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INDIAN INSTITUTE FOR  
HUMAN SETTLEMENTS

# Basic Services in Urban Slum Areas

*The Case of Urban Water  
Supply and Sanitation*

# What are Urban Basic Services ?

What constitutes basic services?

*Water supply, sanitation, waste, drainage, health, education, electricity*

Why public service delivery?

*For survival, health, dignity, human development*

*Bulky investments and costs of services provision high*

Hence,

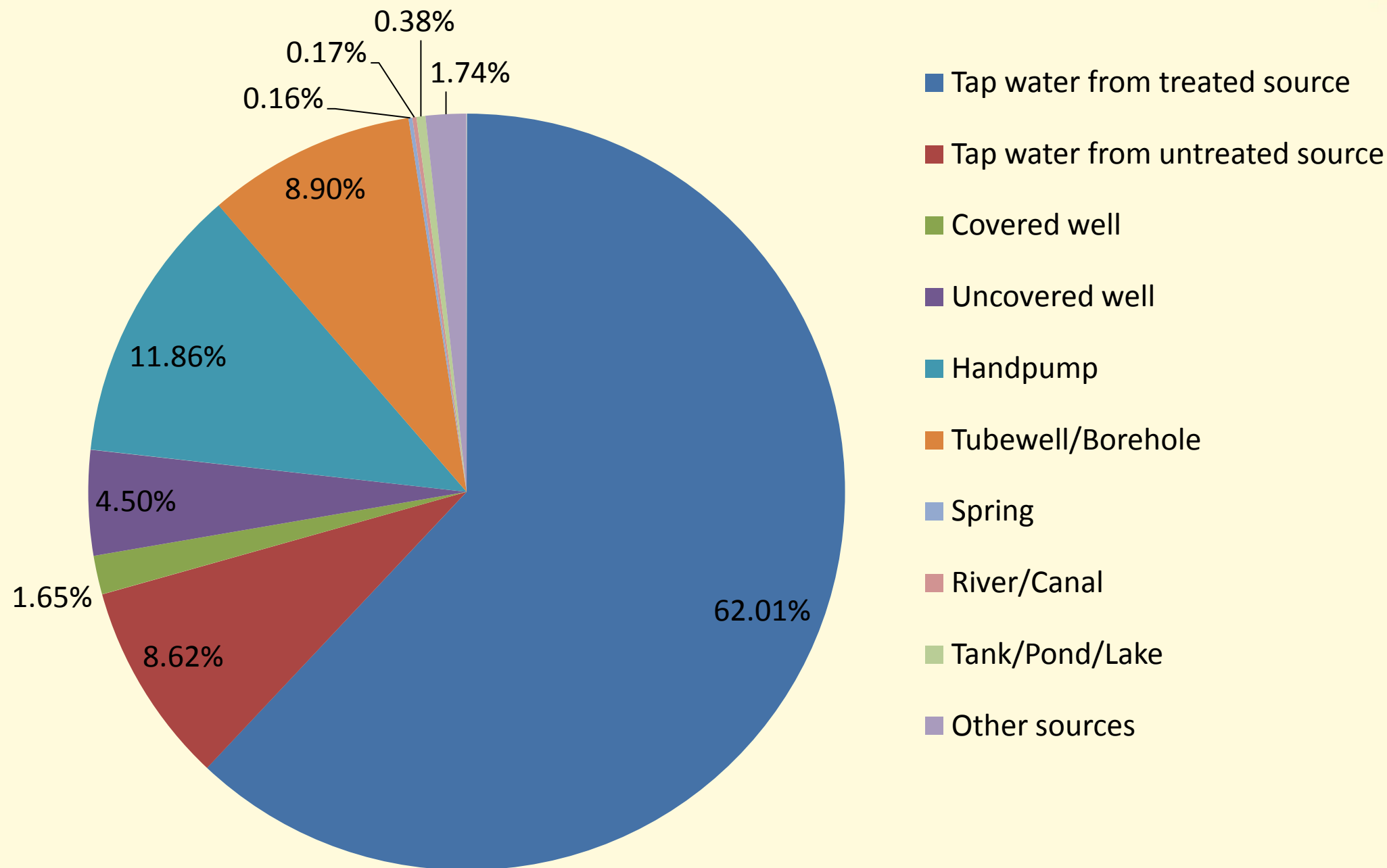
*Universal Services – some services for all people*

*Deficits in basic services' hurt the poor and un-served (mostly in urban areas) –services are mostly better in planned areas*

## Why do water supply and sanitation matter?

- **Basis of Life**
- **Public Health:**
  - **Mortality**
    - Globally, diarrhoeal diseases is the second largest killer of children under 5
    - 88 % of these diseases are attributable to sanitation
  - **Morbidity**
  - **Health Costs**
- **Impacts on environment including water resources**
- **Other impacts e.g. tourism, business**

# Urban Water Supply : Services to the Poor



Only 62 % have access to piped water supply, this percentage goes down to 50% for smaller towns and cities

# Urban Water Supply: Services to the Poor

## SLB Indicators for Water Supply:

No.	Indicator	Unit	Benchmark	Median	Average
1	Coverage of Connections	%	100	53	50.2
2	Per Capita Supply	lpcd	135	69	69.2
3	Metering of Connections	%	100	0	13.3
4	Non-Revenue Water	%	20	29	32.9
5	Continuity of Supply	Hours	24	2	3.1
6	Quality and Treatment	%	100	94	81.7

Source: ([MoUD 2010](#))



# Urban Water Supply: Services to the Poor

- Dependence on multiple sources of water
- Nearly 1/3<sup>rd</sup> of HH depend on ground water
- Coping mechanisms- but different for middle class and the poor
- Sharp rise in bottled water and water purifiers



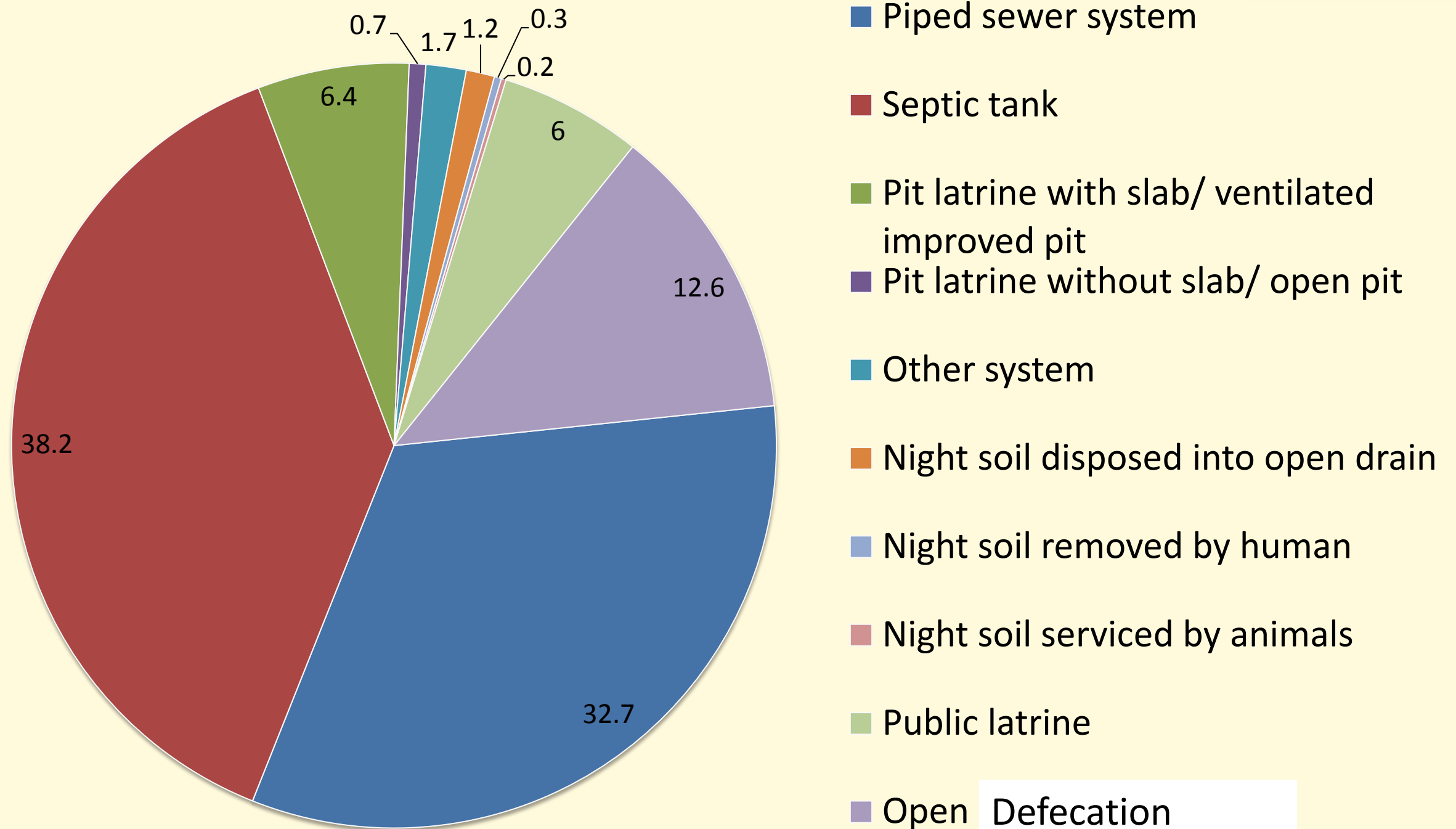


# Lack of Services Impacts the Poor most

1. Uncertain quality of water – consequences for health
2. Infrastructure and services non-existent or inadequate in slums and other “unplanned” areas viz. piped water not being present, inadequate or insanitary systems



# Urban Sanitation: Services to the Poor



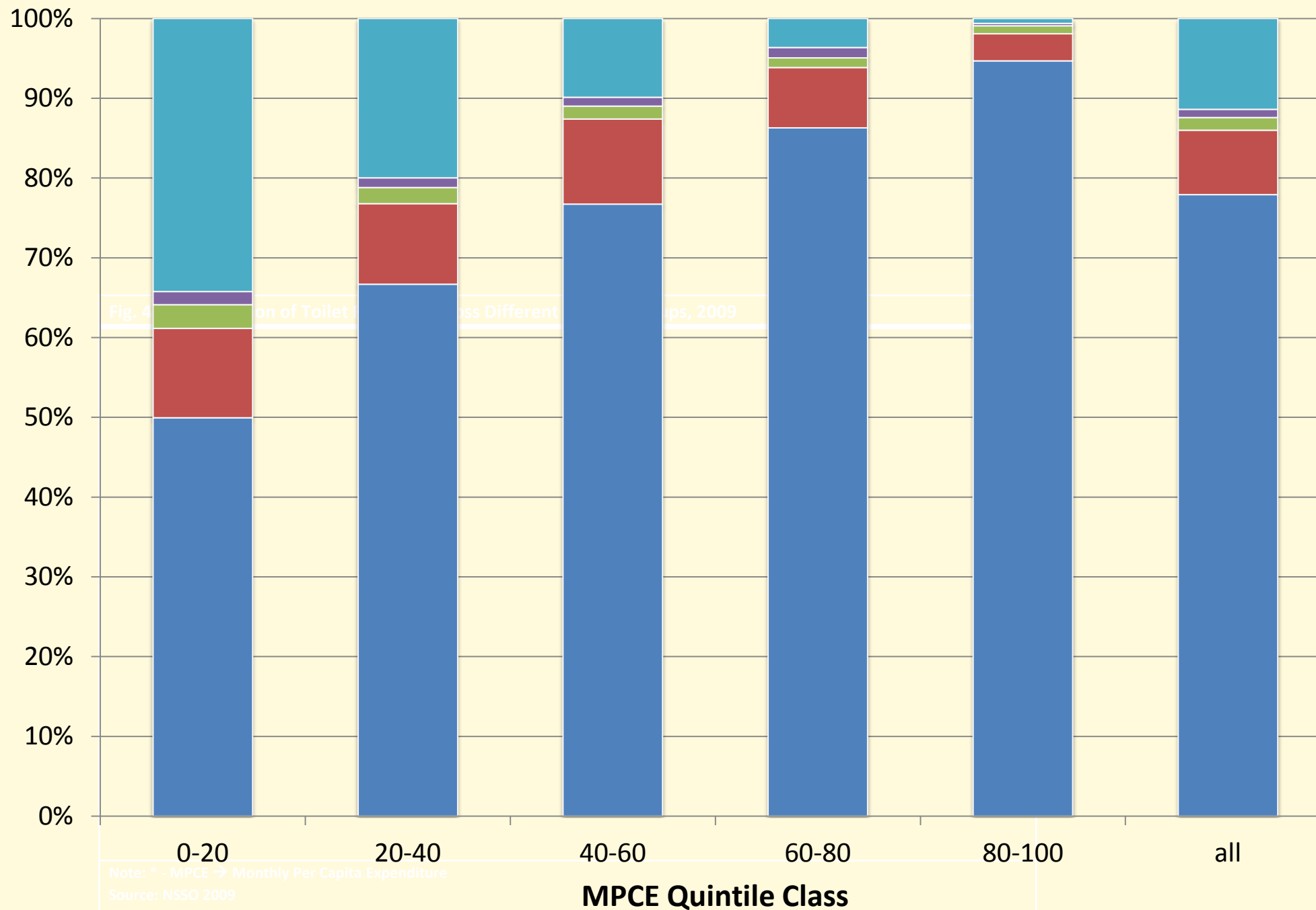
**12 % (10 mn) households resort to open defecation**

**Only 1/3<sup>rd</sup> households are connected to sewerage networks**

*Source: Census 2011*

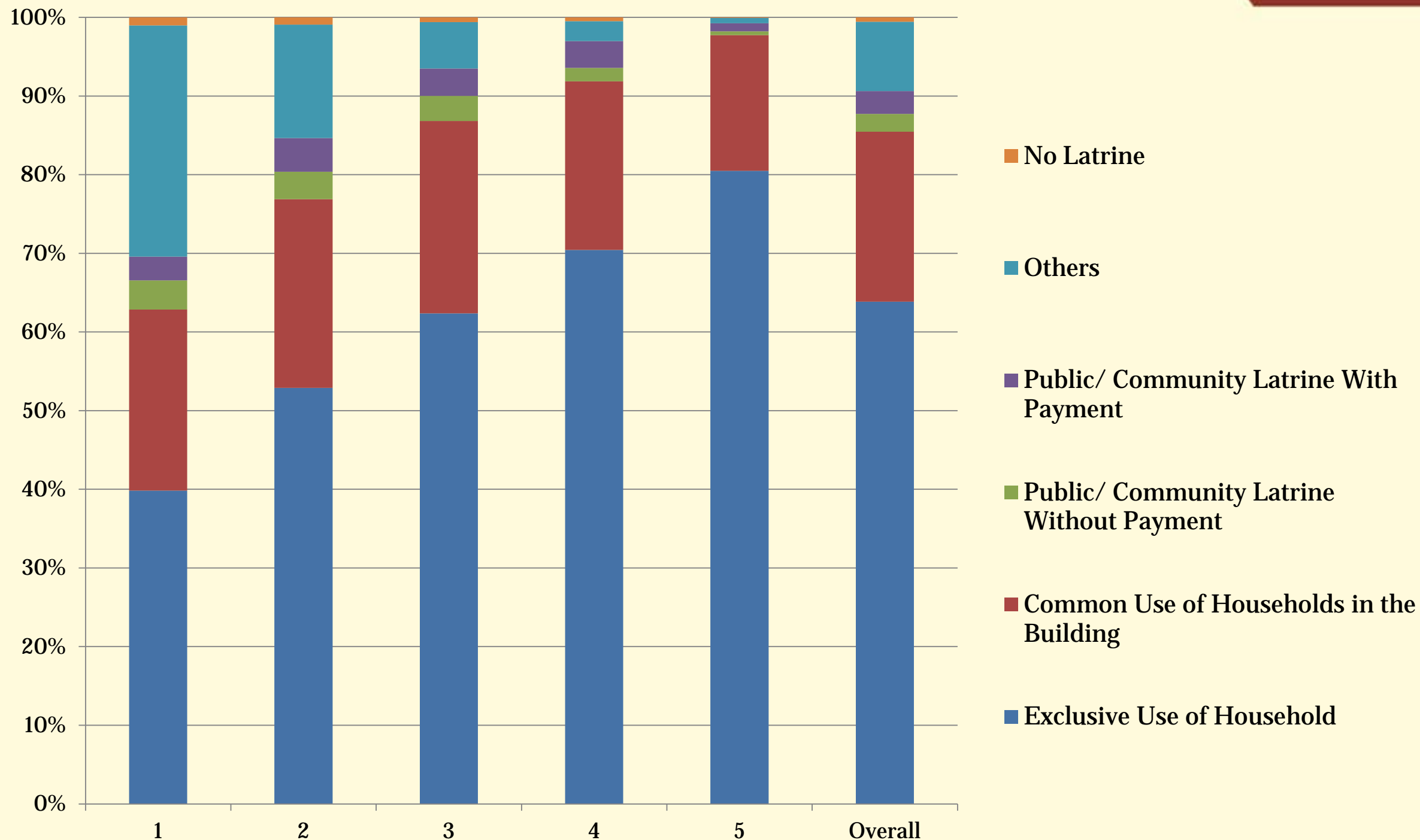


# Urban Sanitation: Services to the Poor



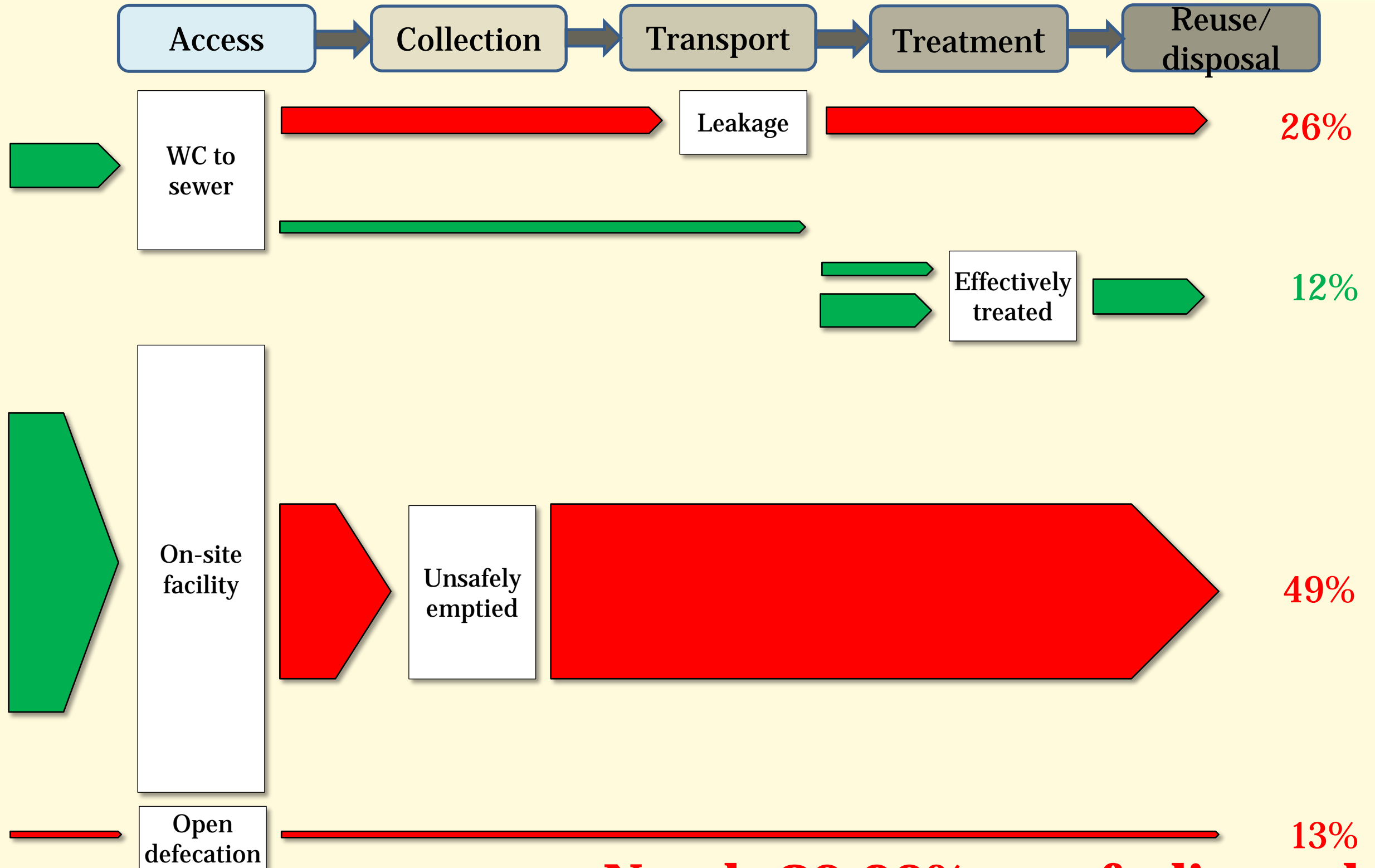
- Septic tank/ flush
- Pit latrine
- Service Latrine
- Others
- No latrine

# Urban Sanitation: Services to the Poor



Nearly 20 percent of households have access only to shared facilities

# Urban Sanitation: Services to the Poor



Source: WSP, South Asia

**Nearly 80-90% unsafe disposal**



# **Lack of Services Impacts the Poor most**

## **High coping costs of inadequate water supply**

1. Cost of time to fetch water- especially women and girl children
2. Cost of purchase from informal service providers often higher than public tariffs
3. Cost of storage structures etc. due to poor supply
4. Bribes to access water

### **Delhi**

**Official bill : Rs 500 per year (Rs 2.7/m<sup>3</sup>)**

**Coping Costs: Rs 4000 per year (Rs 25/m<sup>3</sup>)**

### **Dehradun**

**Households with access to public tap: 6.7 % of their income**

**Households with access to individual household connection: 1.6 % of income**

## **Economic Losses due to inadequate sanitation**

Loss of 6.4 % of GDP, Rs. 2.4 trillion

1. Mortality
2. Morbidity : health care
3. Contamination of water leading to higher cost of water
4. Time and Welfare losses
5. Tourism and other losses

Urban households in poorest quintile bear the highest per capita loss (Rs. 1700)- higher than rural poor

## 1. Tenurial

- Public provisioning limited to notified slums
- Lack of incentive for households to invest money

## 2. Financial and Economic

- Urban poor end up paying more in absence of public provisioning
- Difficulty in paying upfront connection charges
- Increasing block tariffs might penalise bulk connections

## 3. Space Constraints

- High densities- little space for toilets

## 4. Location

- Untenable : flood prone areas etc.





## 1. Legal and Regulatory

- i. Utilize existing laws and regulations/provisions to create enabling conditions
  - How are urban poor recognised/ notified (e.g. Slum Acts) – can these categories be used for identification and targeting
  - Examine laws and regulation for services provision (Municipal Acts, Board Acts, etc.) –modify as necessary
  
- ii. Universalize: delink services from tenure
  - Parivartan programme, Ahmedabad: *NOC certificate from owner of the land*
  - Provisioning to Bangalore slums: *documentation needs changed from proof of ownership to 'proof of occupancy'*

- Upgradation of Slums: focus on services, and not on housing
- Partnership between AMC, NGOs, and community
- No Eviction guarantee for 10 years

## The 500 NOC Scheme

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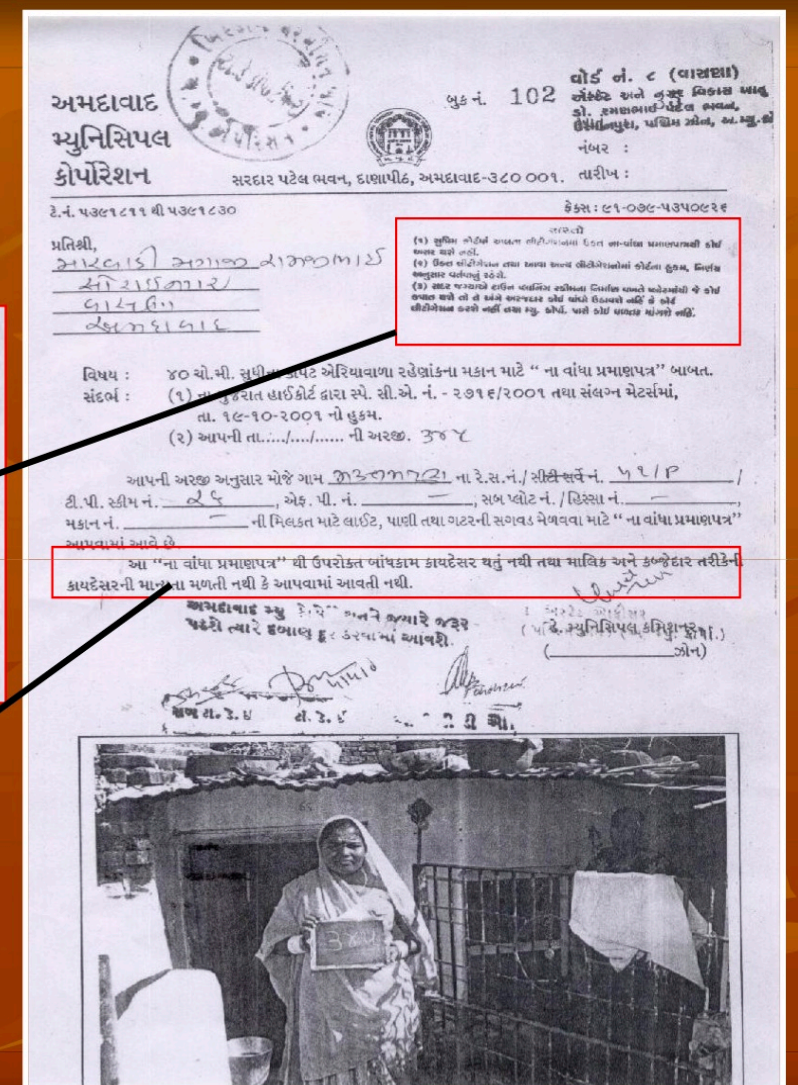
(૧) સુધ્ધિ કોર્ટમાં ચાલતા તીરીંગણામાં ઉક્ત ના-વાંધા પ્રમાણપત્રથી કોઈ અસર થશે નહીં.

(૨) ઉક્ત સીટીંગેશન તથા આવા અન્ય સીટીંગેશનમાં કોર્ટના હુકમ, નિર્ણય અનુસાર વર્તવાનું રહેશે.

(૩) સરકાર પગલાઓ દ્વારા જ્ઞાનિત સ્કીમના નિર્માણ વખતે પ્લોટમાંથી જે કોઈ ભૂખત થશે તે તે અંગે અરજદાર કોઈ વાંધો ઉઠાવશે નહિં કે કોર્ટ સીટીંગેશન કરશે નહીં તથા મ્યુ. કોર્પો. પાસે કોઈ વળતર માંગણું નહિં.

### Translated Version

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## 2. Financial and Economic

- i. Provide for lifeline service levels
- ii. Provide for Lifeline tariffs
- iii. Identify and remove biases against the poor *e.g. Bangalore-lowest tariff for bulk connections*
- iv. Improve targeting
- v. Innovate on financing capital and O & M for urban poor: *e.g. connection charges in instalments; User groups manage Public Stand Posts in slums*



## **3. Community Engagement**

- i. Forge partnerships for improvements e.g Parivartan, Kalyani

## **4. Sensitisation and capacity building**

- i. Build buy-in of front-line personnel
- ii. Build a dedicated cell e.g. social development unit in BWSSB

## **5. Links with Urban Planning**

- i. Mainstream the poor settlements in all new developments/plans

## Phnom Penh Water Supply Authority (PPWSA)

Population : *1.5 million*

### Key Performance Indicators

PERFORMANCE INDICATORS	1993	2009
Production Capacity, m3 per day	65,000	300,000
Coverage Area	20%	90%
Supply Hours	10 hours per day	24 hours
Non-Revenue Water	72%	6 %
Collection Ratio	48%	99.9%
Water Quality	NA	WHO
Return on revenue	NA	27%
Current Ratio	NA	2.55 times

## What was the reform process?

- PPWSA was granted autonomy
- Political will
- Financial support from donor agencies
  
- Dynamic Leadership
- Institutional Reform and Organisational Development
  
- City Wide Studies and Development of Master Plan
- Improvement in Maintenance Regime
- Systematic Leak Reduction
- Provisioning at edge of settlements
- Incremental increase in tariffs, backed by service level improvements



1. Provisioning of services required for health and human development
2. Lack of public provisioning impacts the poor most
3. In addition, regulations can hinder self provisioning for urban poor e.g. tenure
4. Need a multi-pronged strategy to address barriers: legal and regulatory, financial and economic, community engagement

**Thank You!**

## **Water Supply**

Ensure 24 X 7 piped water supply of adequate quality to all households

Ensure security of water sources by conservation and judicious use

## **Sanitation**

Ensure all households have access to sanitary toilets

100 % safe collection, conveyance and treatment of sludge and waste water

## **Solid Waste Management**

100 % safe collection, conveyance and treatment of waste

# Non Revenue Water

No.	City	NRW (%)
1.	Bangalore	46 %
2.	Indore	59%
3.	Ahmedabad	30%
4.	Hyderabad	38%
5.	Bhuvaneshwar	50%

Source: SLB, 2011



**Perception 3 : Increased funding and capital investments are the only requirements**

**Perception 4: Water is social good. We can not charge for it –it will hurt interests of the poor.**

**Perception 5 : Government can ‘delegate’ responsibilities and achieve outcomes**

# Water Supply : Common Perceptions

## Perception 1: We do not have sufficient water for 24 X 7 supply

City	lpcd	Hours of Supply
France	156	24
Kuala Lumpur	132	24
Colombo	110	24
Dakar	90	24
Jakarta	80	24
Delhi	220	4
Surat	195	3
Vijaywada	157	4

## Perception 2: Urban water supply depends on surface water sources

<b>Percentage of Households directly dependent on ground water</b>							
<b>Water Source</b>	<b>Class 1</b>	<b>Class 2</b>	<b>Class 3</b>	<b>Class 4</b>	<b>Class 5</b>	<b>Class 6</b>	<b>All Classes</b>
Covered Well	1%	2%	4%	3%	2%	2%	2%
Uncovered Well	2%	6%	11%	9%	9%	10%	4%
Well (Sub Total)	3%	7%	15%	12%	11%	12%	6%
Handpump	8%	14%	16%	19%	25%	22%	12%
Tubewell	9%	9%	8%	10%	11%	8%	9%
<b>Total</b>	<b>20%</b>	<b>31%</b>	<b>39%</b>	<b>41%</b>	<b>47%</b>	<b>43%</b>	<b>27%</b>

Source: Census 2011

# **Water Supply : Required Policy Changes**

- 1. Re-Align programme design to outcomes, not inputs**
- 2. Monitor outcomes credibly**
- 3. Effective affirmation of the subsidiarity principle**
- 4. Scale up capacity building programmes**
- 5. Develop a communication strategy for all stakeholders**



1. Collect accurate data to establish baselines and for appropriate design and planning (from production to consumption),
2. Ring-fence areas of responsibilities (zones, wards etc.), and monitor
3. Take corrective action for NRW Reduction (including O & M)
4. Communication Strategy (clearly demonstrating public health impacts, demand management)
5. Capacity Building for Staff
6. Pilot 24 X 7 in appropriate areas (using available financing)
7. Innovate to reach the un-served

1. Collect accurate data to establish baselines and for appropriate design and planning (for the entire sanitation chain),
2. Create city wide plan (technology agnostic, start from where you are)
3. Create community and public toilets, and put O & M regimes
4. For networked systems, incentivise people to connect
5. Septage Management Plan
  - Empanel De-sludging Contractors
  - System to Monitor Septic Tank De-sludging and Sludge Reaching STP
6. Experiment and put in appropriate treatment facilities (using appropriate financing mechanisms)
7. Communication Strategy (clearly demonstrating public health impacts, retrofitting toilets)
8. Capacity Building for Staff

Perception 2: Building new sewerage networks are the only and best solution for urban India

## **Sewerage Networks**

- Limited to million plus cities
- Poor maintenance – clogged sewers

## **Sewage Treatment Plants**

- Inadequate Treatment capacity
- 70% of this capacity in million plus cities
- STPs are not operated!



*High Capital and O & M Costs for both sewerage networks and STPs  
Much of Policy Focus has been on Networked Systems*

**Perception 3: Non-availability of finance for sewerage and STPs are the biggest problem**

**Perception 4: Only networked systems require attention of the ULB**



# Urban Sanitation: On-site systems

- Nearly 2/3<sup>rd</sup> of households depend on on-site systems
- Lack of comprehensive data
- Inappropriate Design
- Poor workmanship – hardly safe!
- Emptying/cleaning not done or wastes unsafely let out in the open
- No treatment facilities

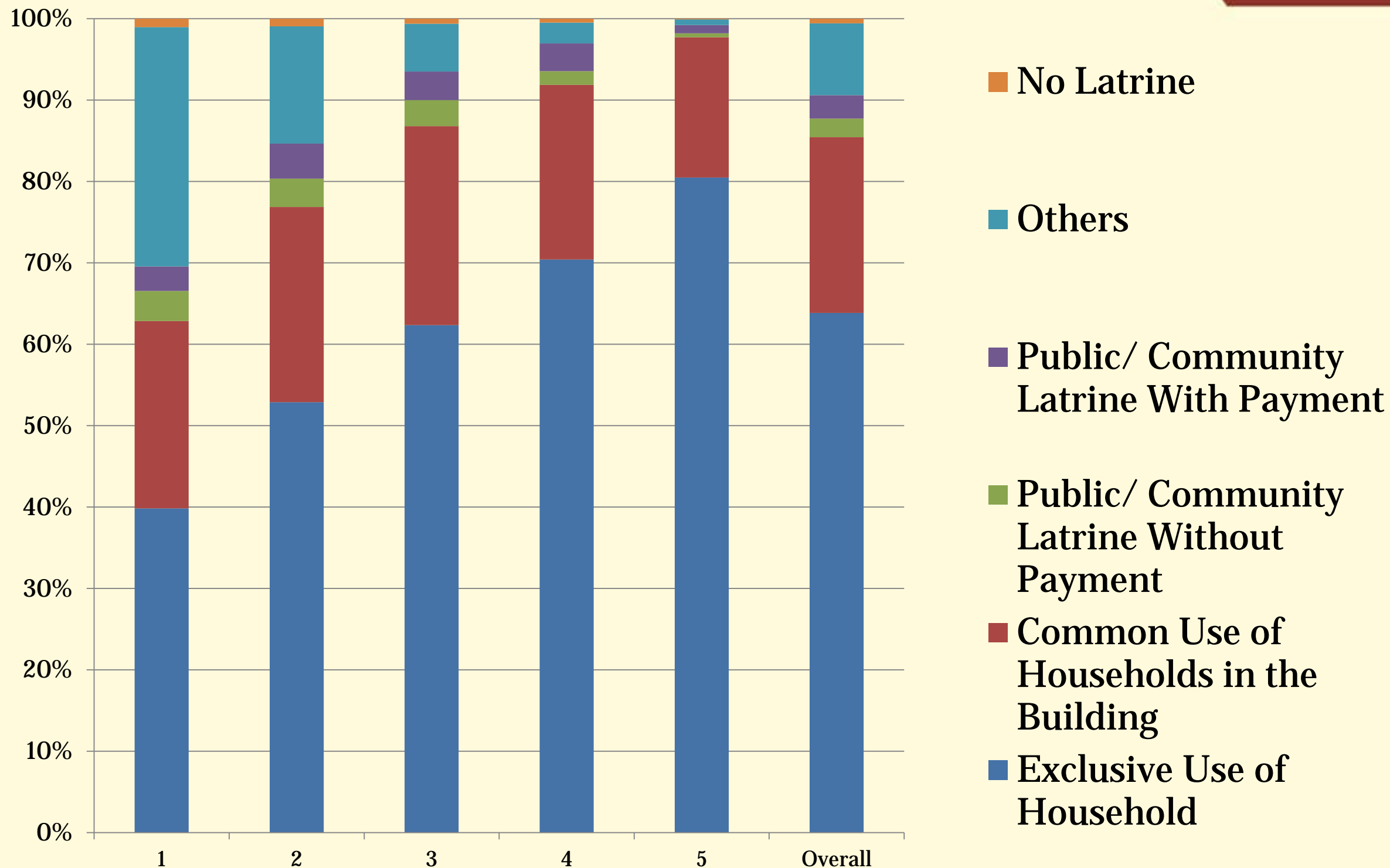


Vertical distance between ground water level and soak pit not maintained



Effluent let off in the open drains

# Urban Sanitation: Shared Toilet Facilities



Only 64 % of households have access to exclusive use of latrines