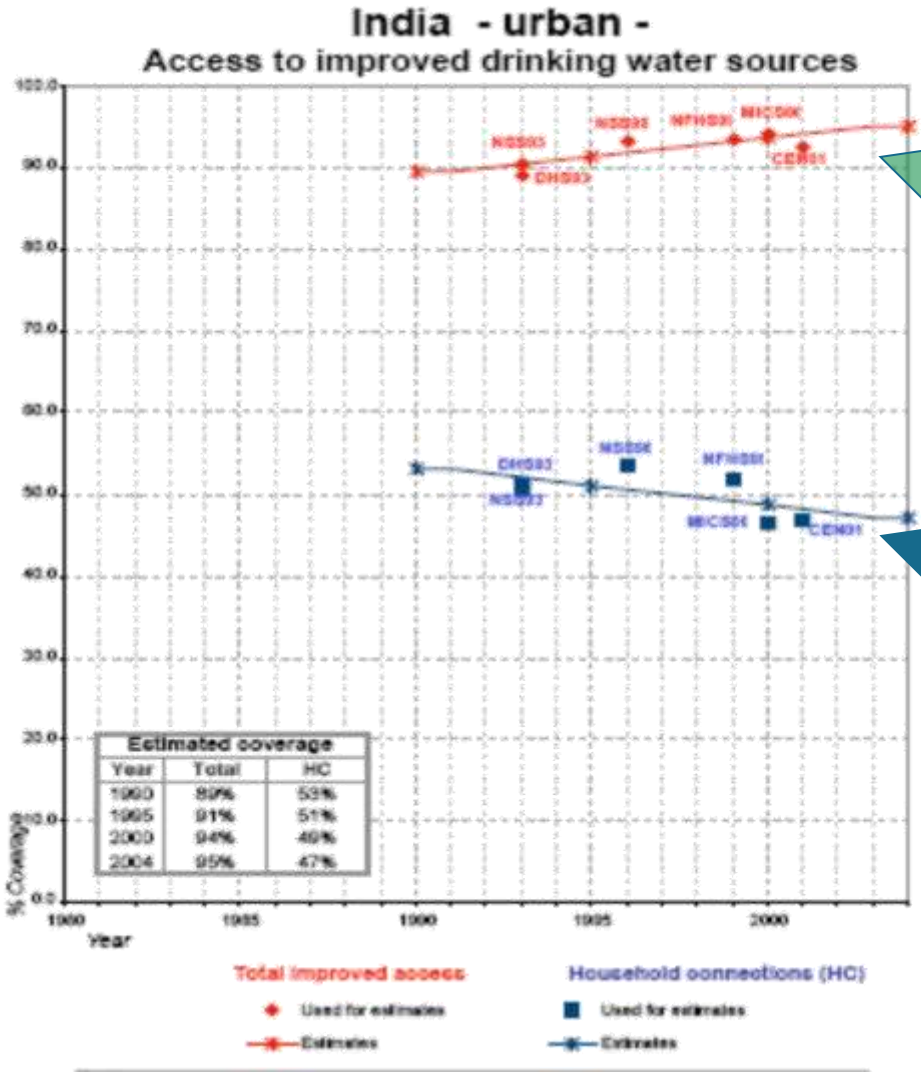
PERFORMANCE ASSESSMENT SYSTEMS (PAS)

p a s performance assessment system

Tools and Methods

India Water Supply – improved basic access but decline in household level services



Basic access in urban India has reached nearly 95% by 2004.

% Household level connections in urban India has declined from 54% in 1990 to 47% by 2004.

Source: WHO-UNICEF Joint Monitoring Program, 2000 and 2008


Chawl residents shell out lakhs but taps remain dry
Gujarat Mahila Housing Sewa Trust accused of duping Rajeevnagar residents of lakhs of rupees under pretext of helping them get regular water supply and drainage connections
Public agenda >>>
'Dahod has poor health services'
"Despite living in a district headquarters, we get drinking water once in four days. Both state and central governments have neglected us. Except 108 emergency services, healthcare services in the district are shoddy. The Congress candidate is well-educated and well-qualified."
Water situation grave in state, warns expert
M Ramachandran
Secretary, Urban Development Ministry
Way forward for India's urban reforms
REFORMS in the urban sector have become necessary to ensure sustainable development, efficient infrastructure services and strong local governance. It is recognising this point that when the Jawaharlal Nehru National Urban Renewal Mission was launched as a major flagship programme in December, 2005, it was emphasised that the main thrust of the revised strategy of urban renewal will be to ensure improvement in urban gover-
Coming soon: a law to guarantee govt service
GOVT TO COME OUT WITH ULB SERVICES PRIVATISATION BILL
Govt set to privatise urban civic services
govt plans to map slums
Problems with WSS services and the Response...
Water woes: Kapurai villagers threaten stir against VMC
Villagers accuse civic body of providing better facilities to newly-developed colonies
'Acute scarcity of drinking water'
"We have school, and facilities like power supply and 108 services. But there is an acute scarcity of drinking water. We have to walk long distances to fetch clean water. I don't know the name of any politician, but some people have been coming to our village, asking for our votes. I know only hand and lotus symbols, for which these people are seeking our votes."
Yugaliben Bhuria
Hiriyeshi, Garabadi
JNNURM needs pvt help as state funding dries up

Need to ASSESS PERFORMANCE… TRACK INVESTMENTS and OUTCOMES

- Little is known about the **quality, service levels and financial sustainability of WSS services**
- Only limited information available on **access of urban poor** households to water and sanitation services
- This makes assessment of impact from **past investments** difficult

- Need for a **standardized information system** for comparable and regular situational analysis
- This can support improved **allocation of resources** and decision making
- **Grants** from state and central governments can be linked to local performance




Need for Performance Information in urban water and sanitation

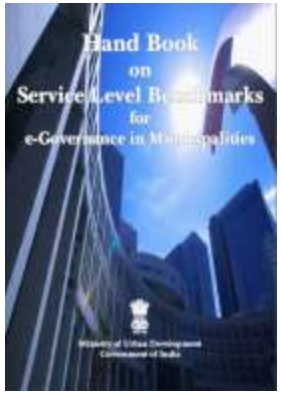
- Aggregate statistics suggest **good coverage** of water and sanitation in urban areas in India
- BUT little is known about the **quality, level and financial sustainability of service**
- Only limited information on **access of urban poor** households to water and sanitation is available
- Lack of WSS information leads to **misallocation of resources**
- Difficult to assess **impact of past investments**

Resources for WSS is not a major constraint – around USD 10 billion invested in urban WSS over 7 years –Gujarat has allocated over One Billion USD for Sanitation

WHAT IS PAS?

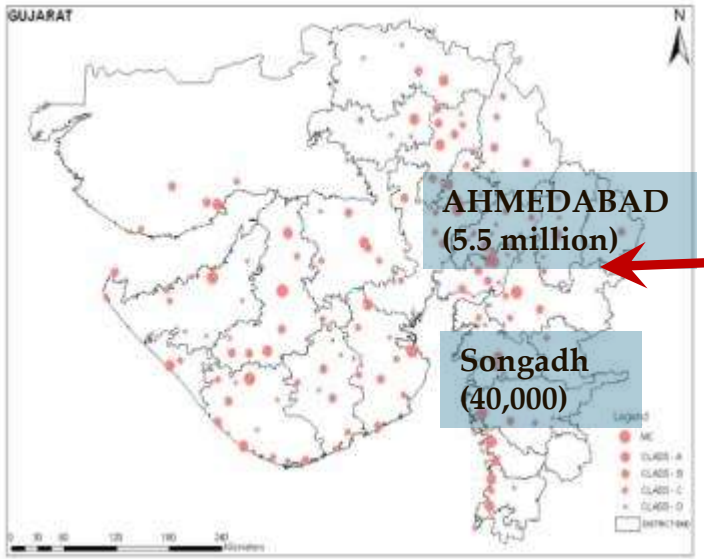
THE FIRST STATEWIDE BENCHMARKING EFFORT IN INDIA

- Past efforts by ADB, WSP and Government of India
  - Covered only **a few (20 to 25) cities through a one-time effort**
  - **Lack of standard set of indicators** with clear definitions
  - **Data reliability issues**
  - **Lack of use** by utilities or state/national governments
- GoI recently initiated benchmarking in UWSS through its **Service level Benchmarking (SLB) IN 27 Cities**



- Establish **Statewide** Urban WSS Performance Assessment System
- **Cover all 400 towns** in the two states– support development of performance measurement for different size-class of towns
- Not a one-off event but **implemented for 5 years** and linked to GOI's **Service Level Benchmark** Initiative
- Plan to **mainstream** in local and state government **data systems, planning, monitoring, review and fund allocation (budget) processes** over the Project period

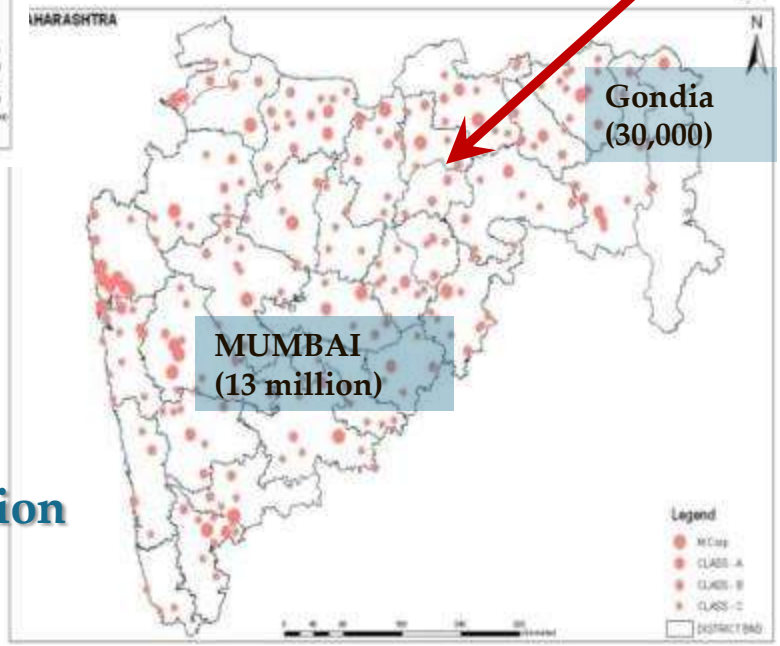
States and Urban Coverage - PAS Project



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

Mainstreaming PAS

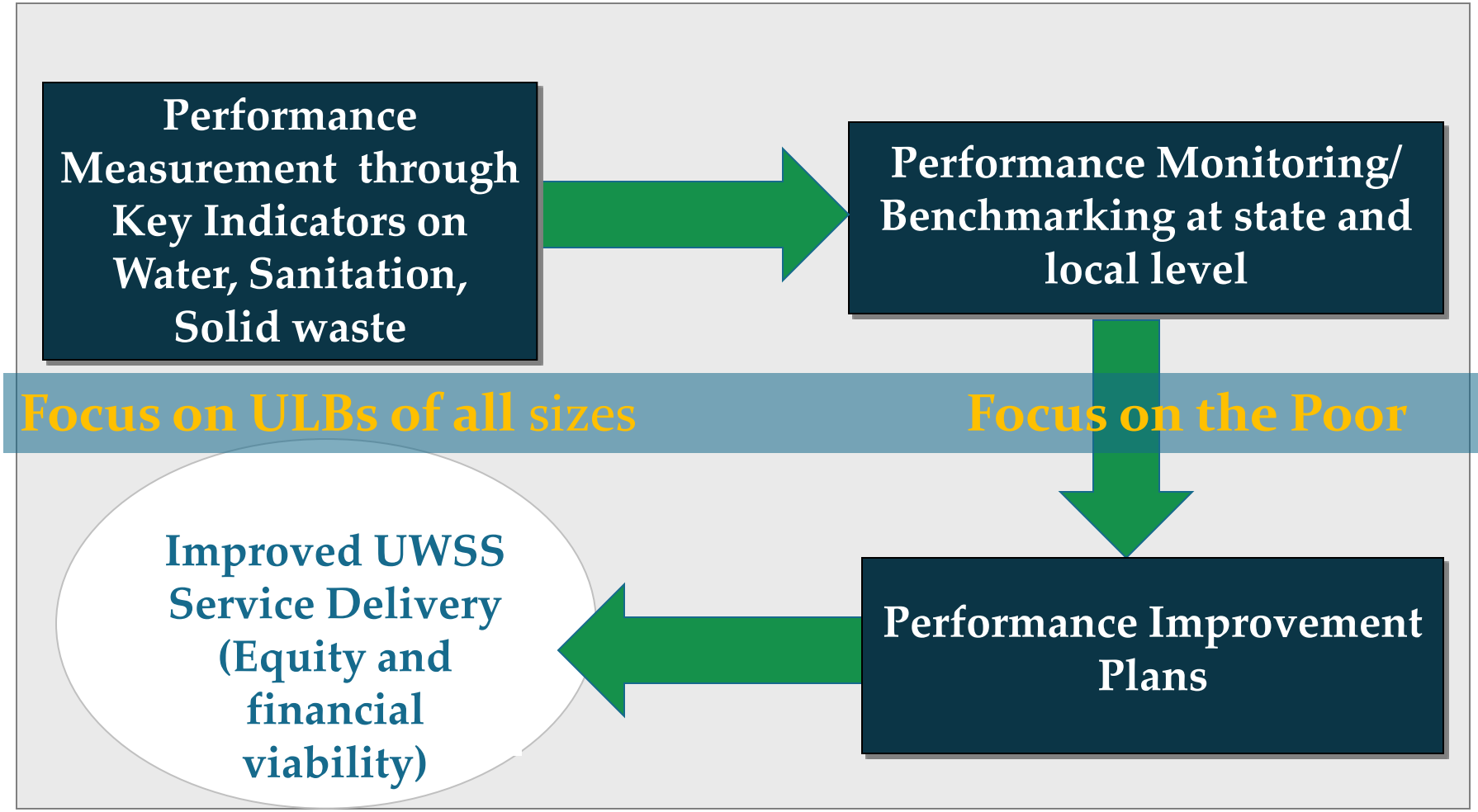
- Links established with GOI's Service Level Benchmark (SLB)
- CEPT team provided initial inputs for 4 of the 27 pilot cities studies
- CEPT represented on the advisory panel of GOI to roll out SLB in all states
- 13th Finance Commission has provided USD 2 billion as performance based grants
- JNNURM-2 to be linked to performance

Context

- Two states of India: Gujarat and Maharashtra – more urbanised
- 400+ cities, 70+ million population, 20% living in slums
- Inadequate coverage in slums
- Poor service levels in small and medium towns
- Poor state of information

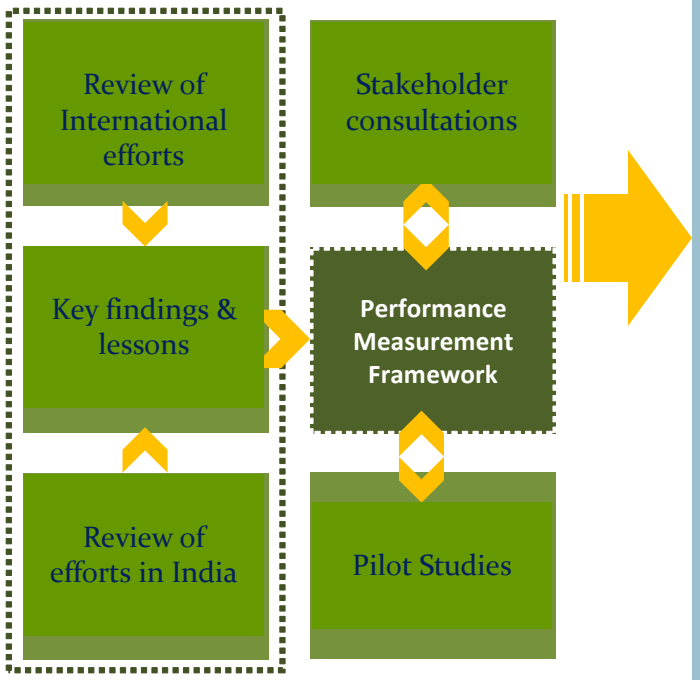
WHAT IS PAS?

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



Performance Measurement Framework

Evolution of measurement framework



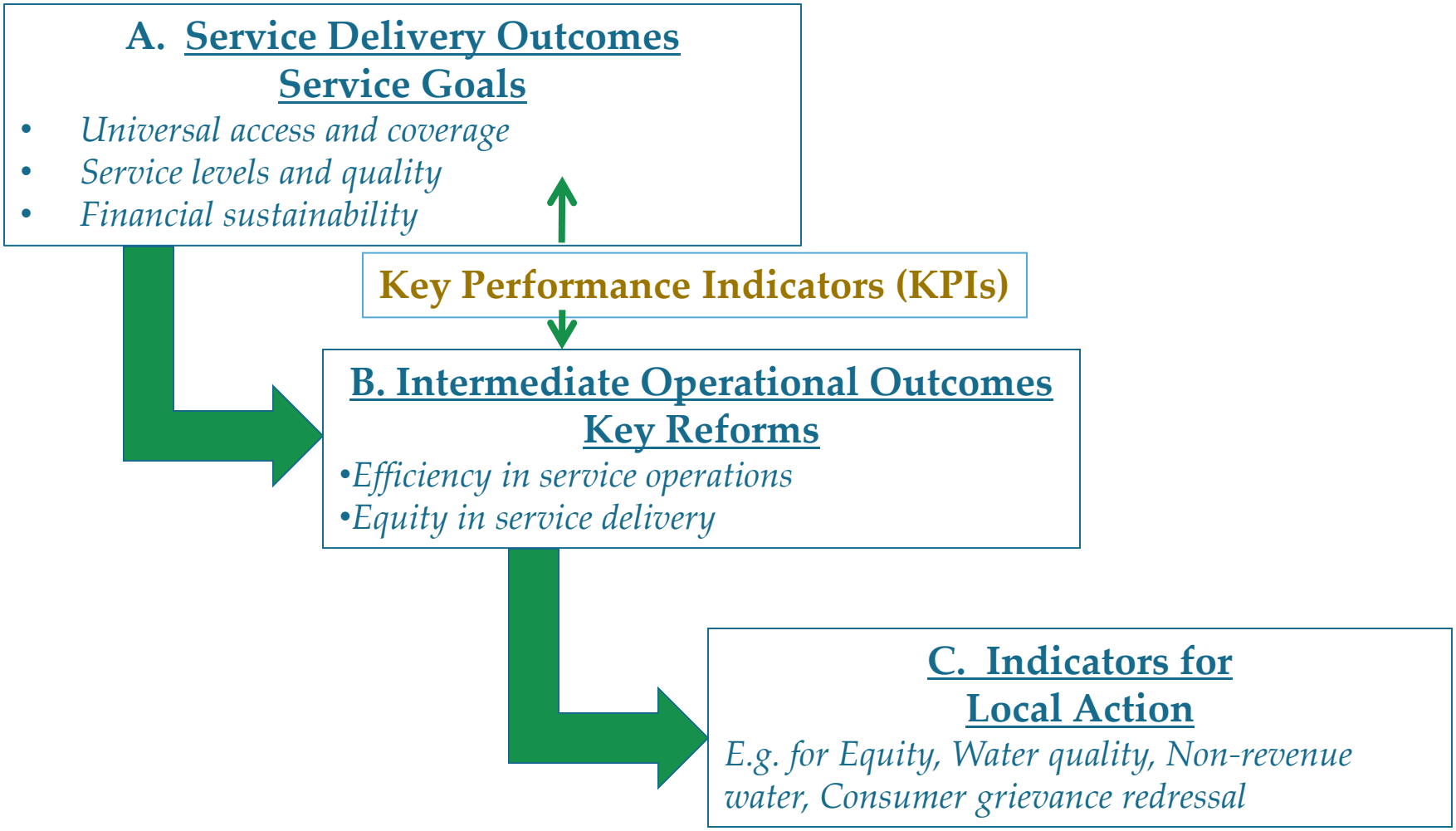
GOALS		
Universal Coverage	**Service Levels & Quality**	**Financial Sustainability**
Access and Coverage	Quantity Continuity Quality	O&M Cost Recovery
REFORMS		
Equity (connections)	**Efficiency in operations**	**Eff. in Billing/collection**
Zonal variations Slums	Extent of NRW, treatment, reuse Complaint redressal Metering	Collection efficiency
LOCAL ACTION		
Equity (inhabited area)	**Efficiency in operations**	**Cost Effectiveness**
Equity (pop/shared facility) Coverage of utility network across the city	Quantity and quality NRW Complaint redressal Staffing	Costs (losses, unit O&M & electricity expenditure) Billing(arrears)

How different is PAS from other efforts

- A well-defined Framework of Service Goals – Management/Reforms and Local Actions
- Inclusion of Indicators on Equity – both spatial and by economic groups (Slum/Non-Slum)
- Reliability scores of information supplied are objectively assessed
- State-wide approach covering all cities
- Working in partnership with governments

Tools for measurement

Measurement Framework Goals-Reforms-Local Action



Water – Indicators and Benchmarks

Water: Key Performance Indicators	Benchmark set by GoI
Access and Coverage	
Coverage of individual water supply connections (%)	100
Service level and Quality	
Per capita supply of water (lpcd)	135
Continuity of water supply (hrs per day)	24
Quality of water supplied (%)	100
Financial Management	
Cost recovery (O&M) in water supply services (%)	100
Efficiency in Service Operations	
Extent of NRW (%)	<25
Efficiency in redressal of customer complaints (%)	100
Functional metering of water connections (%)	100
Equity in Service Delivery	
Coverage of individual water connections in slums (%)	100
Spatial variation in individual water supply connections (Ratio)	
Spatial variation in per capita water supply (Ratio)	

Approach to Local Action Indicators

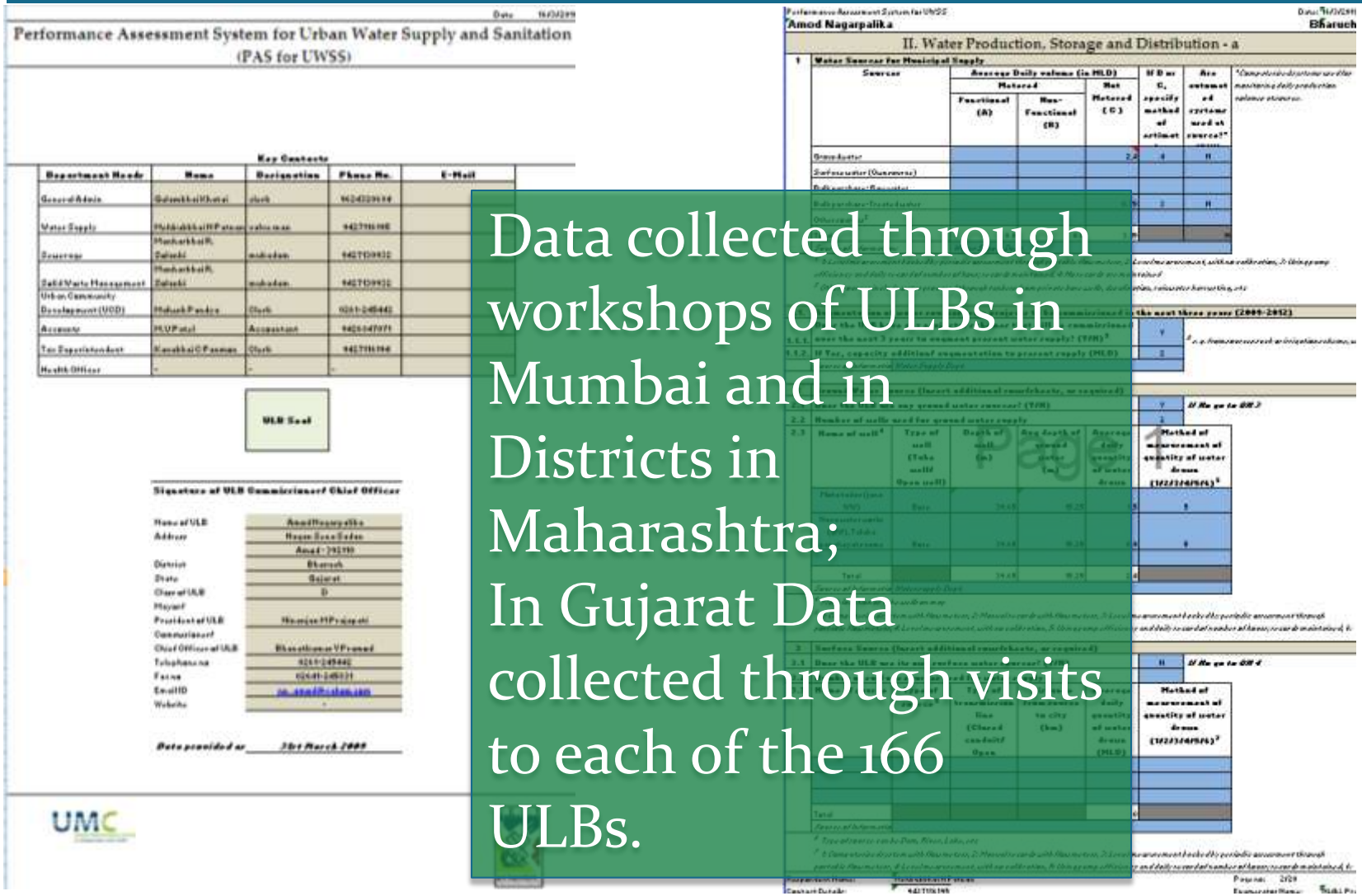
- To help identify local actions to improve performance on selected KPIs – e.g. Non-revenue water

Water Balance	% Authorized and unbilled consumption to total supply
	% Losses from source to water treatment plant (WTP)
	% Losses from WTP to water distribution station (WDS)
	% Losses from WDS to final consumption (includes both leakage on service connections and unauthorized consumption)
	% of identified illegal connections that are regularized
Indicators for Operational assessment of water losses	Water losses per connection (litres)
	Real losses per service connection per month per meter (head) Pressure (litres)
	Water losses per mains length (litres)
	Unavoidable Annual Real Losses (UARL) (Million litres)
	Infrastructure Leakage Index (ratio)
Indicators for Financial impact of water loss	Annual cost of losses (real and apparent) (Rupees)
	Annual revenue loss from NRW (Rupees)

Approach of data reliability assessment under PAS is linked to actions for improving quality of data

Reliability Bands	Description	Actions needed to achieve higher reliability
A	Automated data systems, with periodic updation	Develop GIS linked computerized property tax, connection registers etc
B	Manual systems of data recording, with periodic updation	Computerize property tax, connection registers etc along with household records
C	Partially developed manual systems of recordings, with extrapolation of missing data	Introduce household estimate in manual records for property tax, connection registers etc.
D	No systems of data recording	Develop a system of manual records for property tax, connection registers etc.

Excel based data collection tool



Data collected through workshops of ULBs in Mumbai and in Districts in Maharashtra;
In Gujarat Data collected through visits to each of the 166 ULBs.

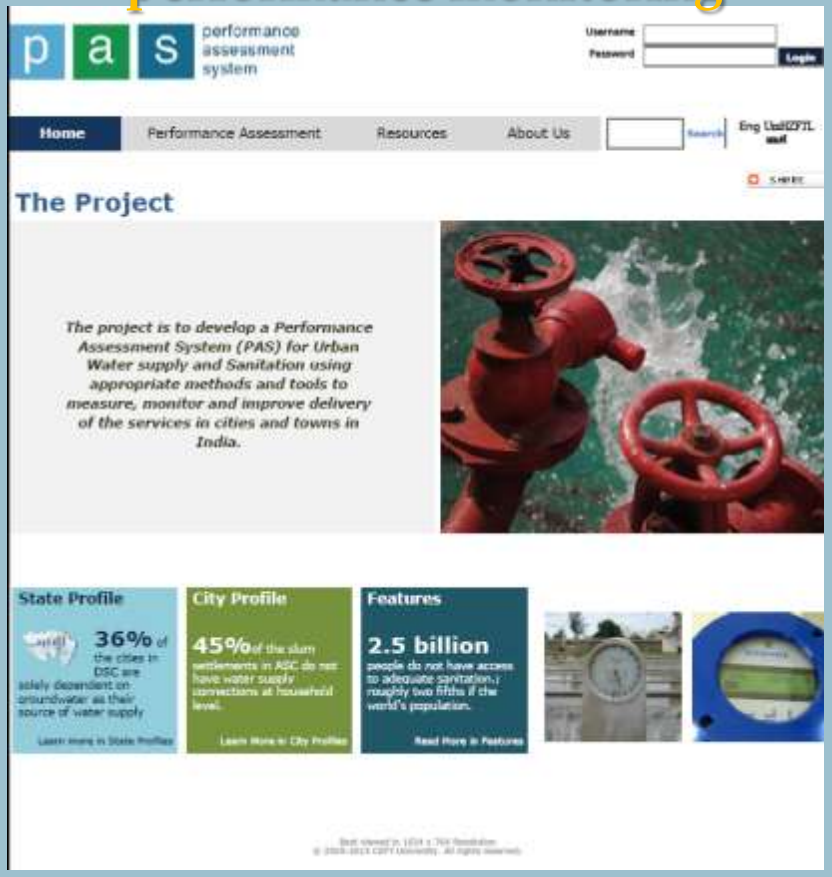
Tools for monitoring

Performance Monitoring

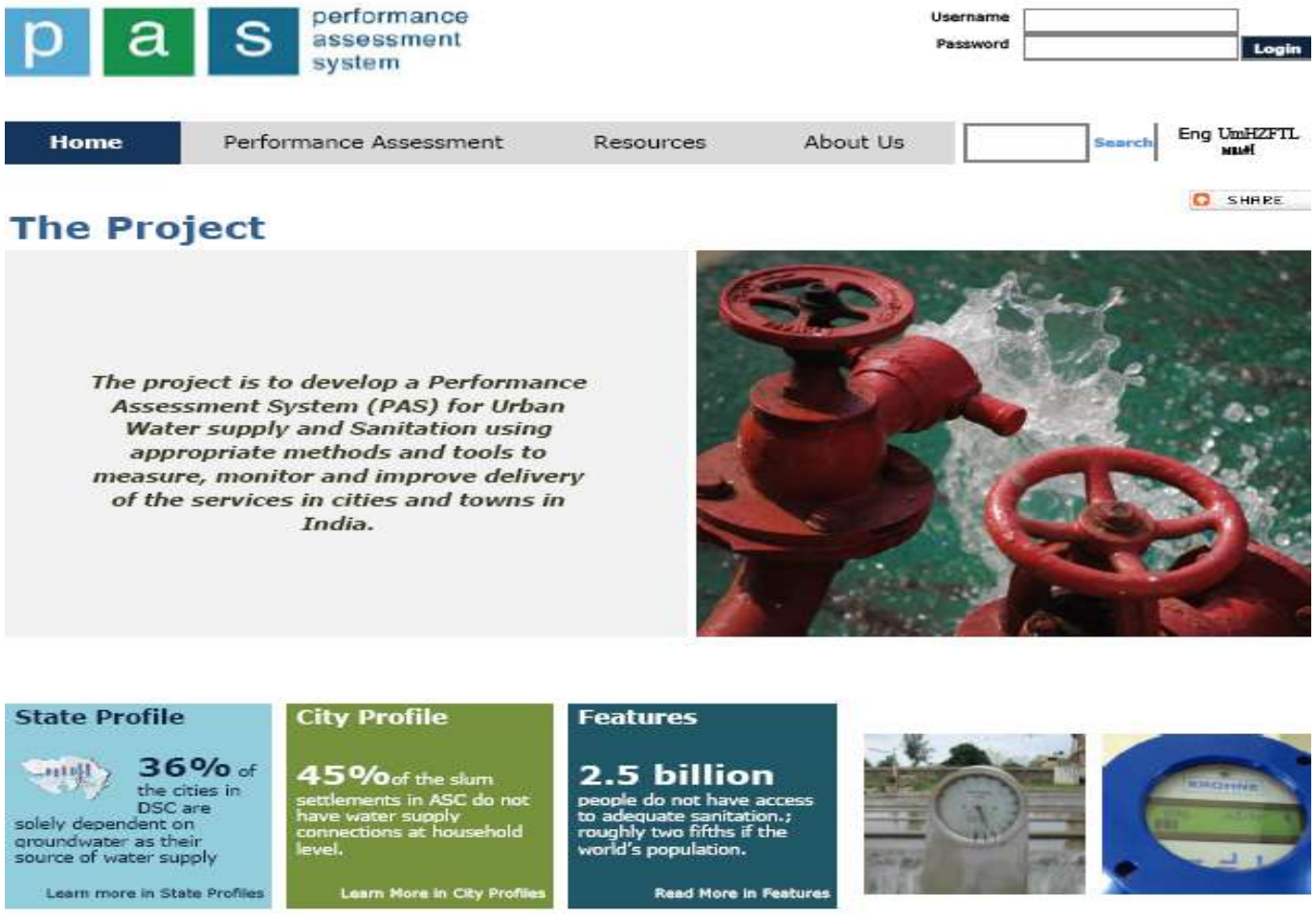
Alignment of PAS information with state and central government programs to track progress on performance

- 13th Finance Commission
- Standardized Service level benchmark
- JNNURM/ UIDSSMT
- MSNA/ Sant Gadge Baba
- Nirmal Gujarat
- Regular reporting to DMA/ DoM

Gujarat and Maharashtra state wide PAS web portal for performance monitoring



Web Portal


p a s performance assessment system
Username
Password
Login
Home
Performance Assessment
Resources
About Us
Search
Eng
SHARE
The Project
The project is to develop a Performance Assessment System (PAS) for Urban Water supply and Sanitation using appropriate methods and tools to measure, monitor and improve delivery of the services in cities and towns in India.
State Profile
36% of the cities in DSC are solely dependent on groundwater as their source of water supply
Learn more in State Profiles
City Profile
45% of the slum settlements in ASC do not have water supply connections at household level.
Learn More in City Profiles
Features
2.5 billion
people do not have access to adequate sanitation.; roughly two fifths if the world's population.
Read More in Features
Best viewed in 1024 x 768 Resolution
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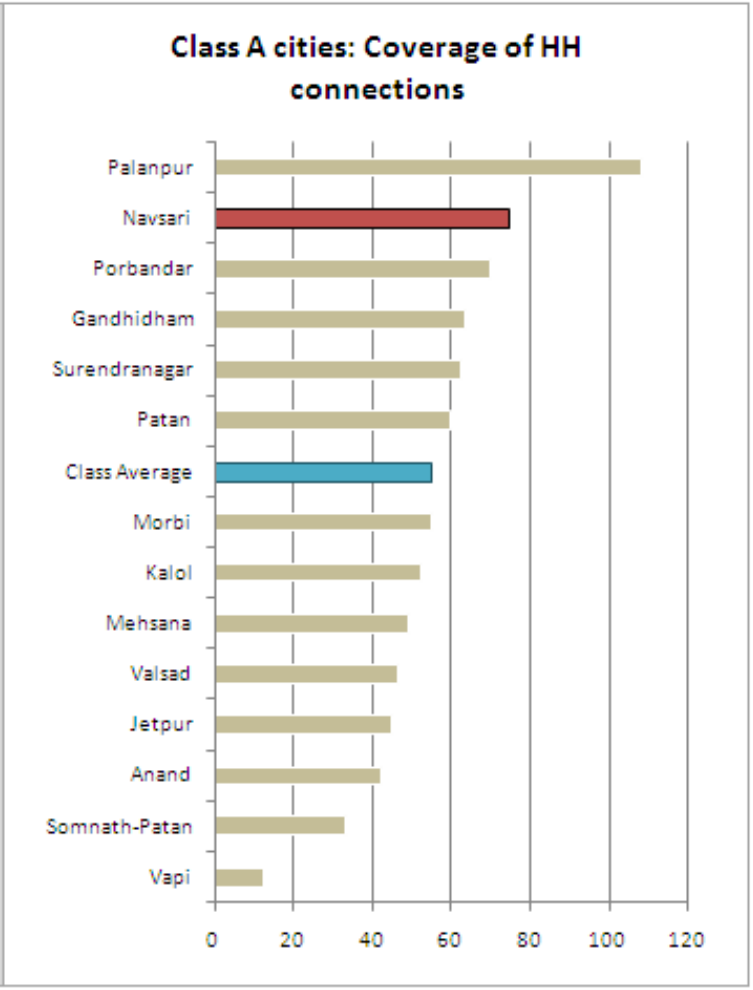
State level analysis

Access and Coverage:

Coverage of water supply connections across Class A cities in Gujarat



Gujarat | Maharashtra

Select City
Navsari

Select Sector
Water supply

Select Indicator Group
Access and Coverage

Compare with

Type of Class
Class A

Other cities

Note: The data in this chart is only for illustration purposes. It does not depict the actual situation in these cities or states.

City Profile

Ahmedabad : City Profile

Access & Coverage
Highlights the % of households having individual connections to water supply.

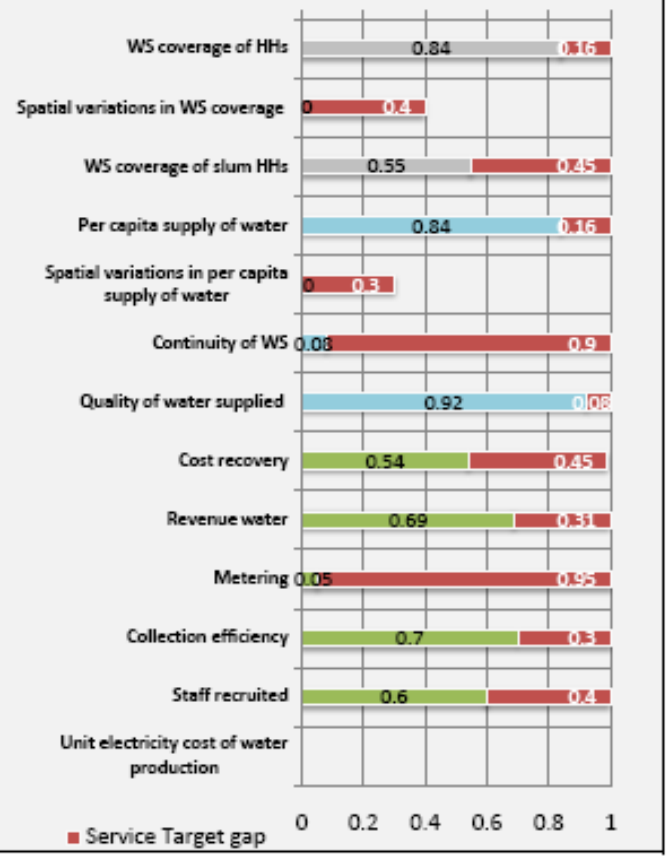
Equity in Service Delivery
Highlights the variations in city level coverage as well as between poor and non-poor HHs in the city

Service Levels & Quality
Highlights the quantity of water supplied to city, continuity and quality of supply.

Equity in Service Delivery
Highlights the variations in city level quantity of water supplied.

Financial Sustainability
Highlights the revenues accrued to expenses incurred in service operations

Efficiency in Service Operations
Highlights extent of non-revenue water, functional metering of water connections, and collection efficiency of charges



Gujarat | Maharashtra

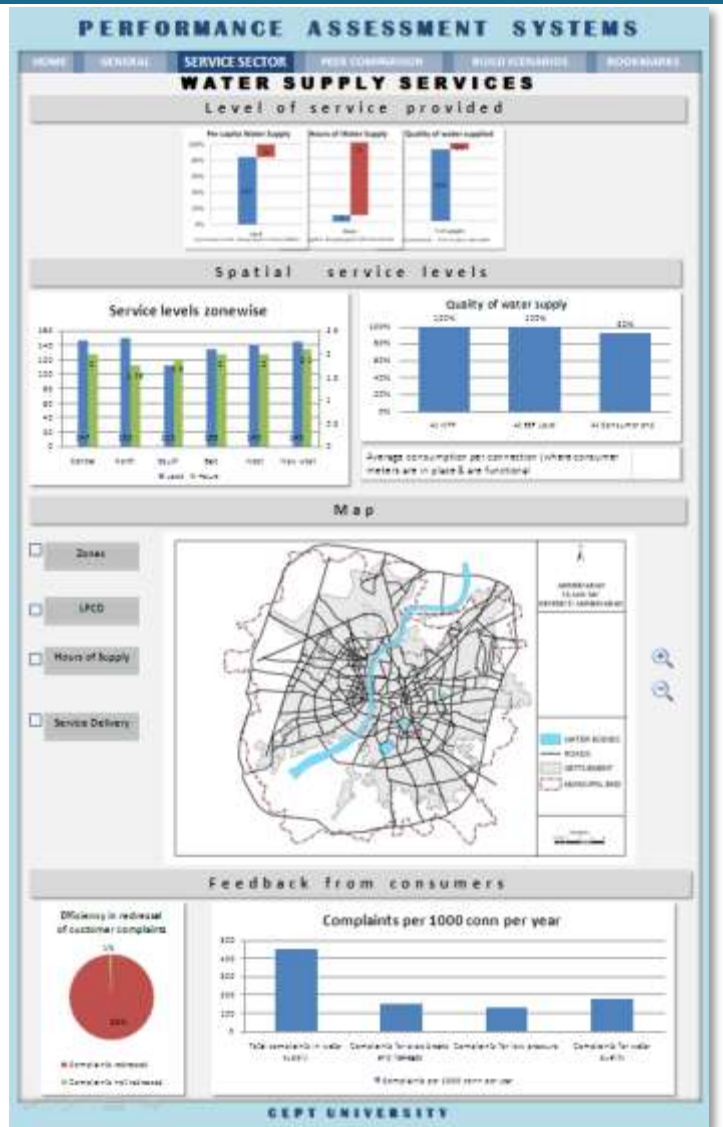
Select City
Ahmedabad

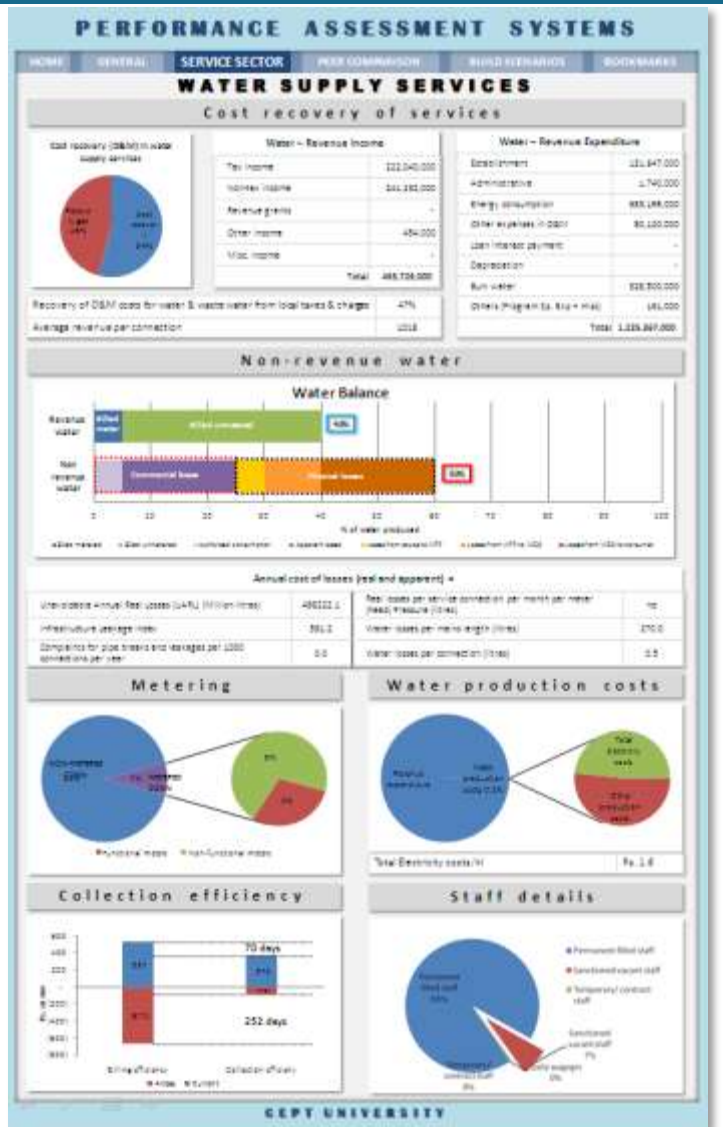
Select Sector
All Sector

Select Indicator Group
Water supply

Note: The data in this chart is only for illustration purposes. It does not depict the actual situation in these cities or states.

Dashboard



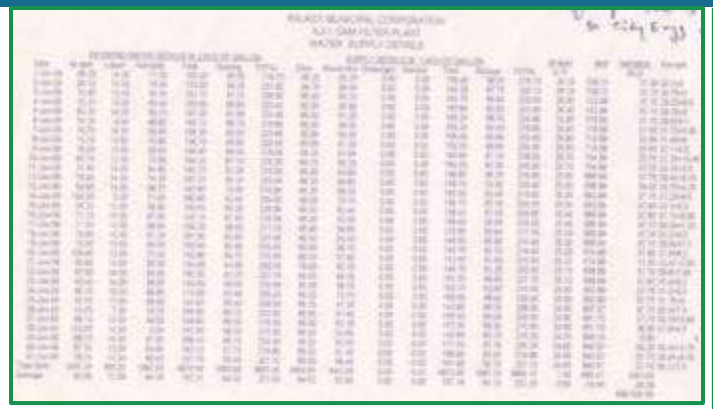


Note: The data in this chart is only for illustration purposes. It does not depict the actual situation in these cities or states.

Tools for improved information

Formats used by city government for water quantity measurement

1. Format of log book to record pumping hours, sump levels & flow meters at WTP



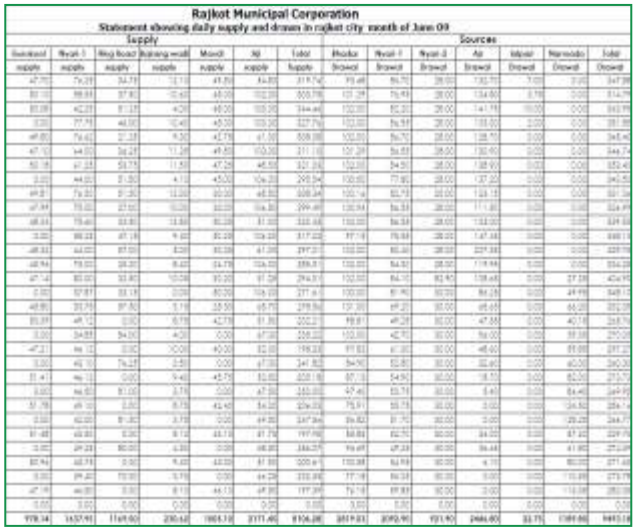
2. Water quantity calculation by Deputy engineer at WTP

3. Log book maintained at pumping station

4. Daily reporting format to CE

Rajkot Municipal Corporation
Water Distribution in All Zones

5. Monthly reporting to higher authorities

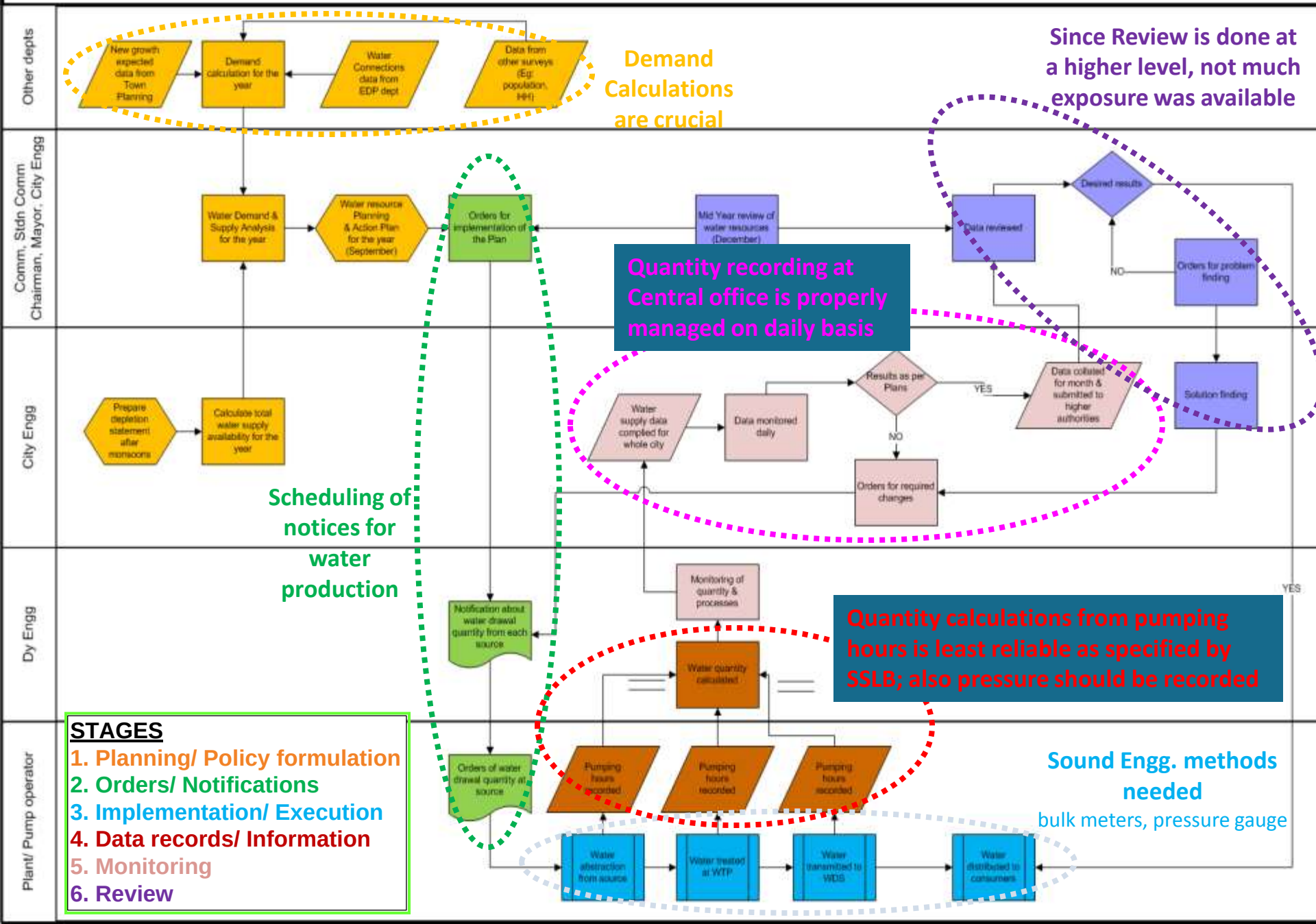


Rajkot Municipal Corporation
Statement showing daily supply and drawn in rajkot city month of June 09

Flow of Data

STAFF	DATA USED/ INPUT	DATA RECORDED/ OUTPUT
Pump operator ***HOURLY***	**Pump Operations**	**Pumping hours**
Deputy Engineer ***DAILY***	**Pumping hours**	**Water quantity calculation**
City Engineer ***DAILY***	**Water quantity calculation**	**Water production & supply at various levels**
Commissioner, Standing Committee, Technical Advisor, City Engineer ***MONTHLY***	**Water production & supply at various levels**	**Water supply quantity review for current & next month**
Commissioner, Mayor, WW committee chairman, Tech Advisor, Dy Comm, CE ***BI – TRI ANNUAL***	**Water supply quantity review for past few months**	**Water supply quantity review for rest of the year**
Commissioner, Standing Committee, Mayor, WW committeechairman, Tech Advisor, Dy Comm, CE ***ANNUAL***	**Water supply quantity review for last year**	**Water supply quantity planning for next year**

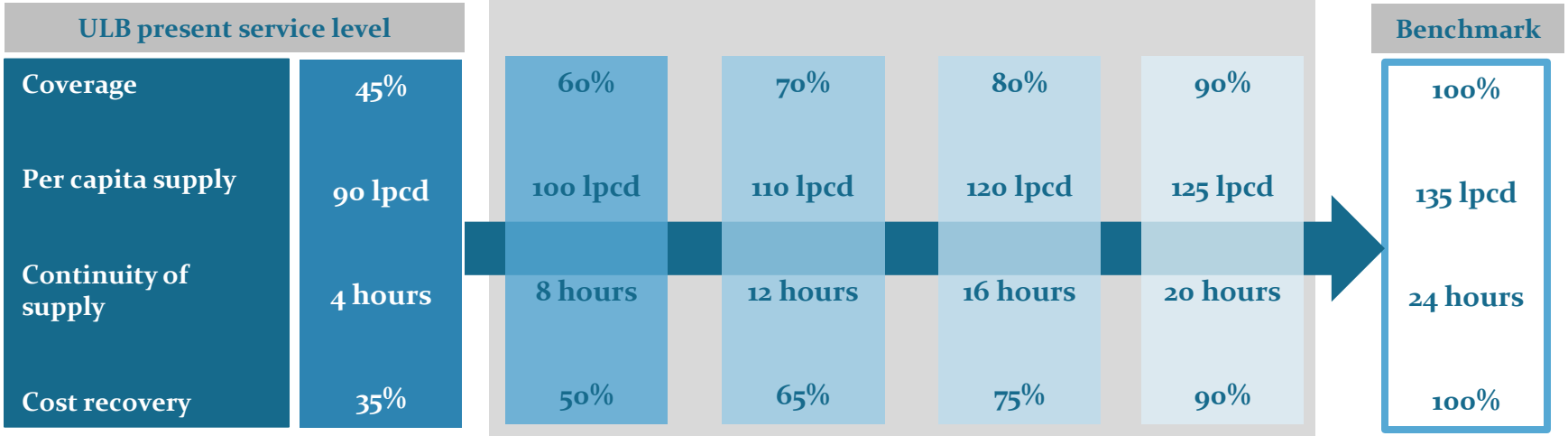
WATER PRODUCTION MONITORING



Use of PAS information for IMPROVED investment DECISIONS

Performance Improvement

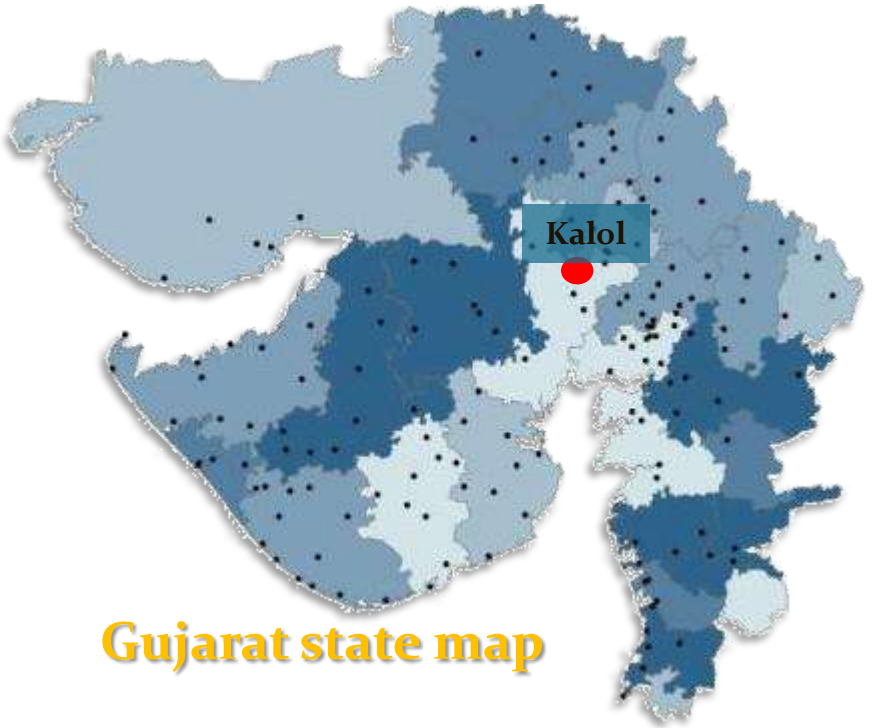
Using PAS to improve service levels…



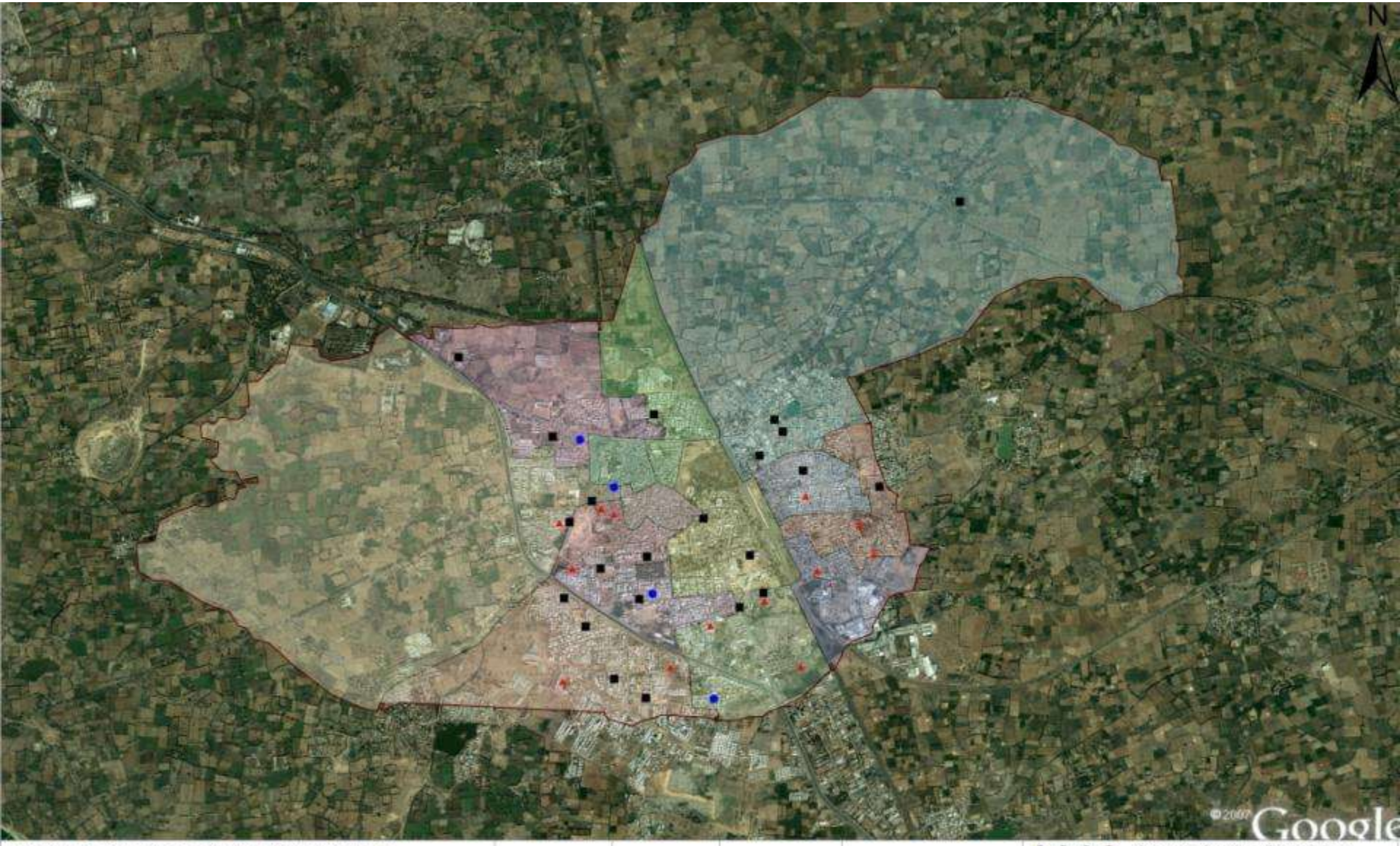
ULBs needs to know **how** to improve service delivery and achieve desired targets…

Case Study: Low cost Water Audit in a Small Town

Population (2009 projected)	130, 863
Area of city	17.24 sq km
Population in Slum	28694 (22% of total population)
Source of water supply	Bulk Water Purchase (Narmada) Ground water (21 bore wells)
Quantity of water supplied	12.7 MLD Bulk treated purchase water 3 MLD Ground water



Gujarat state map



PERFORMANCE ASSESSMENT SYSTEMS FOR URBAN WATER SUPPLY AND SANITATION IN GUJARAT

A Research Project in Association with Urban Management Centre (UMC)

URBAN MANAGEMENT CENTRE in collaboration with ICMA

MAPTITLE	DRAWN BY	LEGEND	LEGEND
kalol		SURVEY POINT 1" CONNECTION 3/4" CONNECTION 1/2" CONNECTION MUNICIPAL BND WARD BND	

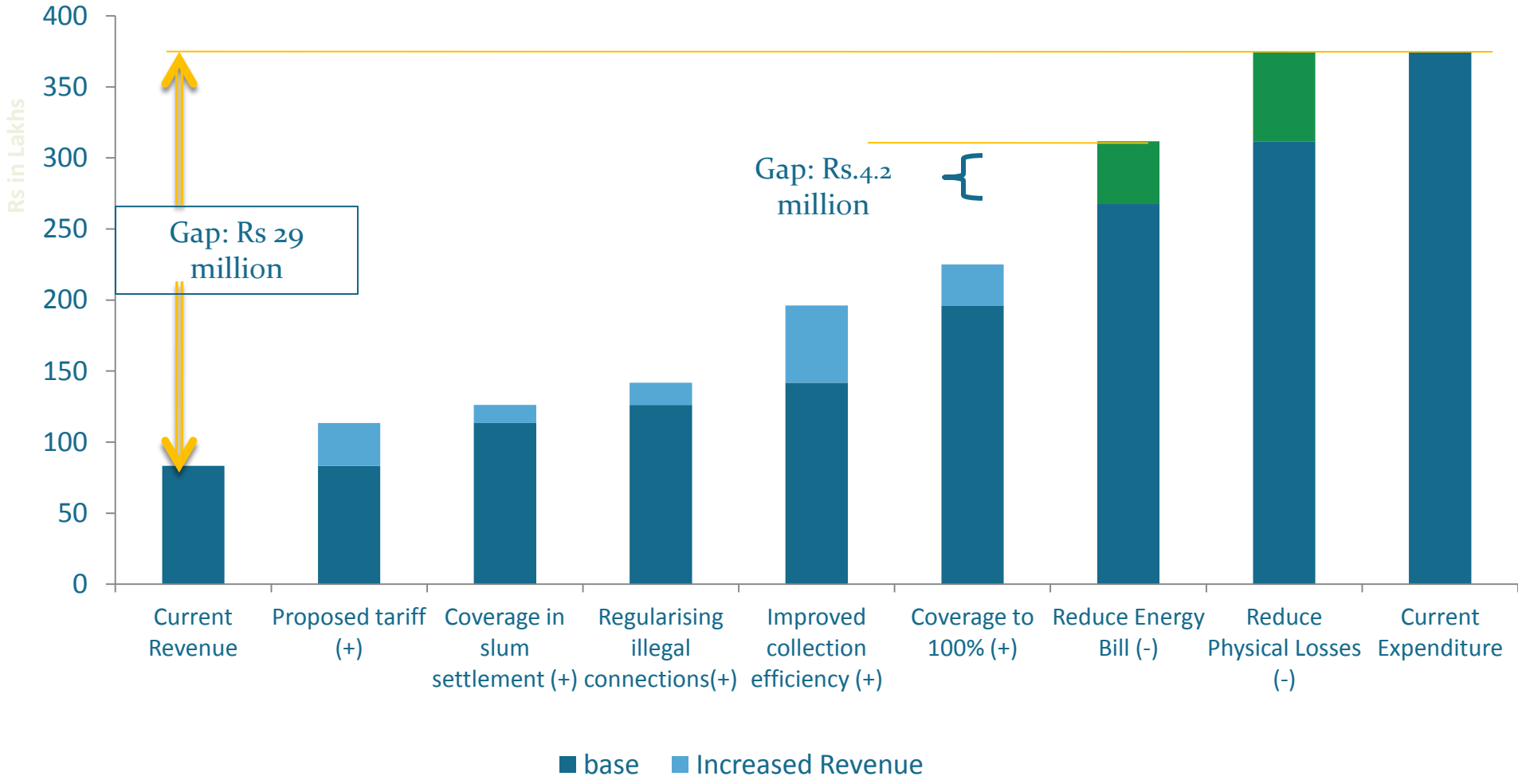
Center for Enviornment Plannning and Technology
Kasturbhai Lalbhai Campus,
University Road,
Navrangpura,
Ahmedabad-380009

Kalol: NRW and Losses

Parameter	Actual measurement
System Input Volume	17.3 MLD
Billed Quantity (Revenue water)	7.99 MLD
NRW	53.82%

Categories of Losses	Actual measurement	
Losses from source to WDS (Leakage in transmission mains)	1.71 MLD	9.9%
Losses at WDS (Leakage and overflows at storage tanks)	0.61 MLD	3.5%
Losses from WDS to Consumer (Leakage on service connections and illegal connections)	6.99 MLD	40.4%

Exploring investment options for financial sustainability - Kalol



Note: The data in this chart is only for illustration purposes. It does not necessarily depict the actual situation in this city.

Areas that can be targeted by Kalol to improve cost recovery …

THEME	ACTION AREA	CAPITAL INVESTMENT & FEASIBILITY STUDIES	PROCESS IMPROVEMENT	POLICY INTERVENTION
ACCESS AND COVERAGE	Distribution network	**Expansion of network in uncovered areas**		
	New connections		**Ease the process for giving connection**	
	Slum coverage	Provide internal infrastructure in slums		**Delink tenure issues to provide services**
	Illegal connections		**Detection & regularization of illegal connections on regular basis**	
SERVICE LEVELS AND QUALITY	Water supply	Source augmentation		Explore alternate sources
		Increase capacity of existing sources	Water conservation options	
		Upgrade treatment capacity		
	Establish DMA	Hydraulic modelling		
		Install meters & pressure gauge		
	Water quality surveillance		Conduct regular tests at all levels (WTP, WDS, consumer level)	Strictly follow CPHEEO norms for water quality
	Consumer redressal system		Establish compliant recording system	Prepare citizen charter and follow
			Streamline redressal process by ULB staff	
FINANCIAL VIABILITY	Reduce water losses	**Water audit**	**Regular leak detection**	
		Replace/ rehabilitate network		
	Reduce energy expenses	Energy audit		
		Replace/ repair electrical equipments & pumps		
	Increase revenue			**Rationalize tariff structure**
	Billing & collection		Establish multiple points for paying taxes	**Clauses like incentives & penalty fine to citizens. Frame strategy to target arrears**
			Bill all customers on time	
	Asset management		Prepare assets database	Dedicated budgetary allocations for asset maintenance
			Linking maintenance schedule with staff responsibilities	

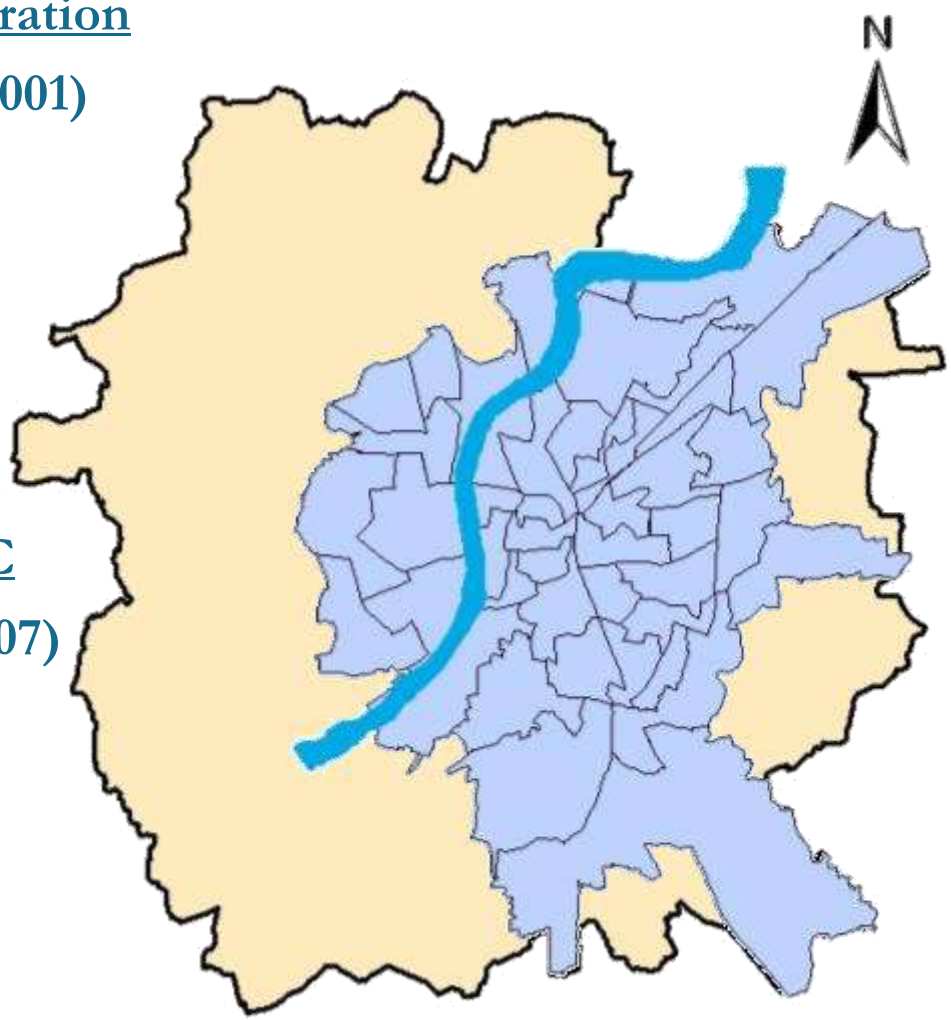
Case Study: Ahmedabad: Universal Access to WSS

Ahmedabad Municipal Corporation

- Population – 3.5 Million (Census,2001)
- Area – 190 sq.km
- Density - 18256 per sq.km.
- No. of Admin Zones – 5
- No. of wards – 44

Extended Boundary AMC

- Population – 4.9 Million (AMC, 2007)
- Area – 466 sq.km
- Density – 10,515 per sq.km.
- No. of Admin Zones – 6
- No. of wards – 52



Interventions in Slums by State & AMC

1971 | 1981 | 1991 | 2001 | Present

Slum Survey (1974)

- Slum Census carried out in 1974
- Family card was issued to all the slum dwellers
- No of pockets – 1200
- No. of Huts – 82177
- Resolution: All these slum dwellers are eligible for legal individual services

AMC Council Resolution

Toilet Scheme (1980-81)

- 80:20 Individual toilet scheme was introduced
- State/AMC contribution 80% and 20% by beneficiaries
- Scheme reaches to approx. 3000 families over 10 years of period due to rigid specification and complex procedure

Individual toilets scheme (1990)

- 80:20 scheme was modified and introduced 90:10 scheme
- AMC contribution 90% and 10% by beneficiaries
- Scheme reaches to approx. 14000 families till date

Slum Networking Project (1996)

- Objective: Integrate slums with City & city infrastructure
- Main Component: Physical infrastructure, Land tenure for 10 years, community development etc.
- Scheme reaches to 47 slums with 5000 families over 13 years
- Won Dubai International Award

AMC-NGO Slum Survey (2001)

- Pocket level survey carried out for all slums
- Service level: Water Con: 53% & Toilet: 34% in slums

NOC Scheme (2002)

- To reach slums where Services not provided due to slums develop after 1976 or SNP covered slums (High court order)
- Unique Scheme to overcome the issue of tenure and ownership

Nirmal Gujarat Sanitation Program (2004 onwards)

- With the goal of becoming open defecation free city, this scheme was introduced by state under Nirmal Gujarat
- Approx. 45000 individual toilets has been constructed in last 6 yrs

Biometric & Total station Slum Survey (2009)

- First city to carry out city wide HH level biometric survey for slums (JnNURM reform)
- Service Level: Water: 47% & toilet: 57% in slums

Local level Programs for the Poor

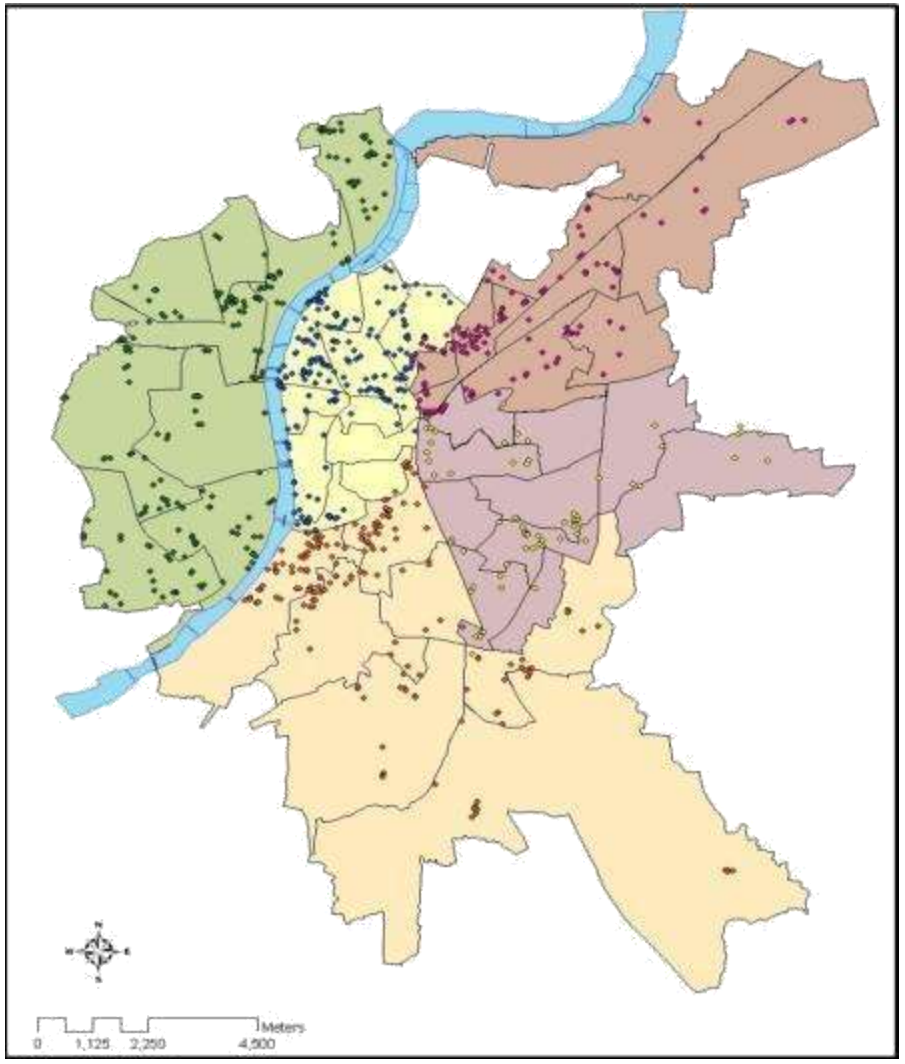
Under the PAS Project support is being provided to the Ahmedabad Municipal Corporation for

Organizing available data on slums

•Developing a Slum information system on a GIS platform

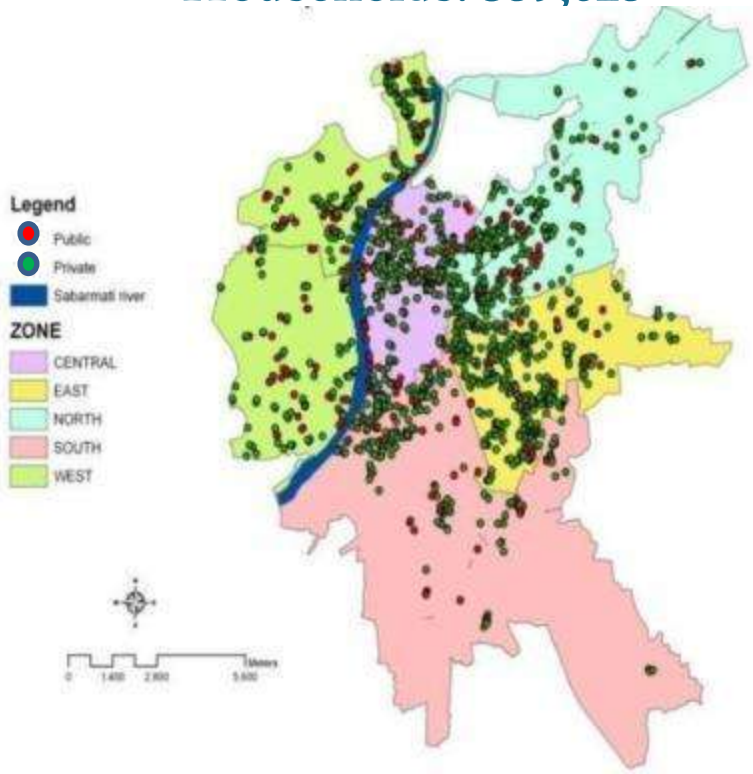
•Use of GIS tools to identify key projects

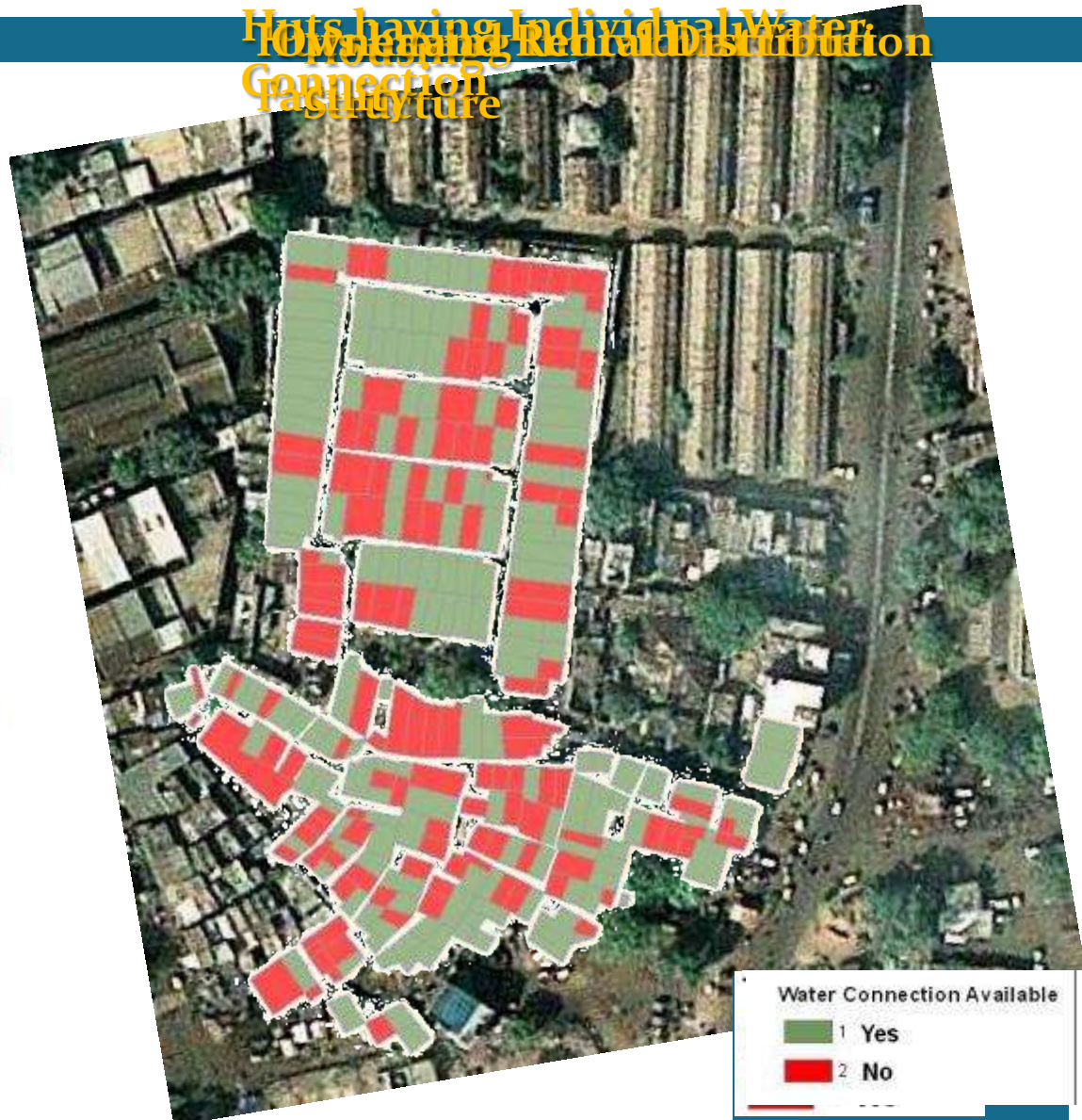
•Developing investment plans for slum infrastructure with funding from GOI and local programmes.



GIS Based Information System for Slum

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



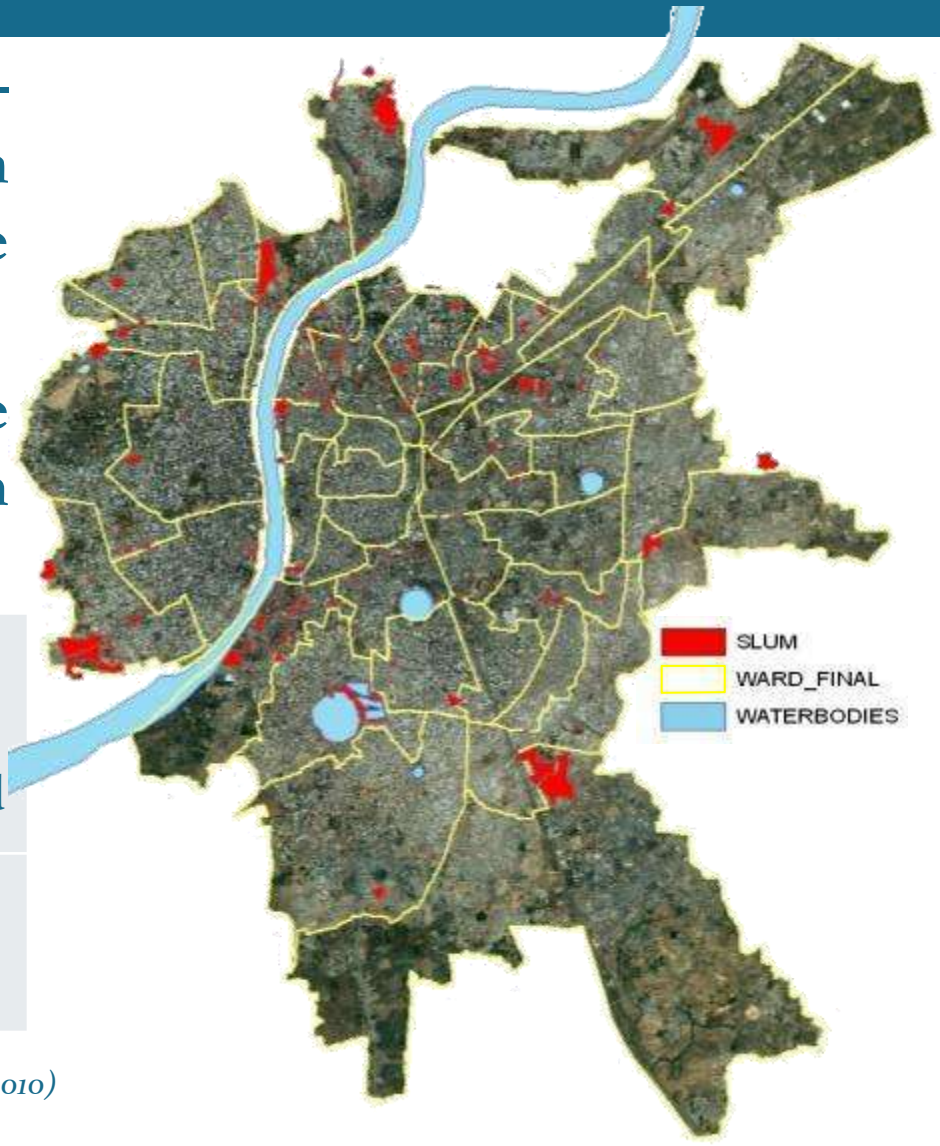


In-situ Service Up gradation

- Minimal relocation of slums – only those slums that are in vulnerable conditions are to be relocated
- On site services package to be provided to all the other slum pockets.

No. of Slum Pockets	Houses	No. of water Connection Required	No of Toilets required
495	131,350	68,208	57,390

Source: Biometric Socio-economic Household survey, AMC (2010)



Finance: In-situ up gradation

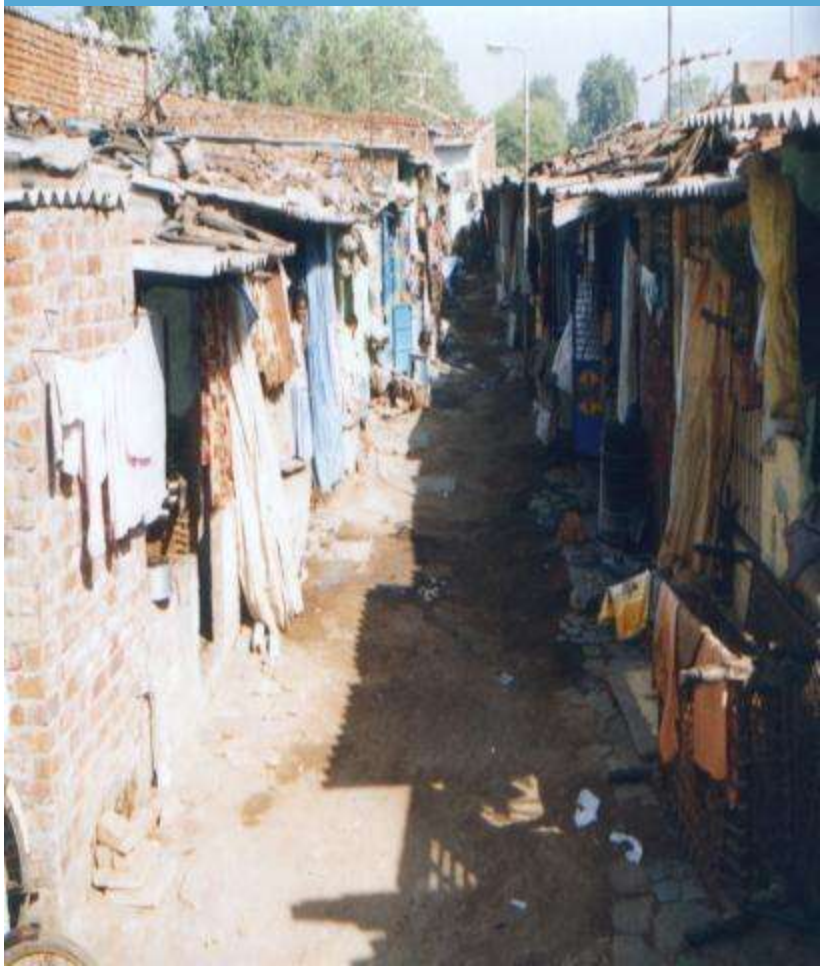
(Rs. In Crore)

Cost Component	2010	2011	2012	2013	2014	2015	2016	Total
	1	1	1.07	1.14	1.21	1.28	1.35	
Slum Infrastructure Cost	8.3	29.2	31.3	33.3	35.4	37.4	39.5	214.4
Individual service Cost	3.9	8.6	10	10.5	8	3.5	4	48.5
Project Management Cost	1.6	2.8	3.1	3.3	3.3	3.3	3.4	20.8
Total Cost	13.8	40.7	44.4	47.1	46.7	44.2	46.9	283.7

Potential Sources of Finance (USD 60 million)

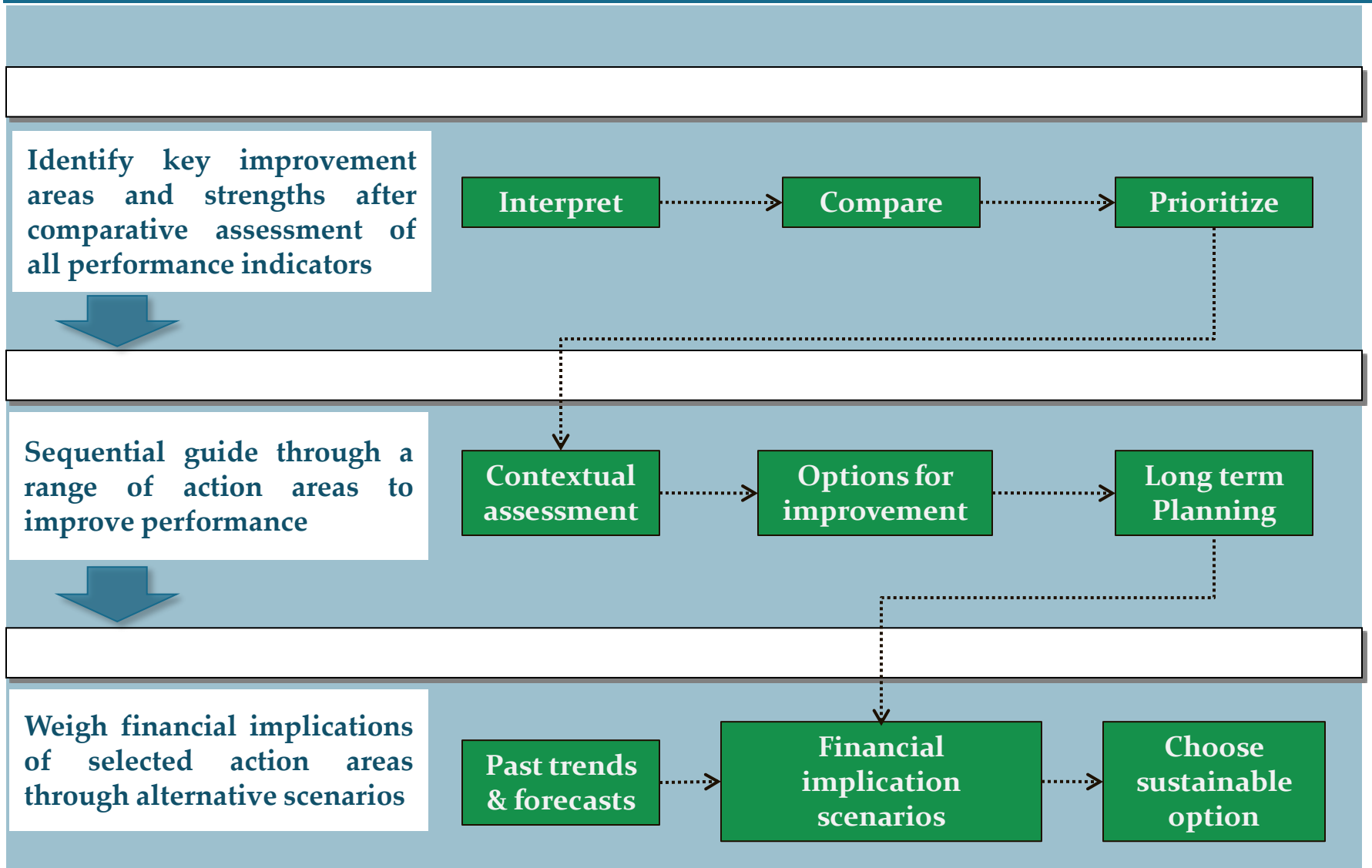
- Central Government assistance through MoHUPA – 50%
- State Government- 25%
- Community – 10%
- City Government: 15% from revenue surplus allocated for Pro-poor activities

What can infrastructure do in Slums

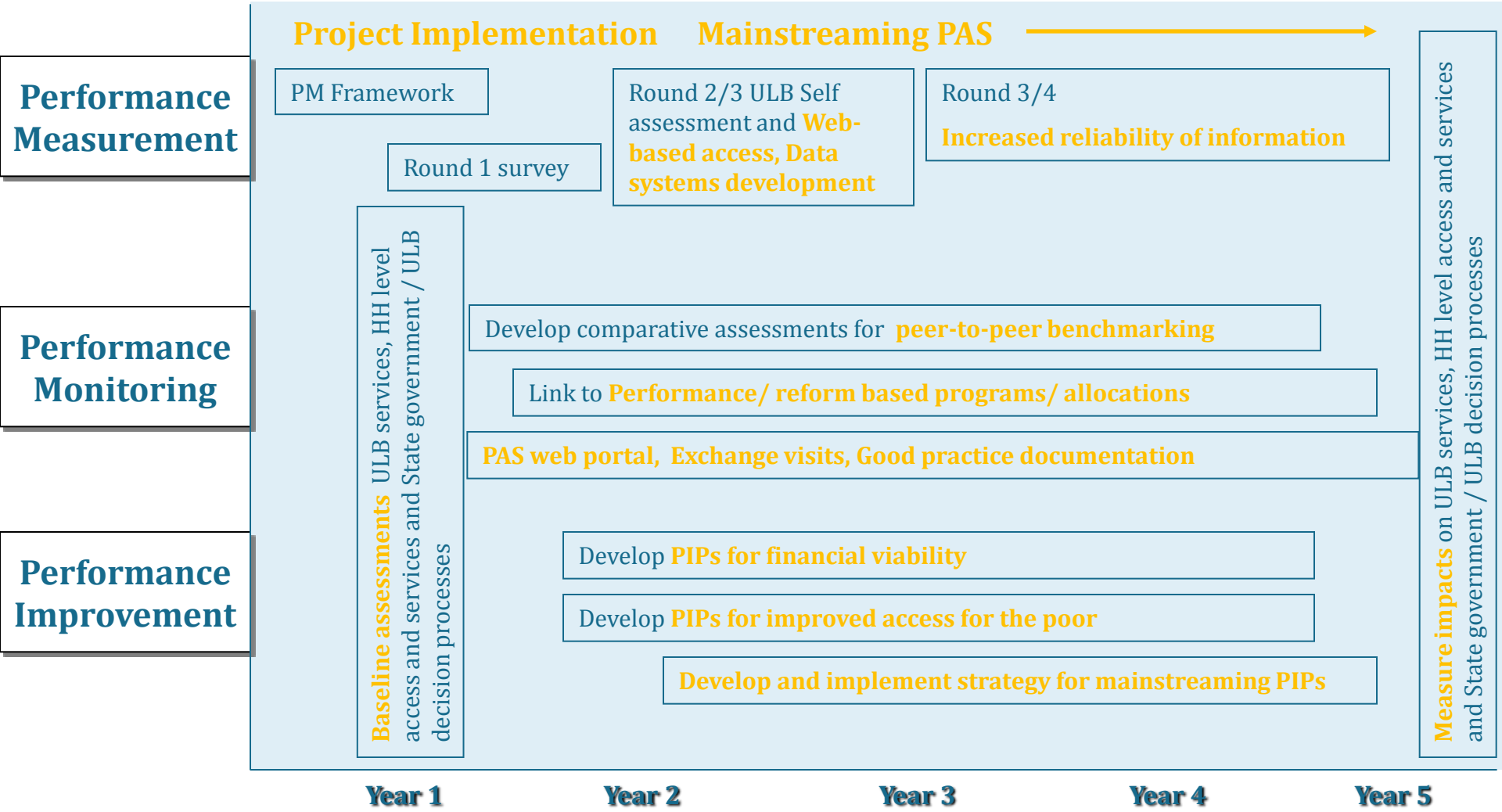
BEFORE	AFTER
	

Performance Improvement

Tools for stepwise improvement planning



5-Year Plan for PAS



Challenges for PAS

- Mainstreaming PAS in state and local government systems
- Use of PAS for investment decisions at local and state level – creating incentives through upward, downward and internal accountability
- Gradually improving quality of information
- Further develop equity indicators
- KPIs for sanitation are too focused on sewerage system – need to develop indicators for cities without sewerage

Thank You