Presentation from the 2011 World Water Week in Stockholm

WORLD WATER WEEK
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WATER SUPPLY AND SANITATION IN SLUMS
PAS PROJECT, INDIA

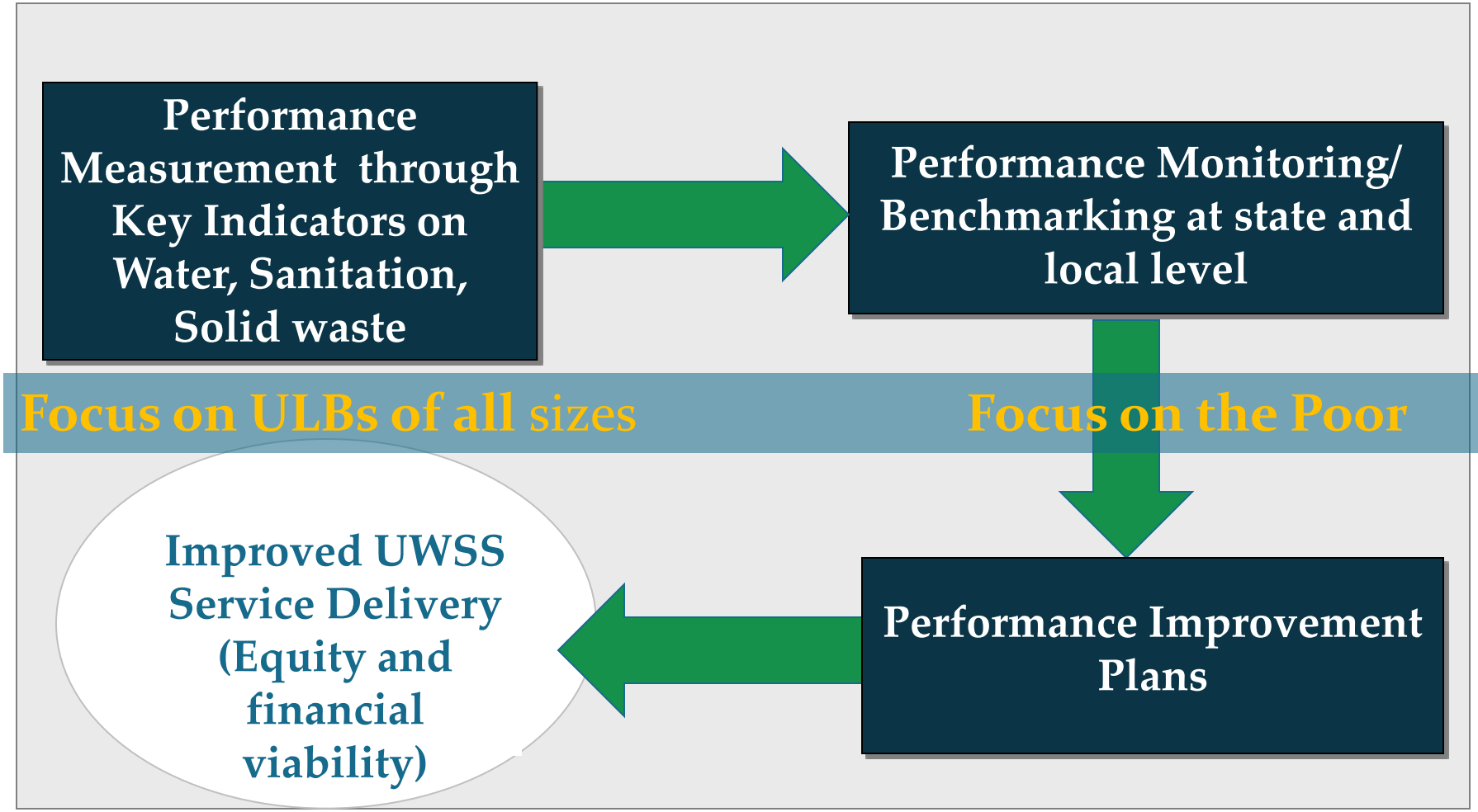
pas performance assessment system

Monitoring in Urban Settings, Stockholm

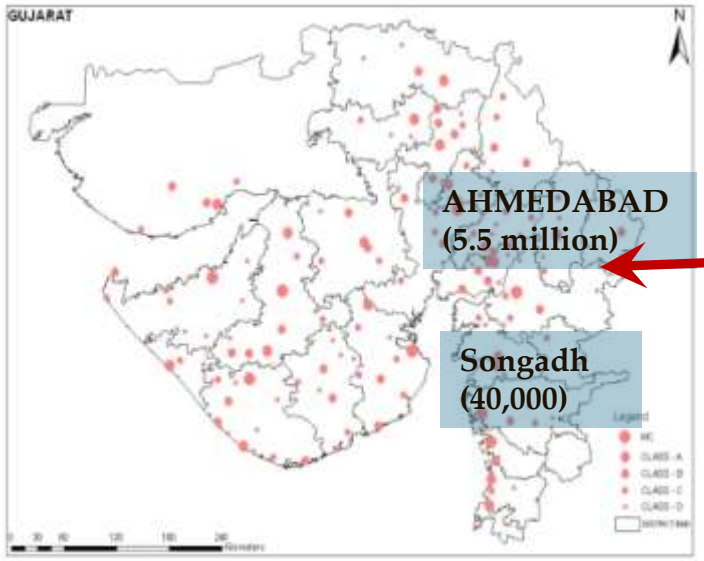
CEPT University, August 24 2011

WHAT IS PAS?

A sustainable statewide performance assessment system for improving access to the poor and un-served, and achieve financial sustainability



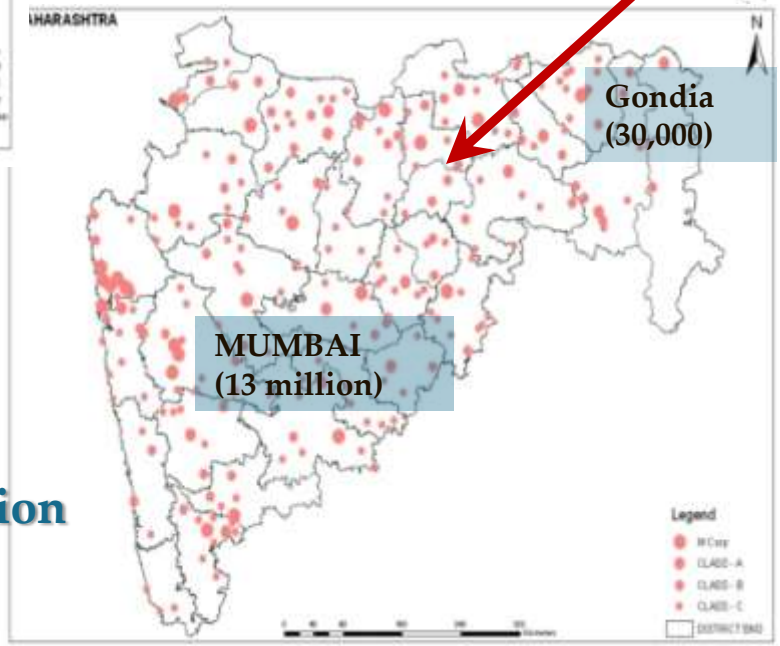
Scale and coverage of the PAS Project



Gujarat State

166 Urban Centers

Population – 24 million



Maharashtra State

248 Urban Centers

Population – 51 million

Source: Projections by the Office of the Registrar General, India, 2001

Population, Poverty and Slums

	Gujarat	Maharashtra
Total Urban Population (million) in 2011	**25.7**	**50.8**
% urban (2011)	42.5	45.2
Rate of growth of urban population % (2001-2011)	35.8%	23.8%
% of urban population below poverty line (2000)	15.6%	25.8%
Total Slum Population (million) in 2001	3.4	10.7
% of urban population in 'slum settlements' (2001)	**18.1%**	**26.0%**

Source: Population: Census of India 2001, 2011; Poverty: Planning Commission, GOI, 2007; Slums: NBO 2010.

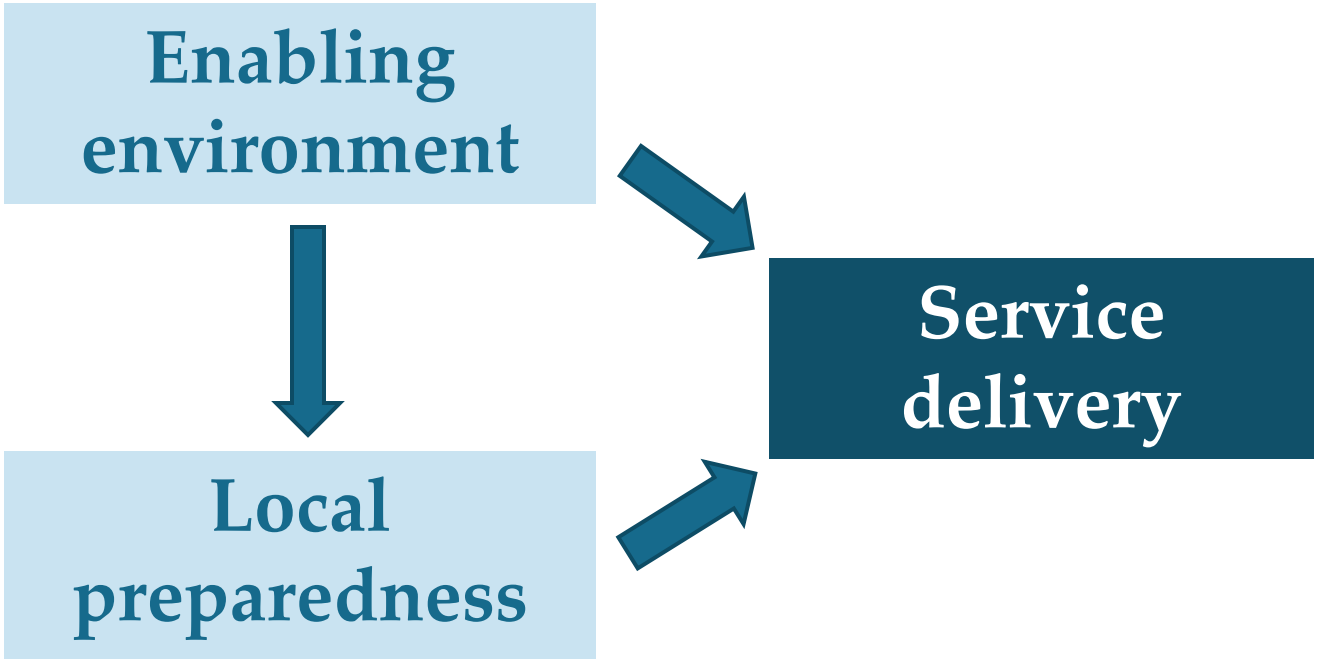
Adding Equity Indicators in Benchmarking

Water: Typical Key Performance Indicators
Access and Coverage
Coverage of individual water supply connections (%)
Service level and Quality
Per capita supply of water (lpcd)
Continuity of water supply (hrs per day)
Quality of water supplied (%)
Financial Sustainability
Cost recovery (O&M) in water supply service
Efficiency in Service Operations
Extent of NRW (%)
Efficiency in redressal of customer complaint
Functional metering of water connections (%)
Equity in Service Delivery
?????

Equity indicators are not included

Sanitation – non-sewered cities which are a majority in developing countries are excluded

Framework for Equity Assessment



Framework for Equity Assessment

Theme	Key Parameters
Enabling Environment	Presence of a positive policy to provide services to the poor
	Affordable Tariffs for access to services, options to pay in installments
	Efforts to include 'non-notified' slums
	Inclusion of slums houses under property tax
	Special national/ state schemes for services in slums
Local Preparedness	Extent of funding (%) in local budgets for the poor and in slum areas
	Efforts made to improve/ simplify connections in slum settlements
	Presence of internal network (water supply, drainage) in slum settlements to facilitate ease and affordability in access
Service Delivery	Access to basic services for water and sanitation in slum areas (JMP definition), extent of open defecation
	Access to on-premise facilities for water (municipal connection) and sanitation (toilet, sewerage connection, door-to-door SWM)
	Quality of service delivery (quantity of water, pressure, timing, etc.)
	Complaint redressal for the poor

Equity Assessment – PAS Project

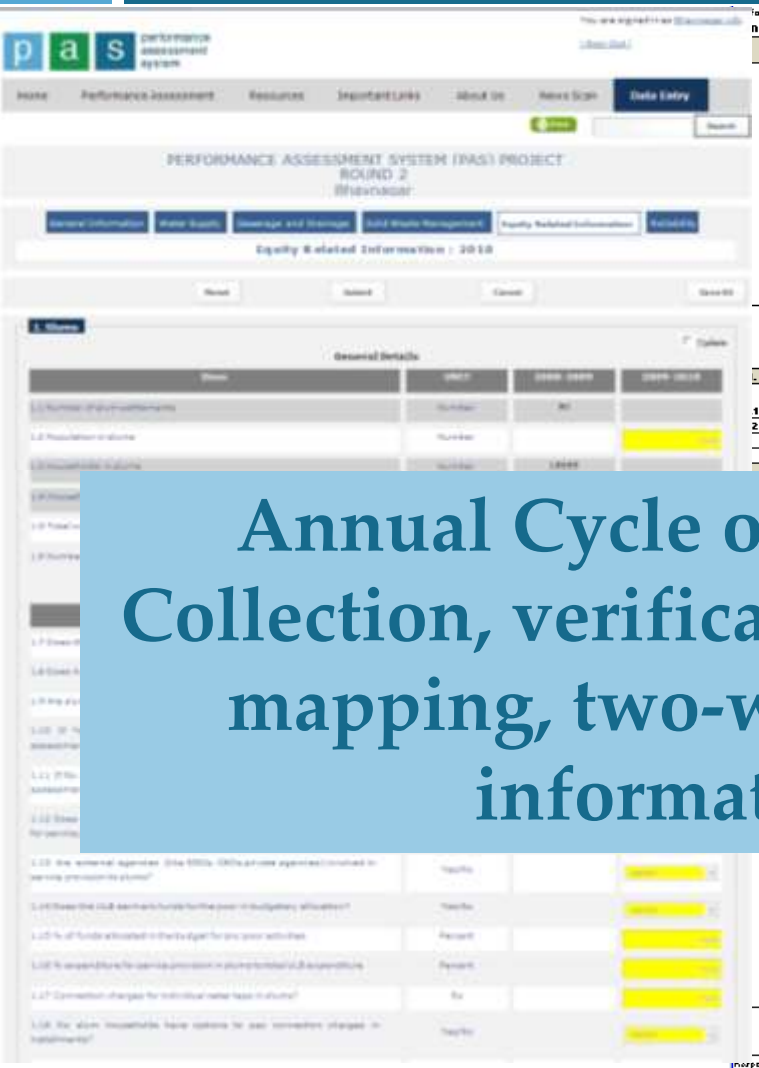
- **Service provider surveys**
  - ULB surveys – Services in slums (water, toilets, sewerage, SWM); policy, finance for slum services and connection processes
  - Slum settlement surveys – service levels, quality
  - Mapping of slum locations (50 cities) and detailed plans of each slum (Ahmedabad) for use in planning
- **Household surveys**
  - State level (by size class of cities) estimates for slum and non-slum households for: access and coverage, service levels and quality, costs and complaint redressal

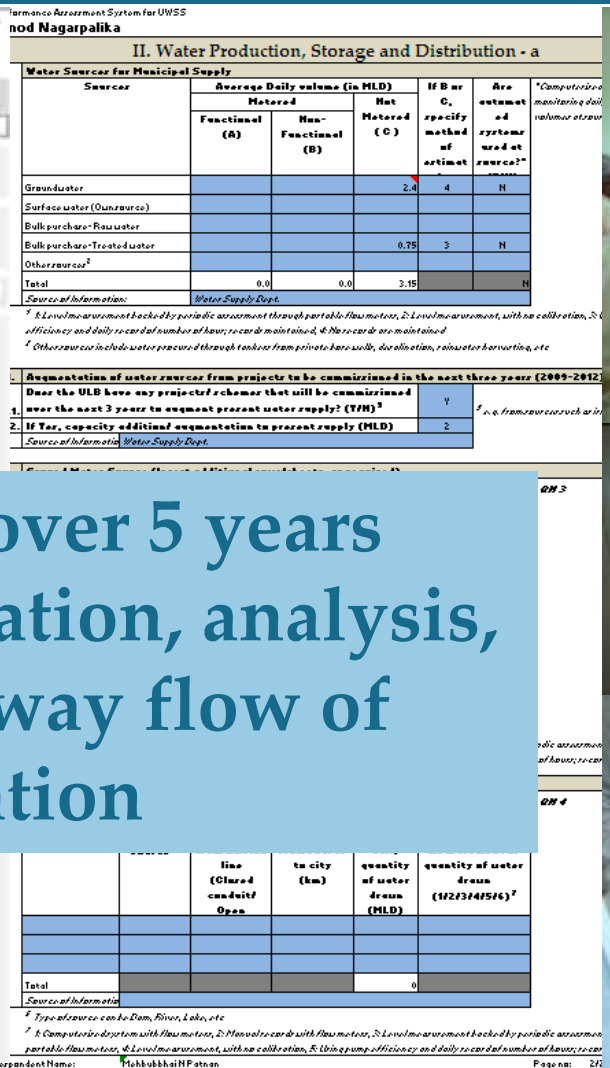
Magnitude of Slums – 2009

	No of slum settlements	Average households/ settlement	Households in slums
Gujarat	**4,681**	**190**	**0.9 million (17.7%)**
Maharashtra	**6,696**	**412**	**2.8 million (27.4%)**
	36% on 'non-notified' slums		20% of ULBs (50) report no slums
	Almost 2,000 settlements in Mumbai with slum population share of 55% to total population and 700HHs/settlement		

Source: Based on results from PAS Project Round I surveys for 2009,

Data Collection Tools – excel/ online



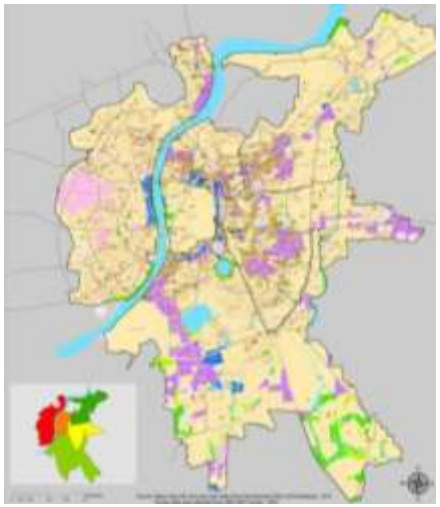


Annual Cycle over 5 years
Collection, verification, analysis, mapping, two-way flow of information

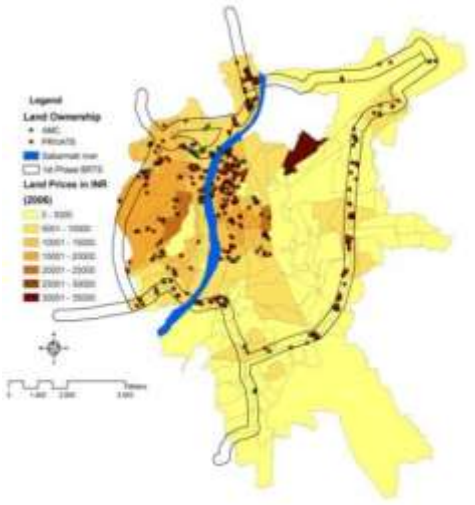
Decision Making Tools

- PAS project is assisting Ahmedabad municipal corporation to develop a GIS based slum information system.
- Will help in policy decisions and effective planning; ranging from a single slum settlement to the entire city.

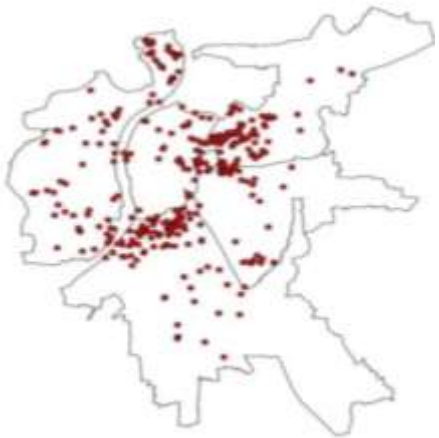
Location of slums w.r.t. land use of city



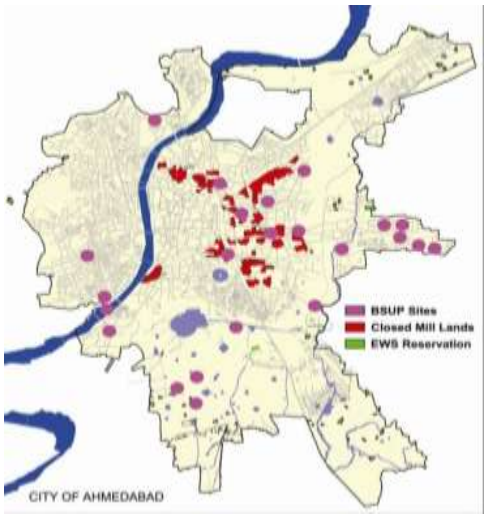
Slum pockets located on High land price



Identification of slums that need to be relocated



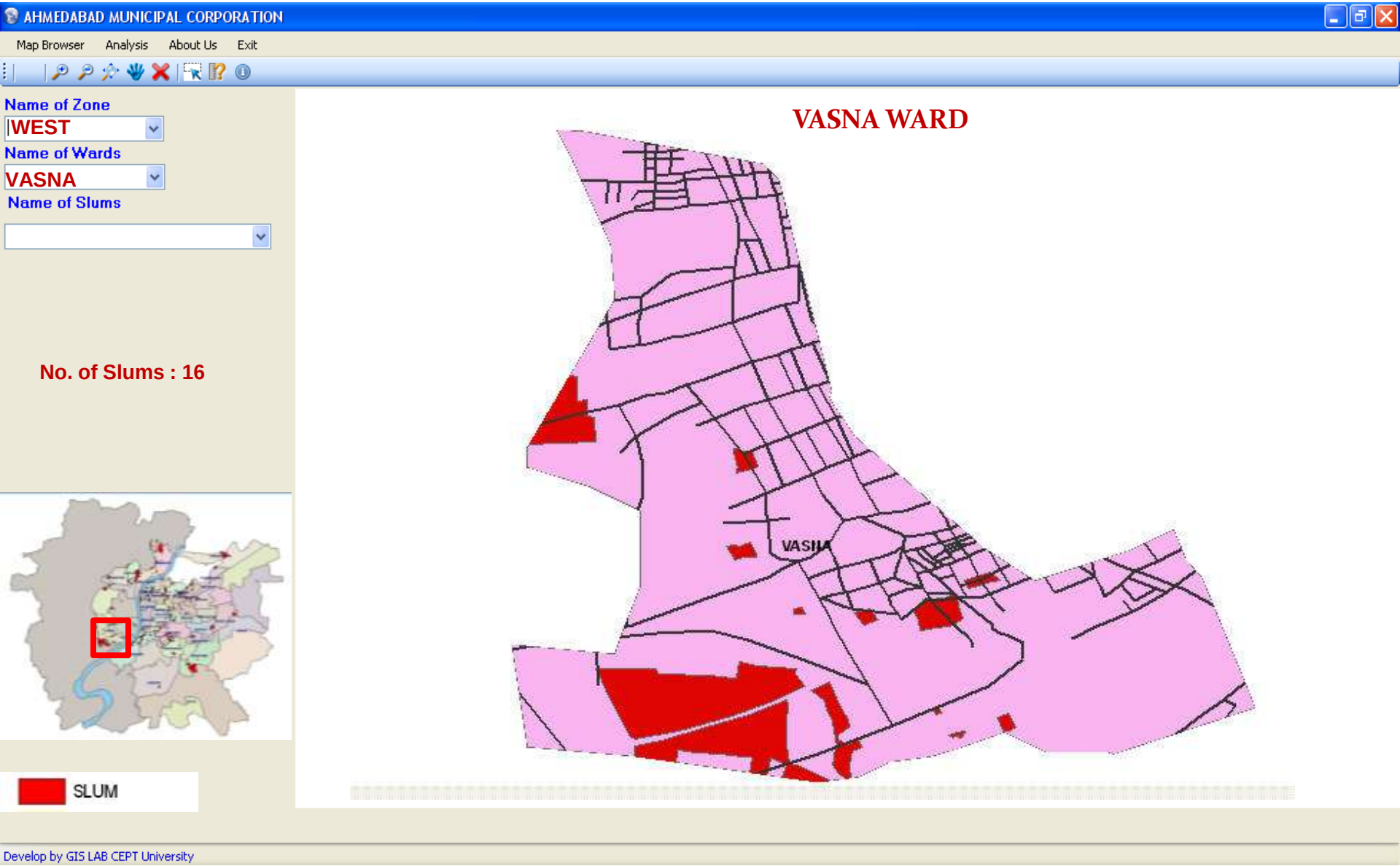
Land bank Identification



- Identify slums under different slum redevelopment model based on current level of infrastructure and settlement size.
- Will enable inter-departmental linkages and regular updating of slum database

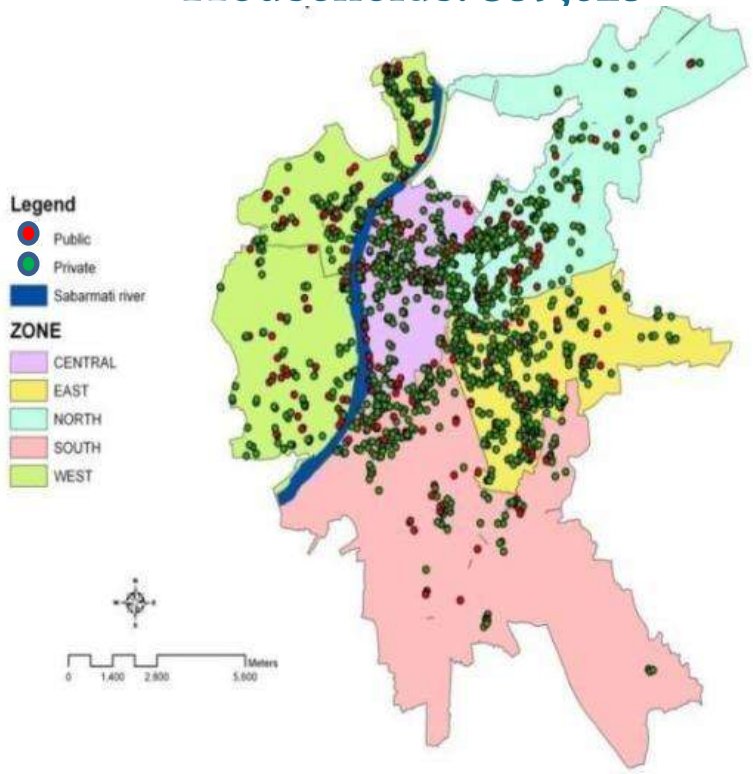
Source: Based on maps prepared with AMC under the PAS Project 2009-10, and CEPT student exercise for "slum-free city", 2008.

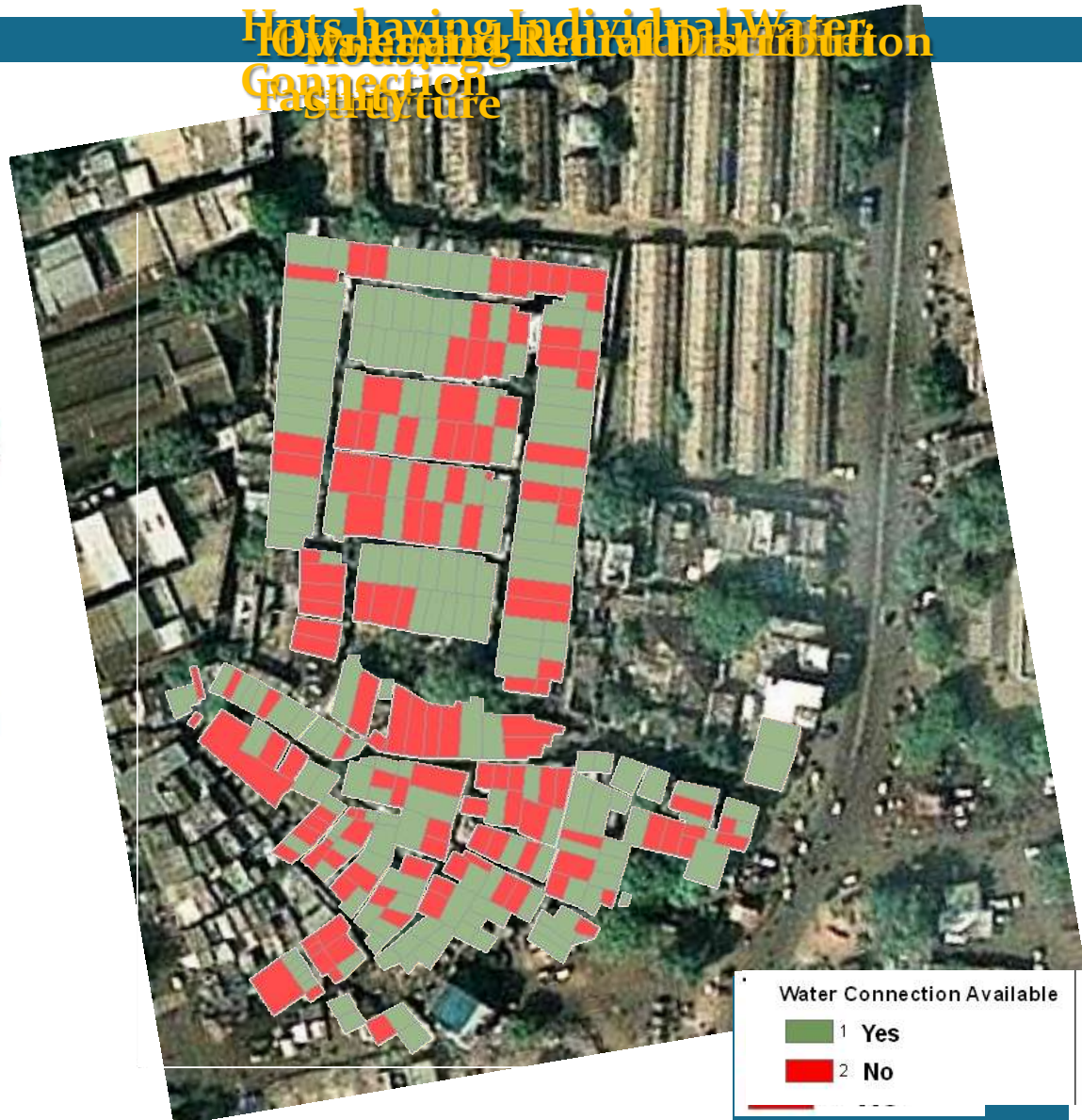
Example: GIS Based MIS for Slums



GIS Based Information System for Slum

- Full survey of all 500 slum Pockets
- Biometric survey of 325,000 slum households Households: 359,625





Approach to Household Surveys

- Household surveys to assess service performance with a focus on **access and coverage, levels and quality of service, consumer grievance redressal and household expenditure**
- Sample size of **15,000 households** to give state levels estimates with breakdown by:
  a) city category (size class)
  b) slum/non-slum differentials (7500 HHs from slums)
- Study and surveys contracted to **the Nielsen Company (ORG Centre for Social Research, India)**

Sampling for State Estimates

City Category	Gujarat		Maharashtra	
	No. of Towns	Sample	No. of Towns	Sample
Category – I Cities (MC1): Municipal Corporations with a population more than 1 million Sample Size	4	2400	4	2440
Category – II Cities (MC2): Municipal Corporations with a population less than 1 million)	3	2000	8	2200
Category –III Cities (Class A): Class A Towns (Population more than 100,000)	8	1600	8	1840
Category –IV Cities (Rest Category): Class B, C and D Towns (Population less than 100,000)	20	1200	20	1200
Total	**35**	**7200**	**40**	**7680**

From each city category Neighbourhoods identified as slums and non slums with the help of ULBs.

Neighbourhoods were selected to give equal proportion to slums and non-slums

From each selected Neighbourhood 20 HH were selected using Systematic Random Sampling for HH survey.

Appropriate weights used to arrive at slum/non-slum and city category-wise estimates

Household survey conducted using PDAs thereby taking care of consistency checks in data collection.

Indicators for water and sanitation

- **Community/Household level indicators**
  - **Access and Coverage**
    - ✓ Access – safe water source within 100m, number of households using shared water connection or shared toilet facility, households with access to sewerage network
    - ✓ Coverage – water tap at house level (legal/illegal), individual toilet at house level, door to door SWM services, metered connections at house level, daily consumption of municipal supply
  - **Service level**
    - ✓ Supply hours, pressure, seasonal variation in services
    - ✓ Nos of HHs per shared water/toilet facility and distance of shared facility
    - ✓ Consumption – quantity of water consumed and stored
    - ✓ Quality of water - % of tests meeting standards, water purification at HH level
    - ✓ Frequency and mode of cleaning of shared facilities /septic tanks, waste collection & segregation
    - ✓ Coping behaviour – Storage, filtration, pumps,
  - **Financial**
    - ✓ Monthly expenditure on tariffs and coping costs, costs for using community facilities
    - ✓ Capital investments by households (for water source, storage, treatment)
  - **Complaint Redressal**
    - ✓ Awareness on methods, satisfaction in complaint procedures, frequency of complaints made, complaint redressal

Status and Reliability - Water Supply Services

	GUJARAT		MAHARASHTRA	
	SLUM	NON SLUM	SLUM	NON SLUM
% of households with Access to water supply as per JMP definition	96.1	98.8	97.1	98.6
% households with access to on premise tap for municipal water	66.6	85.8	41.1	88.3
% of households with Daily water supply	72.9	74.4	82.0	78.4
Hours of water supply		2.0	2.0	1.0
% of households that find underground storage tank		78.5	91.4	82.6
% of households using booste		45.6	12.0	39.9
% of households that find ser				
a. Timing of water	80.8	79.4	66.8	68.8
b. Frequency of supply per week	78.0	76.2	58.3	63.2
c. Quantity of water supply	76.4	75.5	52.5	56.9
d. Quality of water (across seasons)	68.9	67.4	48.3	55.2
e. Water pressure	56.8	52.5	42.7	50.2
% of households with large water storage arrangements	9.4	47.4	17.3	53.2
% of households with favourable perception of water quality (daily water supply)	87.4	84.4	80.8	81.7
% of households that think that municipal water does not need any treatment	89.7	84.3	87.2	86.1
% of households reporting seasonal variations in water supply	33.5	27.3	45.9	34.7

For level and quality of water supply services, not much difference between slums and non-slums in both states

Key Lessons – 1

An explicit focus on slums is essential

- Information availability on services to the poor is scarce and unreliable
- In developing country context, performance assessment and service delivery of WATSAN must have an explicit focus on equity and on slums

Survey Design

- Both service provider and household level surveys are needed
- Survey design to include purposive and adequate sample of slum settlements
- When designed using similar definitions, results across the two modes are consistent and provide different details

Key Lessons – 2

Coverage of all cities and all slums

- Need to assess services in all types of urban areas – large cities to small towns.

Use of information

- Ownership and use of information critical for sustainability and gradual improvements in quality of information (AMC (slum free action plan) and in Maharashtra (for ODF cities and PIPs)

Improving data availability

- Addressing the lack of updated and reliable information with local governments – slum settlement surveys, community involvement

Key Lessons– 3

Simplifying household surveys

- Household surveys provide a demand side assessment and more details of actual service received and its quality
- Defining indicators – balancing global with local requirements
- Scope of survey – keep it limited…!!!
- Possibility of cost effective methods – PDAs, mobile phones etc.
- Need for common guidance for such surveys –indicators, survey tool, sampling

Thank You

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