99	-	-	-	1	5	76	82
100	-	-	-	2	-	43	45
Total	**3**	**1**	**0**	**12**	**23**	**190**	**229**

Table 4.10: Deficiency Matrix based on existing water and sanitation facilities

Section 5

CONCLUSION

With the purpose of making interventions to improve water and sanitation services in the most water and sanitation service deficient poverty pockets, the PPSA was conducted during November to December 2005 in 229 Poverty Pockets of Gwalior. The primary objective of the PPSA was to identify the most deficient Poverty Pockets with respect to water and sanitation, for further project intervention. The overall situation in the PPs as emerged through the PPSA is presented in Table 5.1

Table 5.1: Over all Analysis of PPs in Gwalior	
Total No of Poverty Pockets Identified	229
Total Households in PPs	60,787
Number of Household living in the poverty pockets Below Poverty Line	10,452
% of households living Below Poverty Line	17.19
% hh in poverty pockets with access to improved water source (average)	96.11
% hh in poverty pockets with access to improved sanitation (average)	68.49
% hh living in the poverty pockets defecating in open	31.50
% hh living in the poverty pockets with piped water supply	65.14

Qualitative data provided key leads to understanding access issues in Gwalior. The PLA revealed that all of the PPs are situated on Swarn Rekha Nala. Hence foul smell and lack of sanitation is a regular feature in the community. Most of the PPs are very old, even more than 100 years. Water table is very deep. The problem is worse in the colonies situated on the hills/plateau. Underground water is not suitable for drinking at few places. Water, garbage disposal, sewer, electricity are the major concern of the colonies. Open defecation is a common practice. Swarn Rekha Nala is used for defecation in many cases. Child education varies from 20%- 50%. Lack of electricity has given birth to the problems like looting in some of the PPs. Lack of sanitation has affected health of the people adversely causing diseases such as skin diseases. At the same time in the absence of useable health infrastructure, quacks abound causing more complication in health of the slum communities.

The basic figures obtained through extrapolations on Department of Food and Civil Supplies in Gwalior has revealed that the percentage of poor households in the city overall corresponds to the percentage of poor households in slum areas (15% for PPs and 17% for Gwalior city), belying the expectation of concentration of poor households in slum areas. This leads us to believe that a degree of underenumeration may exist for number of poor households in slum data. In the absence of data from national sample survey (NSS) and any other statistically accepted survey the current study really underlines the lacunae in recent data for use in analysis.

Data gaps notwithstanding, even in the current dataset, trends in poverty run parallel to trends in access to basic services. *This study shows overlap in zones where poverty is concentrated with zones where lack of piped water supply, improved water sources and toilets are a recurrent theme.*

5.1 Basic Infrastructure: Road, Electricity, School, Anganwadi, Balwari and Health Centres Community Activity Area Infrastructure Facility

Lack of access to basic services to the residents of PPs such as road, lights, school, health centres and community activity areas bring out the interrelatedness of poverty, lack of basic services and other aspects of human development.

63% of the PPs have no primary schools and where they exist, lower enrolment, poor retention and irregular attendance were pointed out as the key issues. There is a much higher degree of access to aanganwadis and baalwadis in the Poverty Pockets 98% and 48% respectively. Of the total 229 poverty pockets, around 21% had reported to have the health sub center within around 0.5 kilometres while 24% of the pockets have it at a distance of 0.5 to 1 kilometer. Around 31% of the poverty pockets reportedly have to access health sub center at a distance of 1-2 kilometer while for 23% of the pockets, it is more than 2 kilometers.

Marginalization of PP areas in a city is also impacted by poor access to road within the slum and the link of the settlement with the main road. 63% of the total road length is lined. Only 39% (approximately) of the total road length is covered through functional street light poles. Over 89% of the PPs had five or less functional street light poles indicative of the extreme lack of infrastructure in this area and qualitative survey indicates that 'availability' does not amount to 'usability' or accessibility of a facility.

The absence of facilities is more acute in PPs with smaller pockets. The analysis indicates that a Small Scattered Poverty Pocket is less likely to have Basic Facilities in terms of incidence of facilities.

5.2 Availability of Water in the Poverty Pockets

In the surveyed 229 poverty pockets, more than 65% of the PPs depend on public stand posts to meet their daily water requirements. The hardship of water becomes manifold in many of those slums where neither does community tap work nor is there any other drinking water source. In total, *35% PP settlements, especially smaller ones, do not have water supply services at all.* Out of 60,787 households in 229 Poverty pockets, an overwhelming 70% of the households do not have access to individual piped water supply. This emphasizes the degree of scarcity of water in the poverty pockets of Gwalior.

Given the pressure of population on each source this low level of supply affect the quantity of water that each household gets. At places "People have to bring water from other colonies from a distance over a slope of at least 1 kilometer taking more than ½ hour."

The map given also helps highlight the spatial distribution of poverty and access in Gwalior .

Diagram 1: Mapping the Inter PP Disparities in Access to Water and Sanitation
GWALIOR ZONE AND WARD MAP

GWALIOR WARD MAP
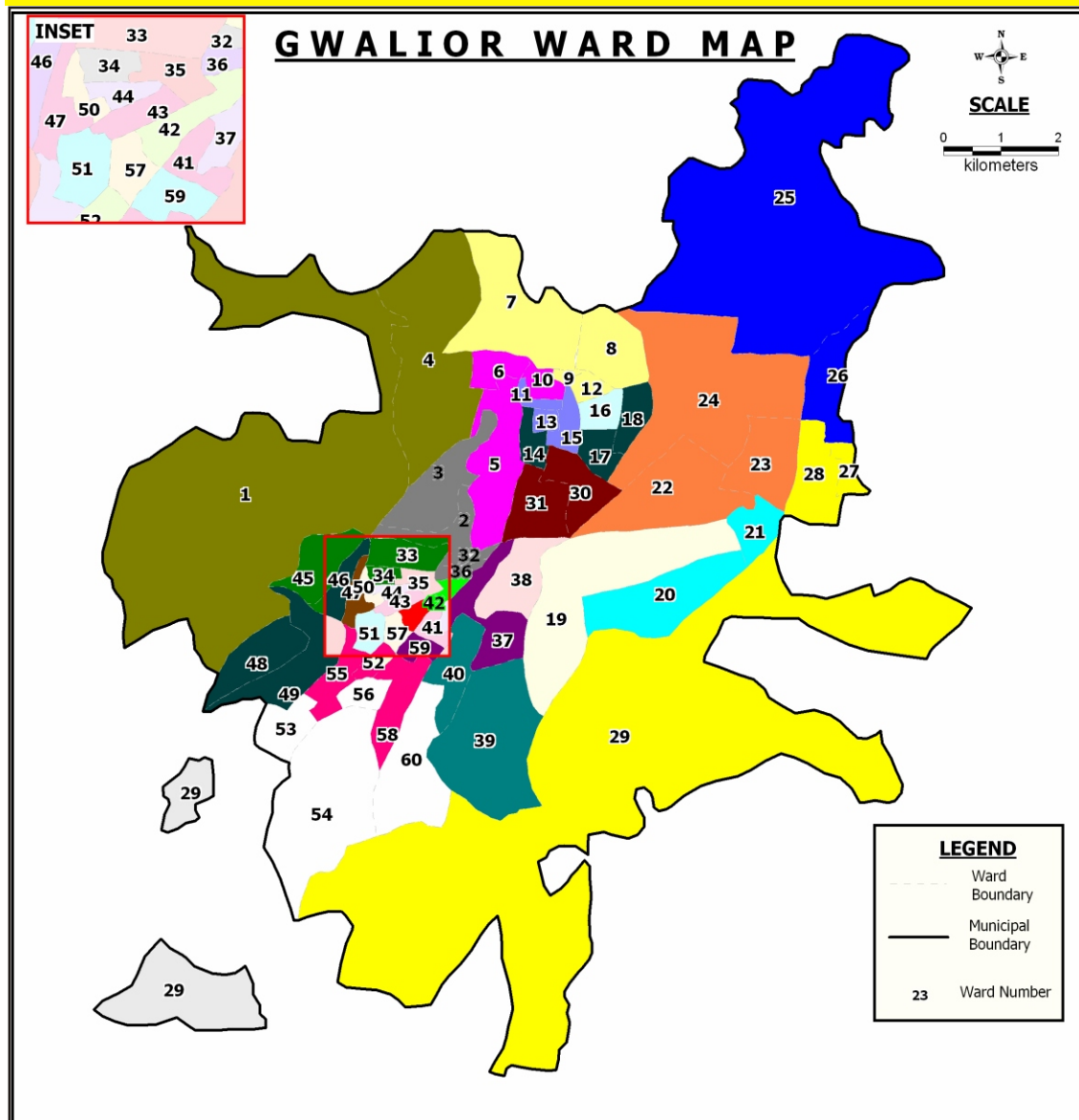
Zone No 1	Wards 1,4		Zone No 11	Wards 39,40
Zone No. 2	Wards 5,6,10		Zone No 12	Wards 37, 59
Zone No 3	Wards 7,8,9,12		Zone No 13	Wards 2,3, 32, 36
Zone No 4	Wards 11,13,15		Zone No 14	Ward 35
Zone No 5	Wards 14, 17,18		Zone No 15	Wards 33,34,45
Zone No 6	Wards 20,21		Zone No 16	Wards 46,48,49
Zone No 7	Wards 22, 23,24		Zone No 17	Ward 47
Zone No 8	Wards 25, 26		Zone No 18	Wards 52, 55 ,58
Zone No 9	Wards 27, 28, 2 9		Zone No 19	Wards 53, 54,56, 60
Zone No 10	Wards 30, 31		Zone No 20	Ward 42

Annexure - 1

PPSA Questionnaire

NOTE *TO THE ENUMERATOR AND MUNICIPAL CORPORATION STAFF: RECORD GENERAL OBSERVATIONS ABOUT THE NEIGHBOURHOOD ENVIRONS. THE PURPOSE IS TO CAPTURE FEATURES OF THE POCKET THAT ARE COMMON TO ALL DWELLINGS AND PERSONS LIVING IN THE AREA AND DEPICTING IT ON A MAP.*

Q 1. Name of the Poverty Pocket

    A. WARD NUMBER: ....

    B. NAME OF THE WARD SUPERVISOR (HEALTH DEPARTMENT): ....

    C. NAME OF THE SUB ENGINEER (WATER SUPPLY DEPARTMENT): ....

Q 2.

    a. Number of Households ------------

    b. Population-------------

Q 3. Number of BPL Households

Q 4. Physical boundary landmarks for demarcating the North, South, East and West Edges for the pocket :

    a.Distance from North to East Landmark ……………….

    b.Distance from East to South Landmark ……………….

    c.Distance from South to West Landmark ……………….

    d.Distance from West to North Landmark ………………..

Q 5. Condition of roads:

    a. Total Length of road…………………

    b. Length of kucha road ………………..

    c. Length of pucca road …………………

    (In Kilometre)

Q 6. Condition of drains:

    a. Total Length of drains …………..

    b. Length of pucca drains …………..

    c. Length of kucha drains ....

    (In Kilometre)

Q 7. Is the area prone to water logging: **Yes/No**

Q 8. Number of Street light Poles

Q 9. Is there a community activity area (Common places for gathering of people):   Yes/No

Q 10. Condition of Schools:

      a. Number of Primary schools

      b.Number of Primary Schools having drinking Water facility

      c.Number of Primary Schools having Sanitation facility with water supply

      d.Number of Primary schools having separate toilets for boys and girls

Q 11. Condition of Anganwaris / Balwadis:

      a.Number of Anganwari?

      b.Number of Anganwari having toilets with water supply?

      c. ....Number of Balwadi?

      d.Number of Balwadi having toilets with water supply?

Q 12. Distance to the closest health sub centre (in Kilometre)

Q 13. Drinking water supply source:

      a. Number of public stand posts ………

      b. Number of Wells …………………

      c. Number of hand pumps ……………

      d. Number of Tube wells……………

Q 14. Water quality:

      a. Sweet taste

      b. Salty

      c. Taste less

Q 15. Availability of Water Supply:

    No. of hours supply per day from standposts/piped water supply

Q 16. Community Toilet

      a. Is there a community toilet in the area? Yes/No

      b.Number of total seats for male/female: ------/-------

      c.Does it have a permanent water supply facility? Yes/No

      d. Does it have a bath facility? Yes/No

      e.Is it connected to a septic tank or sewerage? Yes/No

Q 17. Operation of the existing community toilet:

      1. Condition:

      a. Not maintained, not useable

      b. Poorly managed, but used

      c. Properly managed, but overcrowded

      d. Properly managed, not crowded

      2. Are users paying for the services   (Yes/No)

Q 18. Solid waste scenario:

Either of:

a.Facility of solid waste collection at the doorsteps
b.Facility of solid waste collection at the neighbourhood points
c.Solid waste is dumped openly in the area
d.Solid waste finding its way into the drains

Q 19* Disposal of Grey water (waste water from household chores):

a.Number of households letting it out on the street
b.Number of households disposing to open drains
c.Number of households disposing to septic tanks
d.Number of households disposing by sewerage system

Q 20*. Sanitary facilities scenario:

a. Number of Households having individual toilets,
b.Number of Households using community toilet…………………………
c.Number of households defecating in the open………………

Q 21*. Drinking water supply scenario:

a.Number of Households having access to Piped water supply …………………..
b.Number of households using public standposts/taps, borehole or pump, protected wells, protected springs or rainwater/ handpumps …………………
c.Number of households depending on tankers, vendor provided water or unprotected wells and springs…………..........................

* Note 1: In items 19, 20 and 21 the number of Households in various categories should add up to the total number of households in the area as given in 02

Note 2: Except Q : 1, 2, 3, 7, 12, 15, 17, 18, 19 the remaining physical features should be depicted on a map prepared on a scale of 1 : 600 (1"= 50') with clear boundary demarcations.

Municipal Corporation Staff 1

Name…………………………..

Designation …………………

Sign…………………………….

Enumerator 1

Name…………………………..

Sign…………………………….

Municipal Corporation Staff 2

Name…………………………...

Designation…………………….

Sign…………………………….

Enumerator 2

Name…………………………...

Sign…………………………….

REPORT FORMAT
[ALL IN KILOMETRES]

Length of roads (pucca and kucha)	Length of pucca drains	% of length not covered with pucca drains [1-{(b)/(a)}] * 100
(a)	(b)	(c)
Q.05 answer code=1	Q.06 answer code=2	

Length of roads (pucca and kucha)	Length of pucca road	% of deficiency of pucca road [1-{(b)/(a)}] * 100
(a)	(b)	(c)
Q.05 answer code=1	Q.05 answer code=3	

Length of roads (pucca and kucha)	No. of existing streetlights	% of deficiency in street lights [1-{(b)/((a)/30)}]*100
(a)	(b)	(c)
Q.05 answer code=1	Q.08	

Total Number of Households	Households served by Piped Water Supply	% of households not covered with piped water supply [1-((b)/(a))]* 100
(a)	(b)	(c)
Q2.0 answer code=1	Q.21 answer code=1	

No of hours supply per day	% of hourly supply available to population (% of hours supply) [(b)/24] * 100
(a)	(b)
Q.15	

Total number of Households	Households covered with toilets	% of households not covered with toilets [1-(b)/(a)]* 100
(a)	(b)	(c)
Q2 answer code=1	Q 20 answer code 1	

Total number of Households	Number of households disposing to septic tanks and sewerage system	% of households with access to improvedway of disposal of Grey water [(b)/(a)]* 100
(a)	(b)	(c)
Q2.0 answer code=1	Q.19 answer code=3+4	

Total number of Households	Number of Households dependent on tankers,vendor provided water or unprotected wells and springs	% of households with access to improved water source [1-(b)/(a)]* 100
(a)	(b)	(c)
Q2. answer code=1	Q.21. answer code=3	

Total number of Households	Number of Households defecating in the open	% of households with access to improved sanitation [1-(b)/(a)]* 100
(a)	(b)	(c)
Q2.0 answer code=1	Q.20 answer code=3	

Suggestion: may be good to put the source question/answer code numbers in the above matrix for
the benefit of easy calculation, also useful to cross check the quality of field data in field itself by the supervisors

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