PERFORMANCE ASSESSMENT SYSTEM PROJECT

p a s performance assessment system

Process Mapping of Urban Water Supply at Local Level (July 2011)

Presentation Structure-Overview

1. Background

2. Process Mapping Approach & Methodology

3. Review of ULB Institutional Arrangements

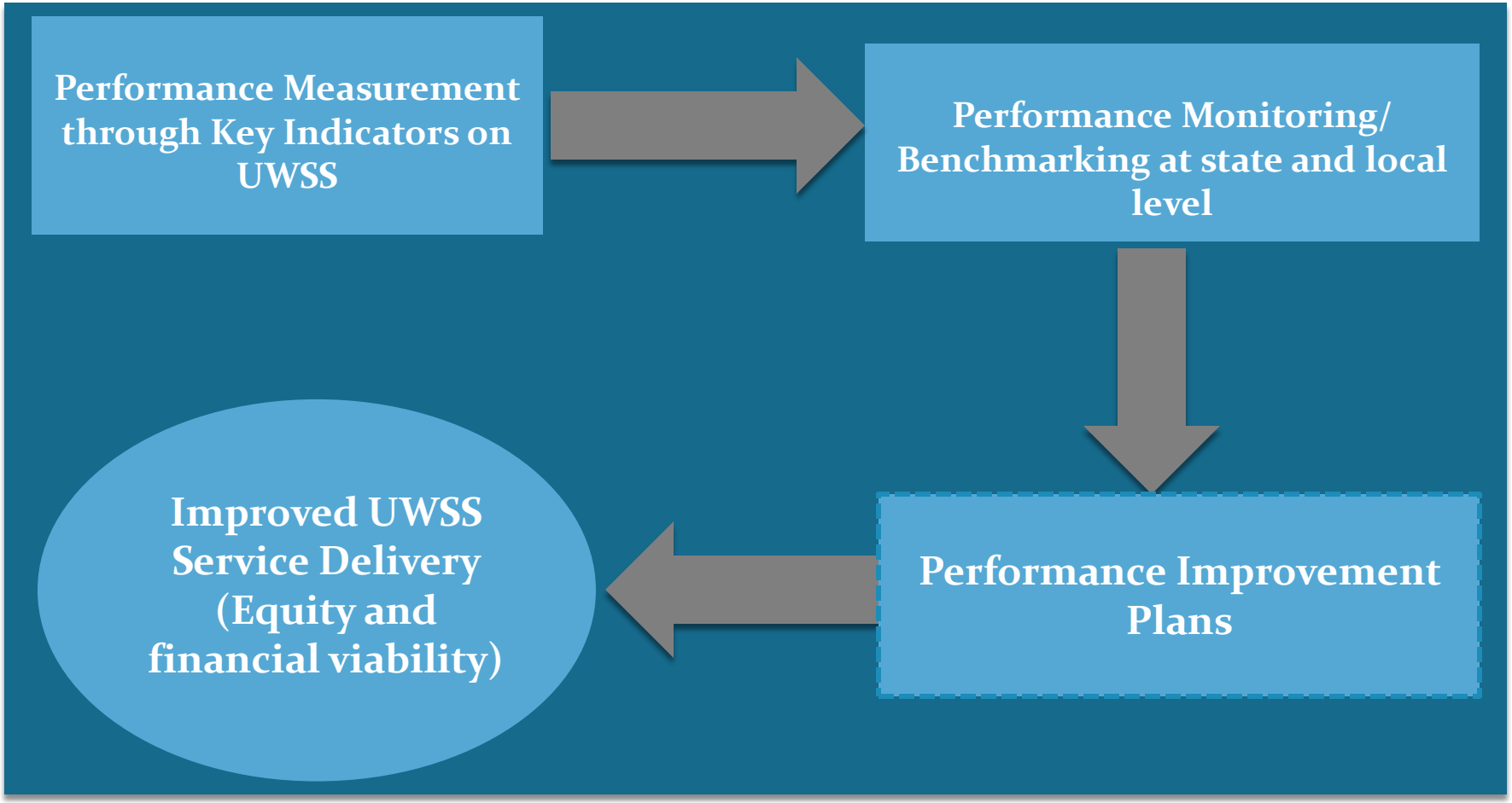
4. Review of Key Processes in Selected ULBs

Background

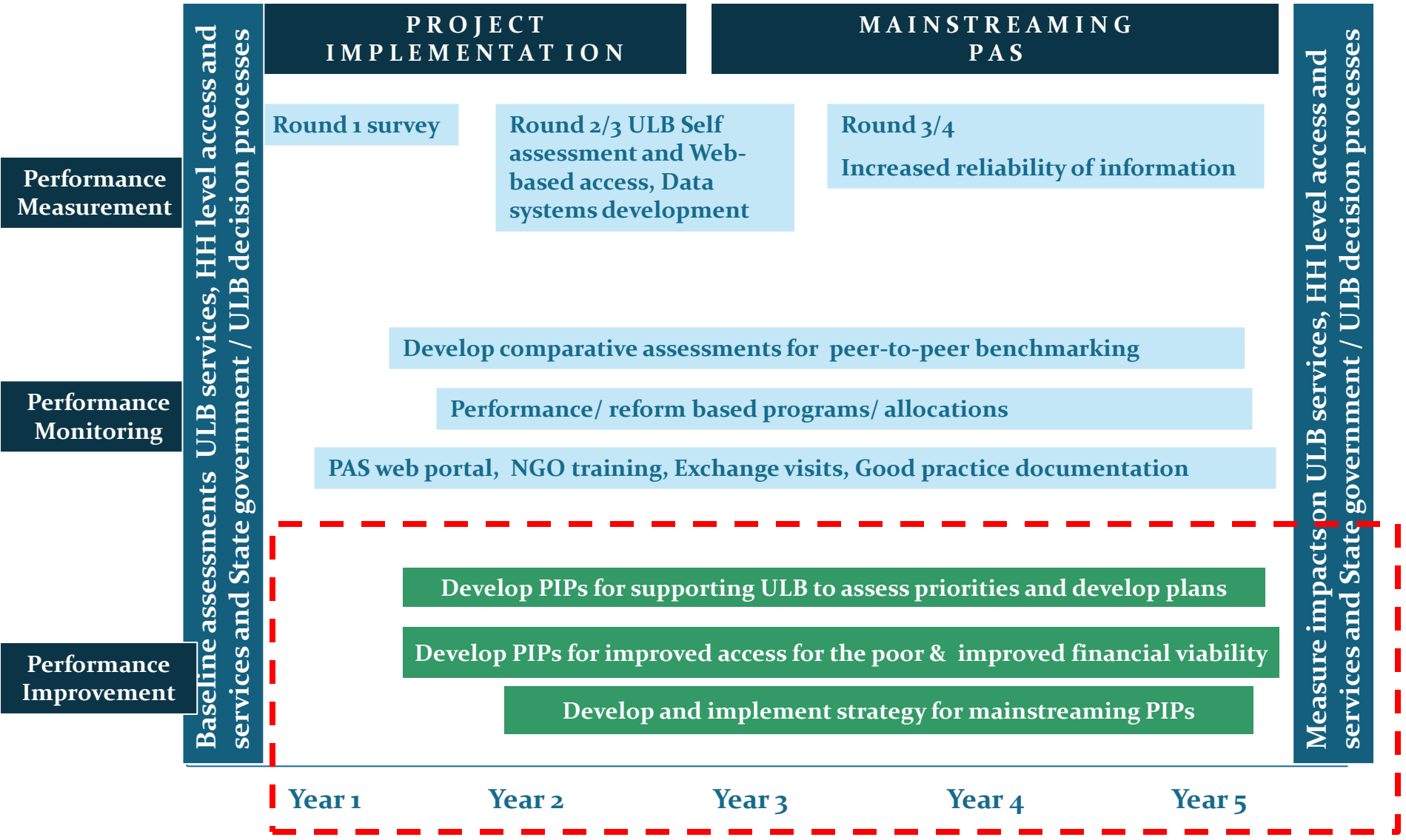
1.1 Performance Assessment Systems Project
1.2 Five Year Plan for PAS
1.3 Transition to Performance Improvement Planning
1.4 Building Blocks of PIP
1.5 Urban Water Supply Processes
1.6 Challenges of UWSS Processes

1.1 Performance Assessment System Project

Towards a sustainable statewide performance assessment system for improving access to the poor and un-served, and achieving financial sustainability



1.2 Five Year Plan for PAS



1.3 Transition to Performance Improvement

G O A L S for Service Delivery → **R E F O R M S In service Delivery & Efficiency** → **Taking L O C A L Action**

↓

METRICS → **PERFORMANCE**

1.4 Building Blocks of PIP

Creating new Assets and adding new Investments

Improve ways of doing business

Better Maintenance of Existing Assets

Think of new ways of doing Business

High Capital Intensive Actions

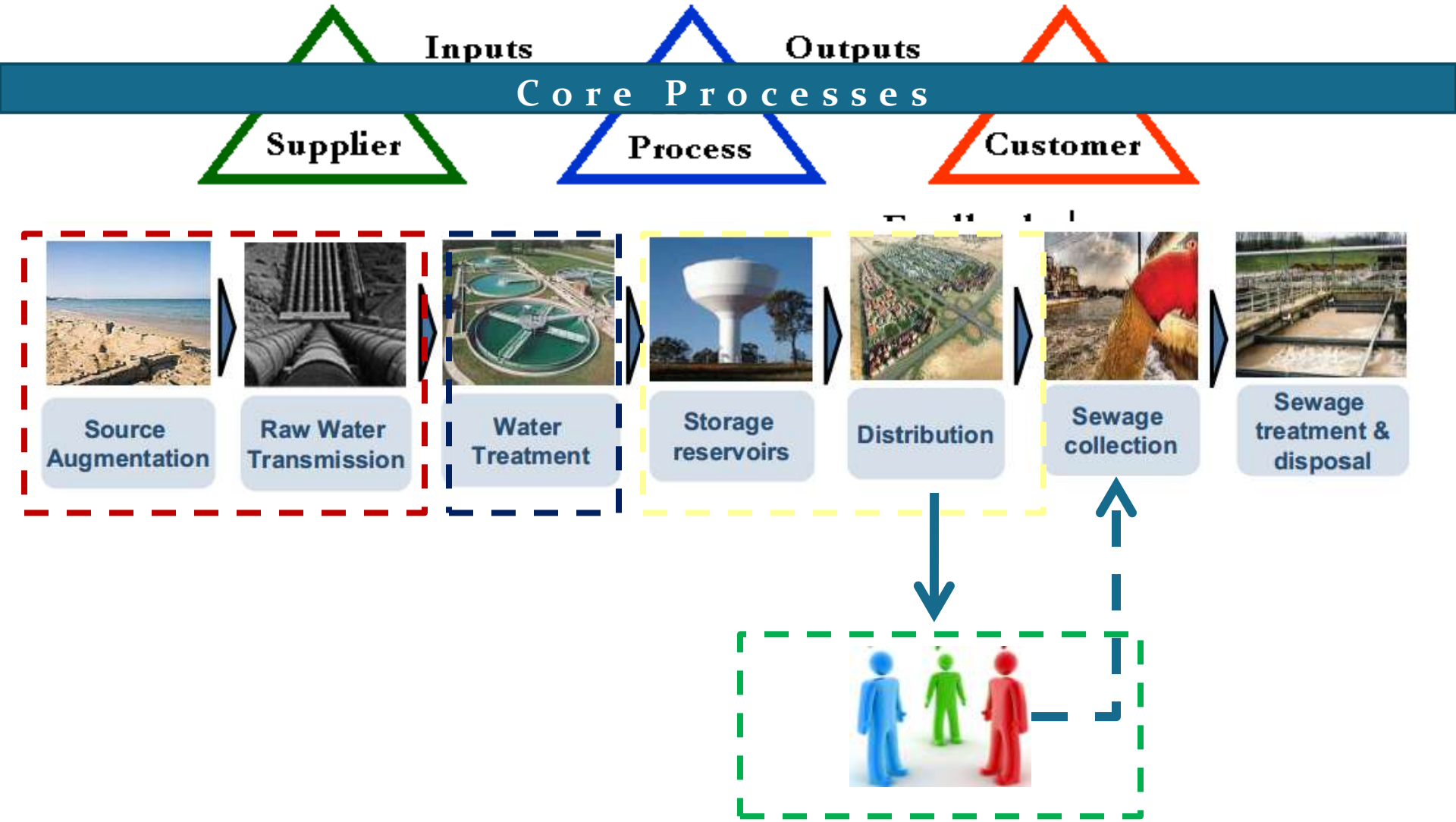
Low Capital Intensive Actions

Process Improvements

Business Process Re engineering

LOW COST / NO COST SOLUTIONS

1.5 Urban Water Supply Processes



Water production Process

Treatment processes

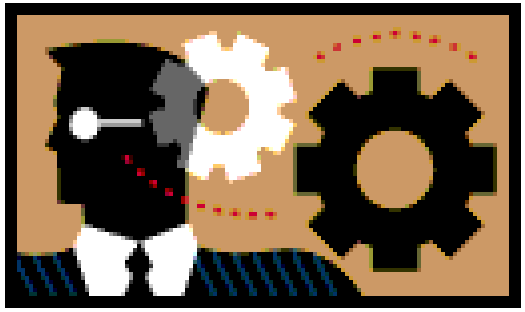
Water Distribution Processes

Consumer related Processes

1.6 Challenges of UWSS Processes

- ULB structures and processes rooted in the past, aimed at demands of earlier times
- Processes designed before modern information and communications technology came in to being
- Outmoded work processes pose challenges to cost efficiency and improved service delivery
- Scope to improve processes to help organization fulfill their mission and strategic service delivery goals

Successful process-driven organizations share a sense of purpose and priority
They can translate strategy into action,
define the key indicators of performance at every level within a coherent hierarchy, and manage the processes that drive performance



Process Mapping Approach & Methodology

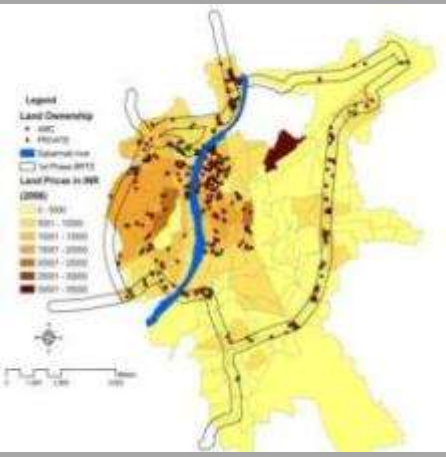
2.1 Overall Approach

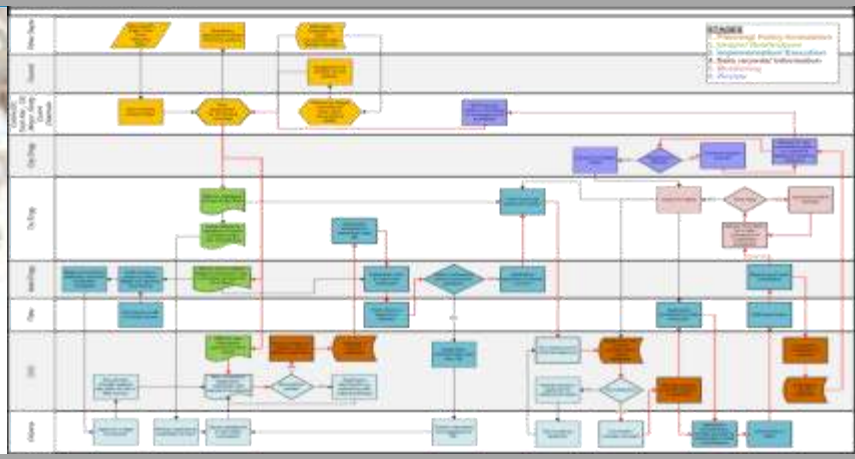
2.2 Review of key processes related to SLB Indicators

2.3 Key processes selected for our Study

2.4 Process studies across UWSS Value chain

2.5 Selected city samples for process studies in Gujarat





2.1 Overall Approach

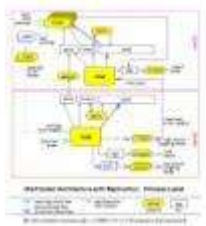
1

Identifying key critical processes in UWSS value chain

Sub Processes Mapping Methodology

Stage I

Activity flow at various levels within the ULB



2

Review and comparative analysis of processes across sample ULBs

Stage II

Analysis of data recording formats

3

Establish key critical stages / activity for each process

Stage III

Data flow and Intermediate outputs in the process

4

Suggestions for Improvement areas in the processes

Stage IV

Process flow analysis

2.2 Review of Key Processes related to SLB Indicators

	KPIs	Action Areas (LAIs)	Key Process
Access and Coverage	**Access and Coverage**		
	Coverage of water supply connections	Connection process and regularization of illegal Connections	Simplifying connection procedure for new customers
			Process for regularizing illegal connections
	Equity in Access & Coverage		
	Coverage of water supply connections in 'slum settlements'	Network improvements in slum areas	Simplifying paper work/ connection procedure for new consumers from slum HHs/ BPL families

	KPIs	Action Areas (LAIs)	Key Process
Service Delivery	**Service Levels**		
	Per capita supply of water	Source Augmentation & treatment capacity	Process for regular updates of water quantity (at source, distribution & consumer end)
	Extent of non-revenue water	Water Audit	Preliminary Water Audit : Process to periodically measure water quantities & updating network / connections database
		Physical Losses & Leakage management	Process for periodic checking of reservoir overflows
		Apparent Losses	Process for checking metering inaccuracies & meter callibaration
			Periodic survey for detecting illegal Connections
	Extent of functional metering of water connections	Metering	Process for periodic recording of defunct or faulty meters & repairs
	Quality of water supplied	Quality monitoring Surveillance (Operational level)	External / third party water audit processes
		Quality monitoring Surveillance (Consumer level)	Process for regular water quality surveillance at distribution & consumer end

Review of Key Processes related to SLB Indicators

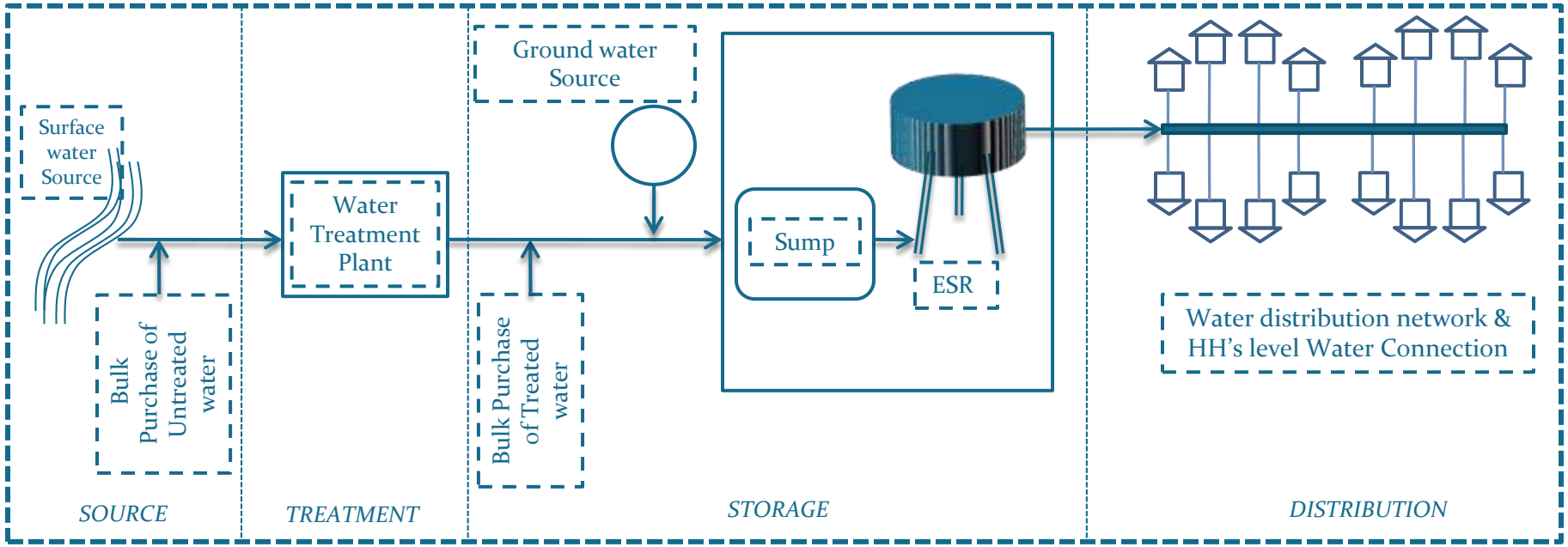
	KPIs	Action Areas (LAIs)	Key Process
Consumer Related	**Customer/Consumer Interface**		
	Efficiency in redressal of customer complaints	Complaint redressal	Process for handling, resolving complaints & reporting back to consumer as per citizen charters
			Process for regular water adalats & other grievance redressal mechanisms involving stakeholders
			Process for periodic analysis & feedback from complaints database

	KPIs	Action Areas (LAIs)	Key Process
Financial Sustainability	**Financial Sustainability**		
	Cost recovery (O&M)	Reducing Expenditure	Process for maintaining inventories of all relevant systems that use electricity including pumping, lighting, water treatment, supply and distribution system
			Process/ strategies for cost optimization like improved controls related to procurement practices and other budgetary controls
	Collection Efficiency	Improve Billing & Collection Systems	Process for periodic updation of consumer records and arrears
			Process for regular update of Connection database (add new connections, categorization of consumer category, linkages with property tax database etc.)
			Process for efficient production of bills and customer friendly collection systems

2.3 Key Processes Selected for this Study

KPIs	Action Areas (LAIs)	Key Process
Access and Coverage		
Coverage of water supply connections	Connection process and regularization of illegal Connections	Simplifying connection procedure for new customers
		Process for regularizing illegal connections
Equity in Access & Coverage		
Coverage of water supply connections in 'slum settlements'	Network improvements in slum areas	Simplifying paper work/ connection procedure for new consumers from slum HHs/ BPL families
Service Levels		
Per capita supply of water	Source Augmentation & treatment capacity	Process for regular updates of water quantity (at source, distribution & consumer end)
Quality of water supplied	Quality monitoring Surveillance (Consumer level)	Process for regular water quality surveillance at distribution & consumer end
Efficiency in redressal of customer complaints	Complaint redressal	Process for handling, resolving complaints & reporting back to consumer as per citizen charters
Financial Sustainability		
Collection Efficiency	Improve Billing & Collection Systems	Process for efficient production of bills and customer friendly collection systems

2.4 Processes Studies across the Value Chain



4. Water Production and delivery processes

5. Process for regular water quality surveillance at distribution & consumer end

1. Process for new water supply connections to customers

2. Process for new water supply connections to slum dwellers

3. Process for identifying & regularizing illegal connections

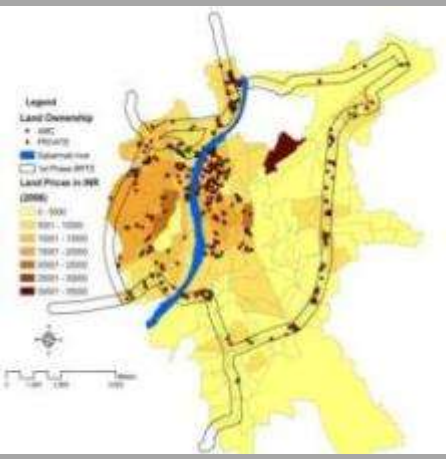
6. Process for for efficient production of bills and customer friendly collection systems

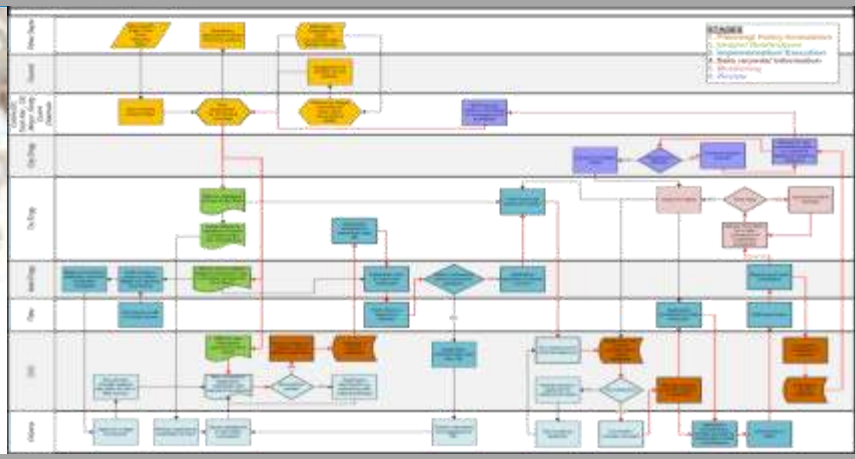
2.5 Selected City Sample for Process Studies in Gujarat

KPIs	Action Areas (LAIs)	Key Process	Selected Cities for Process Studies			
			MC	A	B	C
Access and Coverage						
Coverage of water supply connections	Connection process and regularization of illegal Connections	Simplifying connection procedure for new customers	Rajkot	Nadiad		
		Process for regularizing illegal connections	Rajkot	Kalol		
Equity in Access & Coverage						
Coverage of water supply connections in 'slum settlements'	Network improvements in slum areas	Simplifying paper work/ connection procedure for new consumers from slum HHs/ BPL families	Ahmedabad			
Service Levels						
Per capita supply of water	Source Augmentation & treatment capacity	Process for regular updates of water quantity (at source, distribution & consumer end)	Rajkot	Kalol		
Quality of water supplied	Quality monitoring Surveillance (Consumer level)	Process for regular water quality surveillance at distribution & consumer end	Rajkot	Nadiad		
Efficiency in redressal of customer complaints	Complaint redressal	Process for handling, resolving complaints & reporting back to consumer as per citizen charters	Rajkot	Nadiad		
Financial Sustainability						
Collection Efficiency	Improve Billing & Collection Systems	Process for efficient production of bills and customer friendly collection systems		Kalol, Surendranagar	Unjha	Kapadvanj, Vallabh Vidyanagar, Vadnagar

Review of ULB Institutional Arrangements

3.1 ULB Governance & Functions
3.2 Institutional Arrangements
3.3 Comparison of Institutional arrangements
3.4 Staff profile for UWSS in Gujarat
3.5 Comparison of existing set up and staff responsibilities





3.1 ULB Governance and Functions

The basic objective of an ULB

From maintenance of law and order in the early years → ***To promotion of the welfare of the community in recent times***

Category	Type of Municipality	
	Municipal Corporations	Municipal Council/ Nagar Panchayat
Elected Members	Mayor, Deputy Mayor	Chairperson/President , Vice President
	Councillors/Elected ward representatives	Councillors/Elected ward representatives
Ex – offico Members	MPs	MPs
	MLAs	MLAs
	MLCs	MLCs
Appointed Staff	Municipal Commissioner	Executive Officer
	Subordinate Staff	Subordinate Staff
Nominated Members	Selected Citizens	Selected Citizens

Obligatory Functions	*Discretionary Functions*
necessarily performed by the local government	may be taken up depending upon the availability of funds
for which sufficient provision in the budget has to be made.	
Failure to perform any of these functions may compel the State to supersede a municipality	

Municipal functions listed in the State municipal Acts generally fall in the following broad categories: public health and sanitation; medical relief; public works; education; development; and administrative

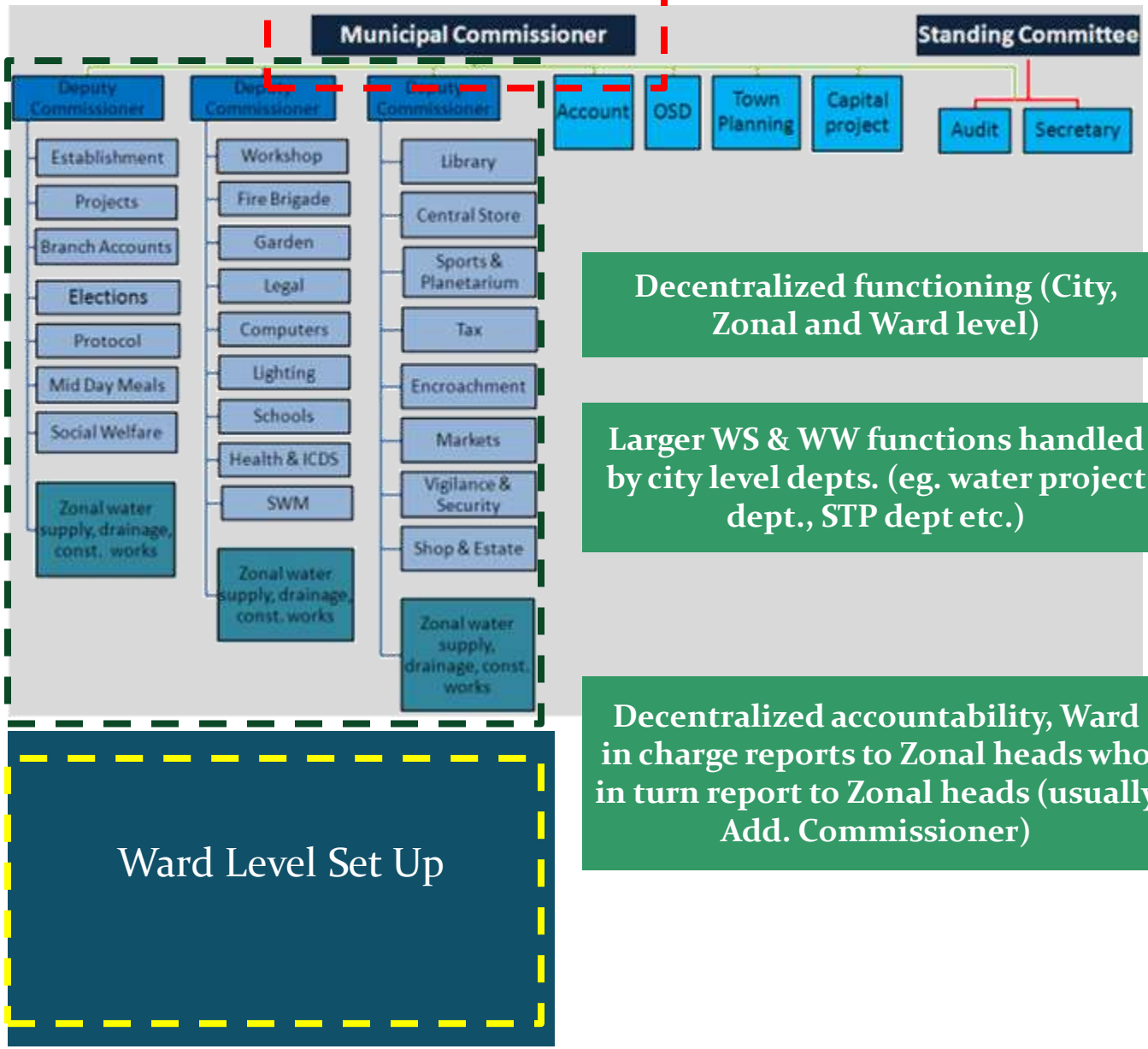
ULBs and Management Structure

3.2 Institutional Arrangements

Gujarat			
Category of ULB	**No. of ULBs**	**Total Population 2001 (in mn)**	**% to total urban population**
Municipal Corporation	7	9.7	57.5
Municipalities			
Class A (more than 100,000)	18	2.4	14.0
Class B (50,000 to 100,000)	33	2.1	12.4
Class C (25,000 to 50,000)	44	1.5	8.7
Class D (less than 25,000)	64	1.2	7.4

- All 166 ULBs have a water supply department
- Only 54 ULBs have a dedicated department for waste water management
- Rest of the ULBs have a sanitation department that deals with solid waste collection and disposal as well as waste water (together called as conservancy services)

3.3 Comparison of Institutional Structure: Municipal Corporation



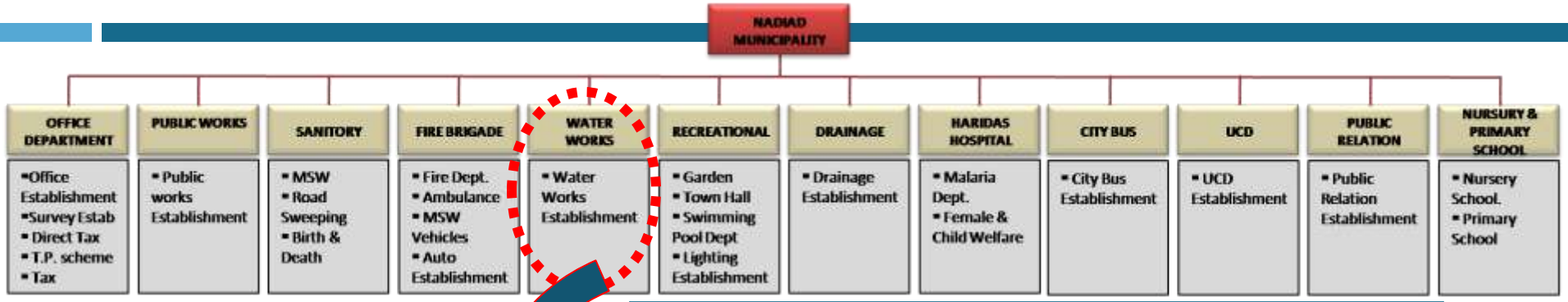
Decentralized functioning (City, Zonal and Ward level)

Larger WS & WW functions handled by city level depts. (eg. water project dept., STP dept etc.)

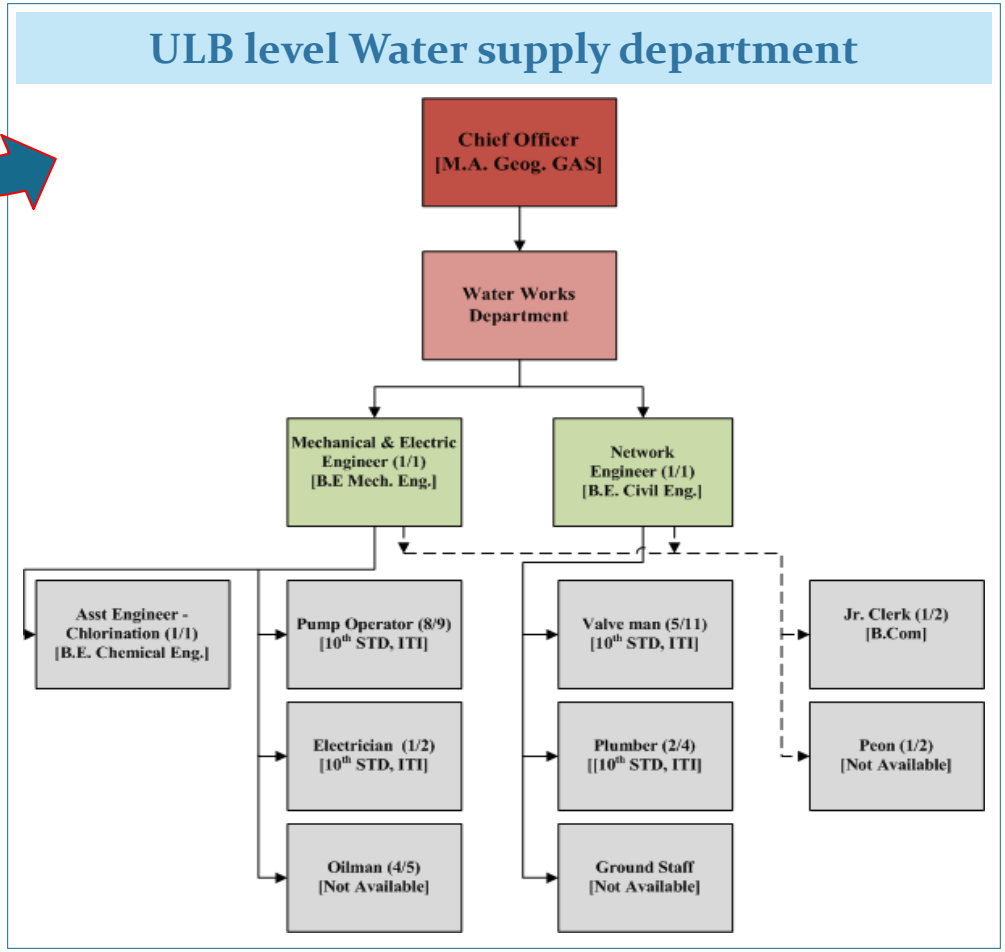
Decentralized accountability, Ward in charge reports to Zonal heads who in turn report to Zonal heads (usually Add. Commissioner)

- Commissioner
- Zonal Chief
- Zonal Officer
- Deputy Engineer
- Asst. Eng / Jr Eng.
- Supervisor
- Technical Assistant
- Beldar

Comparison of Institutional Structure: Municipality



ULB level Water supply department



Comparison of Institutional Structure

Municipal Corporations		Municipalities
Decentralized functioning (City, Zonal and Ward level)	⟷	Centralized functioning (single dept. at city level across all wards)
Separate departments for water, wastewater (WW) and SWM	⟷	Separate department for water; WW and SWM spread across several departments
Larger WS & WW functions handled by city level depts. (eg. water project dept.,STP dept etc.	⟷	All functions handled by single department
Full fledged UCD department	⟷	UCD functions primarily handled by the in charge UCD officer
Decentralized accountability, Ward in charge reports to Zonal heads who in turn report to Zonal heads (usually Add. Commissioner)	⟷	Centralized accountability, Dept. heads usually report to Chief Officer

3.4 Staff Profile for UWSS : Gujarat

Class	Sum of total municipal staff	Sum of total nos of water supply connections
A	7327	419271
B	8641	379051
C	5443	243496
D	4016	221071
MC	62893	1717066
Grand Total	88320	2979955

Class	Total municipal staff	Administration Staff	Finance/Accounts Staff	Water supply Staff	Waste water & SWD Staff	SWM Staff
A	7327	514	163	885	508	4686
B	8641	664	172	1143	435	4270
C	5443	778	141	795	460	2902
D	4016	639	170	581	195	2423
MC	62893	3926	513	2483	4919	18145
Grand Total	88320	6521	1159	5887	6517	32426

3.5 Comparison of Existing Set up & Staff Responsibilities: MC

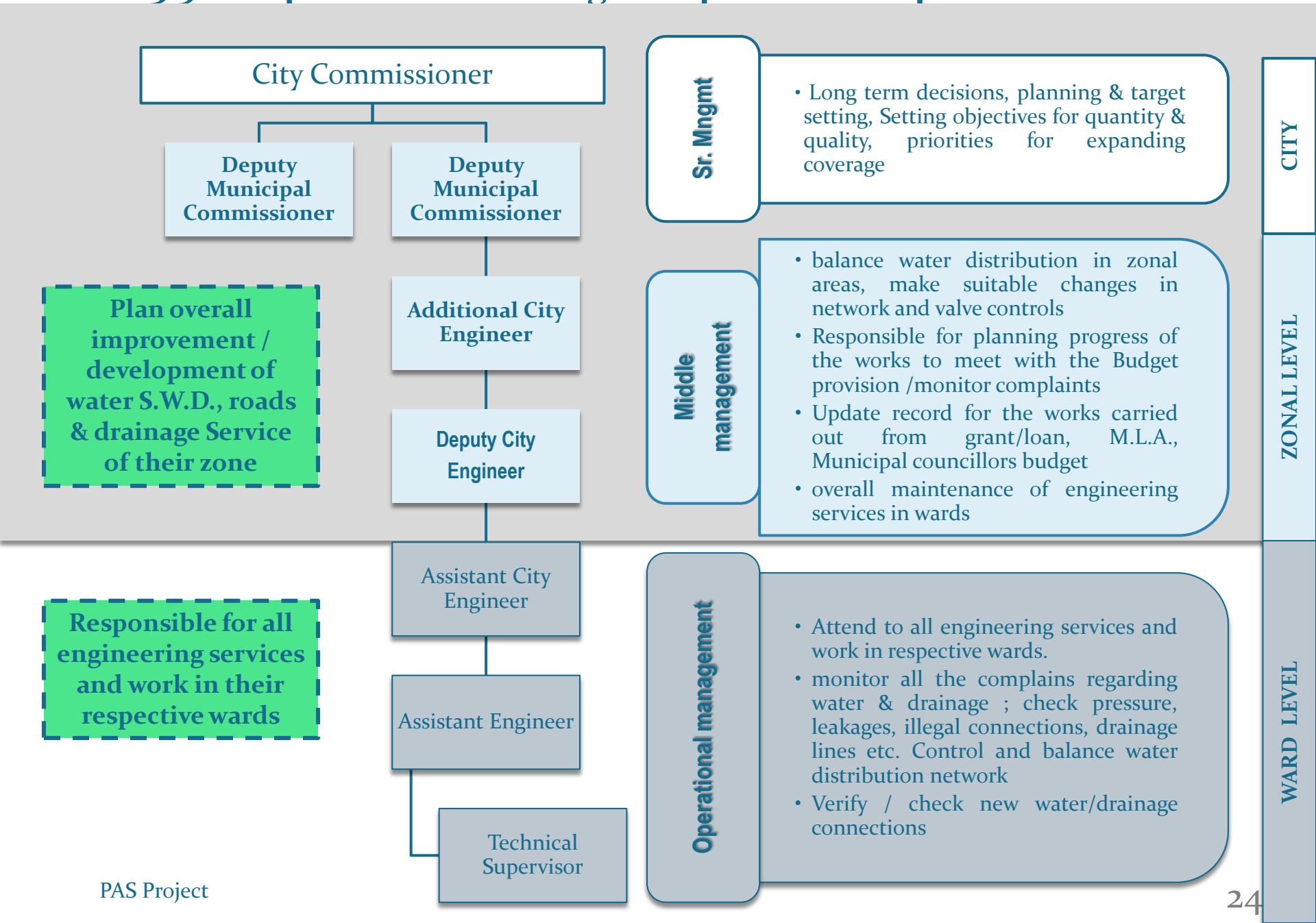


Illustration: Staff Responsibilities for Municipal Corporations

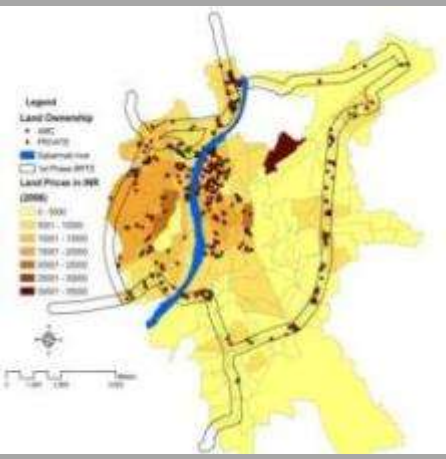
Staff	Annual Strategic Planning	Operations and Project Implementation	Review and Monitoring
Senior level			
Political *Mayor, Standing Committee Chairman, Water Works Committee Chairman* *Bureaucratic* *Commissioner, Deputy Commissioner* *Technical* *City Engineer*	Political and executive agenda to define ULB's approach to service provision, prepare a plan and annual budget.		Monitor implementation of plans, review reports of regular operations and project execution.
Middle level			
Technical at zone level *Deputy Engineer* *Technical at ward level* *Assistant Engineer, Additional Assistance Engineer*		Responsible for: a) ensuring implementation of the projects identified in budget, and b) regular operations and maintenance of services	Keeps track of daily operations of services in their jurisdiction; monitors project implementation
Lower level			
Field staff *Chemist, Supervisor, Fitter, Pump operator, Work Assistant etc.* *Office staff* *Accountant, Cashier, Clerk etc.*		Responsible for field level work related to asset operations, and involving direct consumer interface	

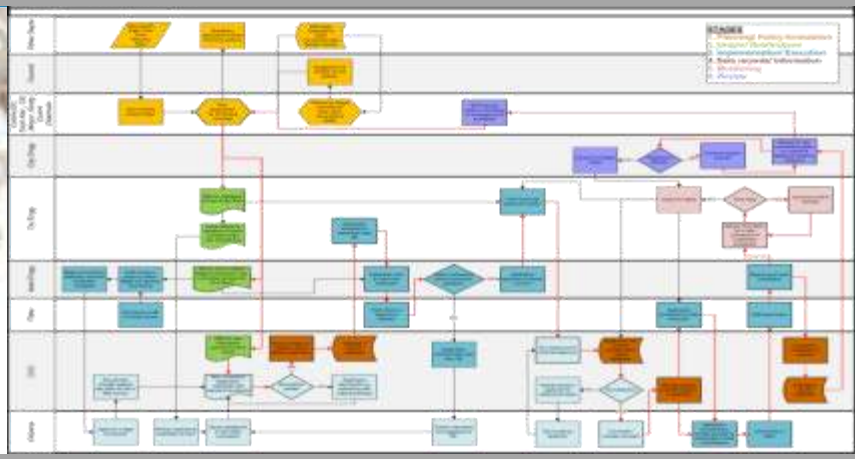
Illustration: Staff Responsibilities for Municipalities

Staff	Annual Strategic Planning	Operations and Project Implementation	Review and Monitoring
Senior level			
Political *Mayor, Standing Committee Chairman, Water Works Committee Chairman*	Political and executive agenda to define ULB's approach to service provision, prepare a plan and annual budget.		Monitor implementation of plans, review reports of regular operations and project execution.
Bureaucratic *Commissioner, Deputy Commissioner*			
Technical *City Engineer*			
Lower level			
Engineer *Field staff* *Chemist, Supervisor, Fitter, Pump operator, Work Assistant etc.* *Office staff* *Accountant, Cashier, Clerk etc.*		Responsible for: a) ensuring implementation of the projects identified in budget, and b) regular operations and maintenance of services c) For field level work related to asset operations, and involving direct consumer interface	Keeps track of daily operations of services in their jurisdiction; monitors project implementation

Review of Key Processes in Selected ULBs

4.1 Water Supply Connection Process
4.2 Water Supply Connection Process for slum HHs
4.3 Process for detection of illegal connections
4.4 Water production and delivery process
4.5 Water quality Monitoring Process
4.6 Consumer grievance and redressal process
4.7 Billing and collection process





4.1 Water Supply Connection Process

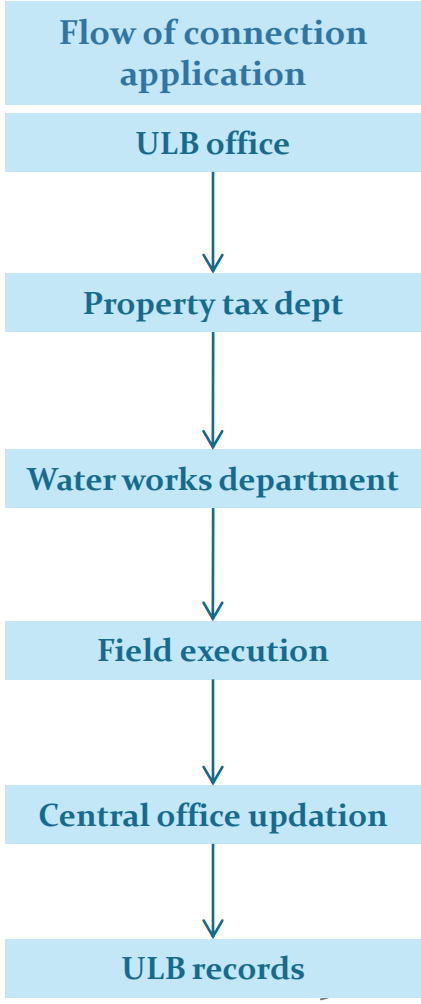
- Process for Providing New Water Supply Connection
- New Connection Process : Rajkot Municipal Corporation
- New Connection Process : Navsari Municipality
- Comparative Analysis : New Connection Process
- Key Stages of Water Supply Connection Process
- Key Findings

Process for Providing New Water Supply Connection

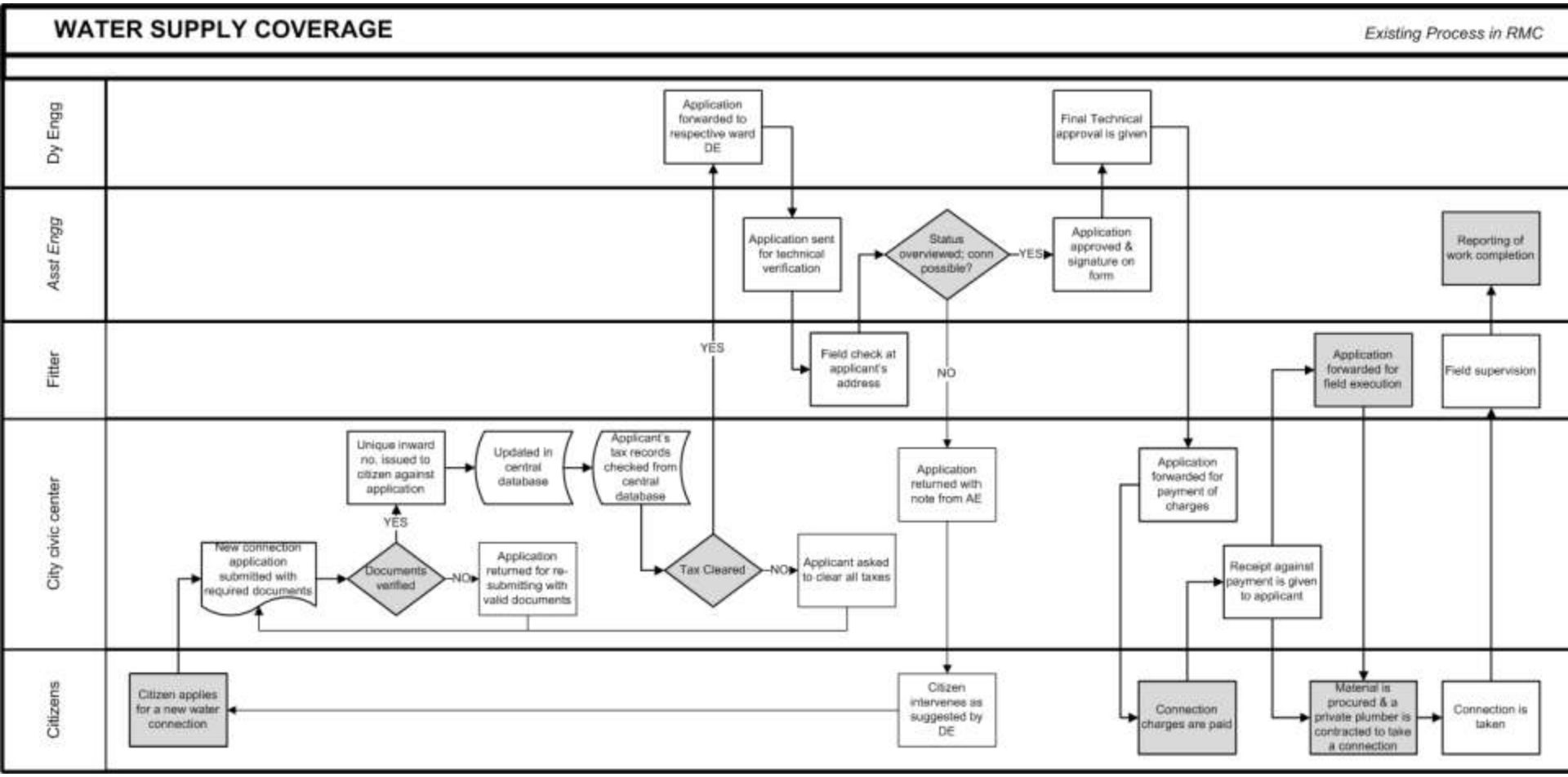
Time and ease at which a connection is provided by any ULB, marks efficiency of its internal processes. To encourage consumers to acquire legal connection, the process must be streamlined administratively, simplified with respect to paper work and reduce overall time taken.

Process Description

- Application form is filled and submitted with required documents at ULB office.
- The property tax records of the applicant are checked to ensure payment of all backlog taxes.
- Next, application is forwarded to concerned engineer of the ward office for technical approval. A field staff verifies the feasibility of giving the connection and briefs the engineer accordingly.
- In smaller ULBs, Chief officer is the final authority for approval.
- The application with comments is forwarded to central office.
- If approval is granted, then applicant pays the required connection charges in cash office.
- Actual execution of connecting to main water line is done by a plumber. He can either be a licensed plumber or ULB plumber. In some ULBs, private plumbers can also be assigned task by the applicant. Also depending on ULB policy, materials are procured either by ULB or applicant.
- Fitter supervises the execution process and updates engineer and central office about its status.
- The documents are forwarded to property tax department for updating records.



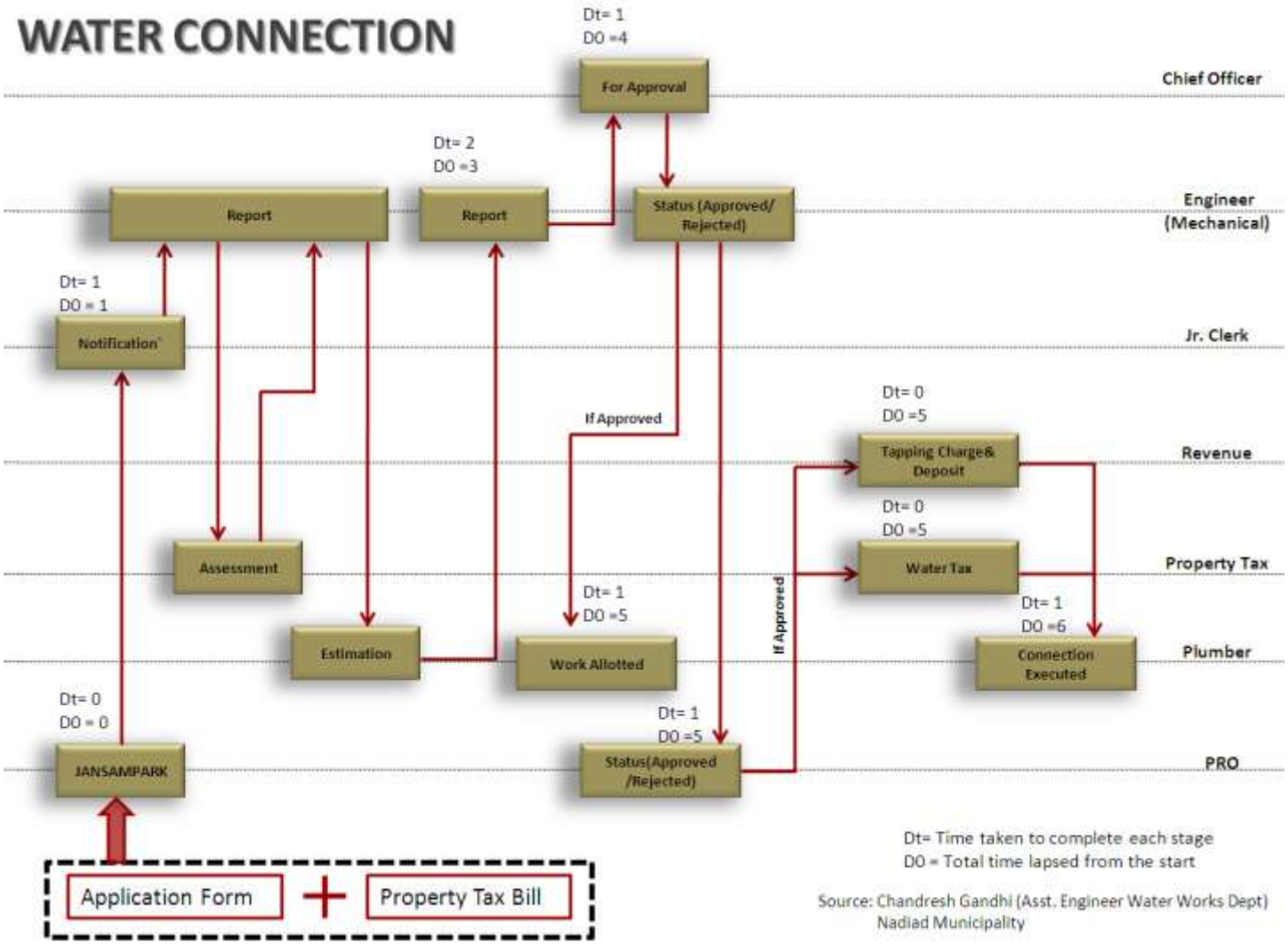
New Connection Process: Rajkot Municipal Corporation



LEGEND Activity/ Process Document Decision Stored data

New Connection Process: Navsari Municipality

Case Study: Nadiad (A Class Municipality)

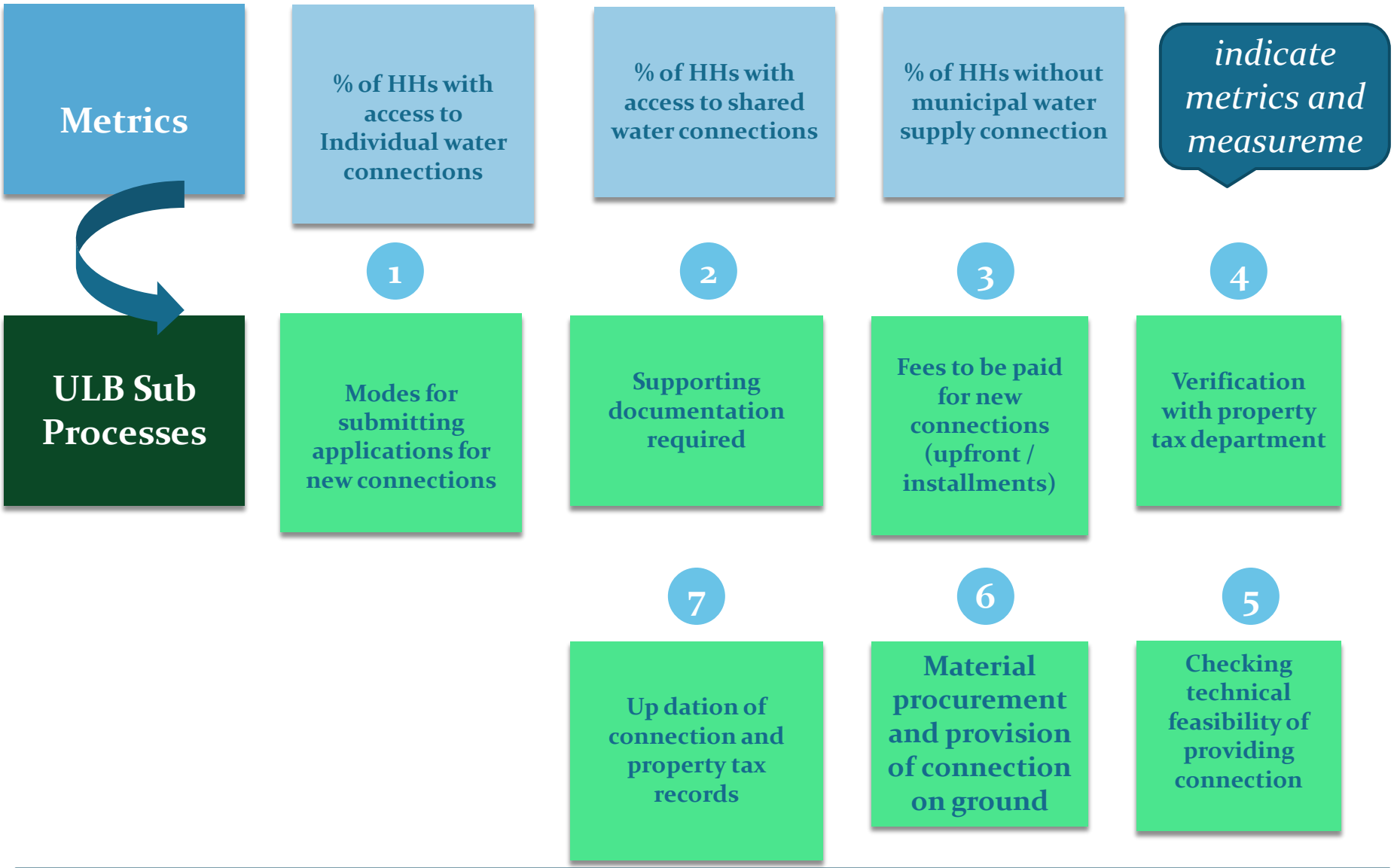


Source: Chandresh Gandhi (Asst. Engineer Water Works Dept) Nadiad Municipality

Comparative Analysis: New Connection Process

		Rajkot Municipal Corporation	Nadiad (A Class Municipality)
	Time taken for the process	*3 – 15 days*	*7 days*
1	**Modes for submitting applications**	Connection form filled at City civic centre (5 centres in Rajkot)	Connection form filled at Public Relations dept, Nadiad Municipality
2	**Supporting documentation required**	Ownership documents, Building built-up completion, property tax, ration card or other address proof etc. Slums have to give Housing Board allotment certificates	Property tax bill
3	**Fees to be paid for new connection**	• Half inch connection charges:- Rs.1570 (variable cost of Rs.320 – Rs.750 depending upon the type of road to be excavated) • Half inch connection annual tariff:- Rs.840 collected with property tax	• Half inch connection charges:- • Half inch connection annual tariff :- Rs.280 collected with property tax
4	**Internal verification and approvals**	• Staff involved for internal approvals include Fitter, Asst engineer, Deputy engineer, cashier at CCC • Highest level of staff for authorisation:- Deputy engineer	• Staff involved for internal approvals include PRO dept staff, plumber, WW dept clerk, Asst engineer, PT dept clerk, tax superintendent, Chief officer • Highest level of staff for authorisation :- Chief officer
5	**Checking technical feasibility of providing connection on ground**	Connection provided by private plumber appointed by applicant	Connection provided by ULB plumber
6	**Material procurement and provision of connection on ground**	Material procured by the applicant	Material is provided by the ULB
7	**Up dation of connection and property tax records**		

Key Stages of Water Supply Connection Process



Path from Performance indicators to Process Structure & Organization Structure

Key Findings

- Time taken for providing new connection varies from 3 to 15 days in the ULBs selected for process studies. Surprisingly the MC studies reveals more days to provide new connection and has more levels of staff involved in the process.
- Approvals for new connection in MC happen at the Deputy engineer level while in Class A ULB, the permissions are granted by the Chief officer. It is essential to minimize internal approvals within the ULB to be able to reduce the time taken to approve new connection.
- Documentation required along with new connection application is more for MC as compared to Class A ULB. For class A the only documentation required is the property tax bill. For the new connection process to be effective, it is essential to prescribe minimum documentation proof to be provided by the consumer. For new construction, it may be useful to link the new connection permission with Building built-up certificate .
- Process of giving connection is done by private plumber in MC while the ULB plumber is involved in Class A. While the involvement of private plumbers is justifiable for larger cities, it is essential to review the quality of service joints while providing new connections.
- Engineer is the nodal person for entire process; the time period for the field process essentially from engineer to fitter to the plumber is guided by field conditions and may be variant responsible for delay in providing connections to the consumer

4.2 Water Supply Connection Process for Slum HHs

- Process for Providing New Connections for Slum HHs
- New Water Supply Connection Process for Slum HHs : Ahmedabad Municipal Corporation
- New Water Supply Connection Process for Slum HHs : Navsari Municipality
- Comparative Analysis : New Connection Process for Slum HHs
- Key Stages of Water Supply Connection Process
- Key Findings

Process for New Connections for Slum HHs

Slum dwellers may face problems in getting individual connections. Most ULBs link service provision in slums to tenure related issues. High costs of new connection relative to income has also deterred many slum households. The procedural delays, paper work involved and bureaucratic hurdles have led to slum dwellers opting for illegal connections.

Process Description

- The first major step towards provision of services in slums is to have specific policies.
- Owing to various grants, programs and strong commitments from state governments, ULBs have now started to pay more attention to slums.
- ULBs are required to allocate a program of its budget. The funds are accordingly allocated in budget for pro-poor allocations.
- For works under specific grants, the procedure may differ depending on the guidelines given by funding agency/ authority.
- The issuance of new connections would depend on the decision taken in terms of who all can apply and set of documents required.
- A separate record is maintained for connections given in slums from the grants provided.

ULB programs for slum services

Individual toilets scheme (1990)

Slum Networking Project (1996)

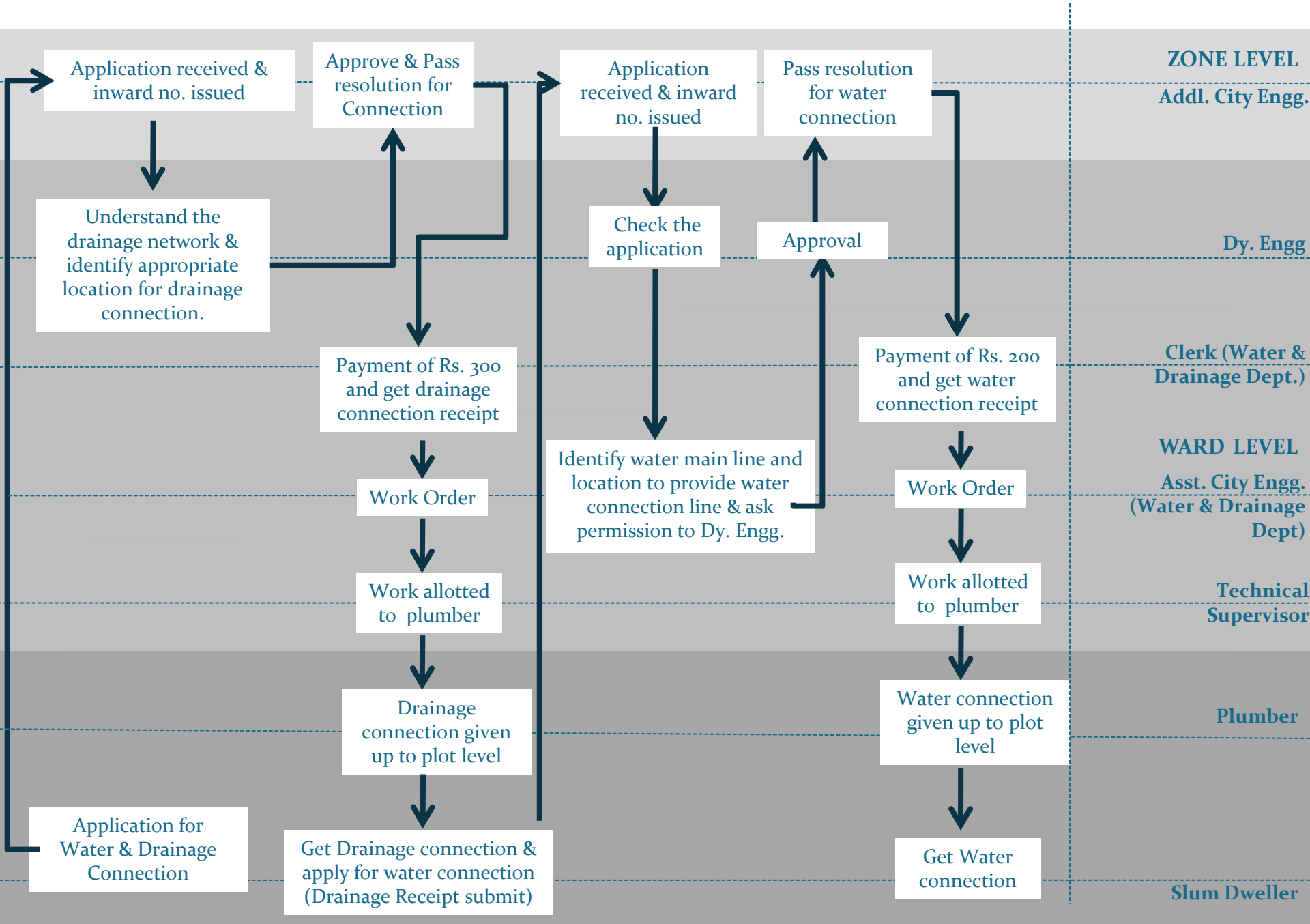
AMC-NGO Slum Survey (2001)

NOC Scheme (2002)

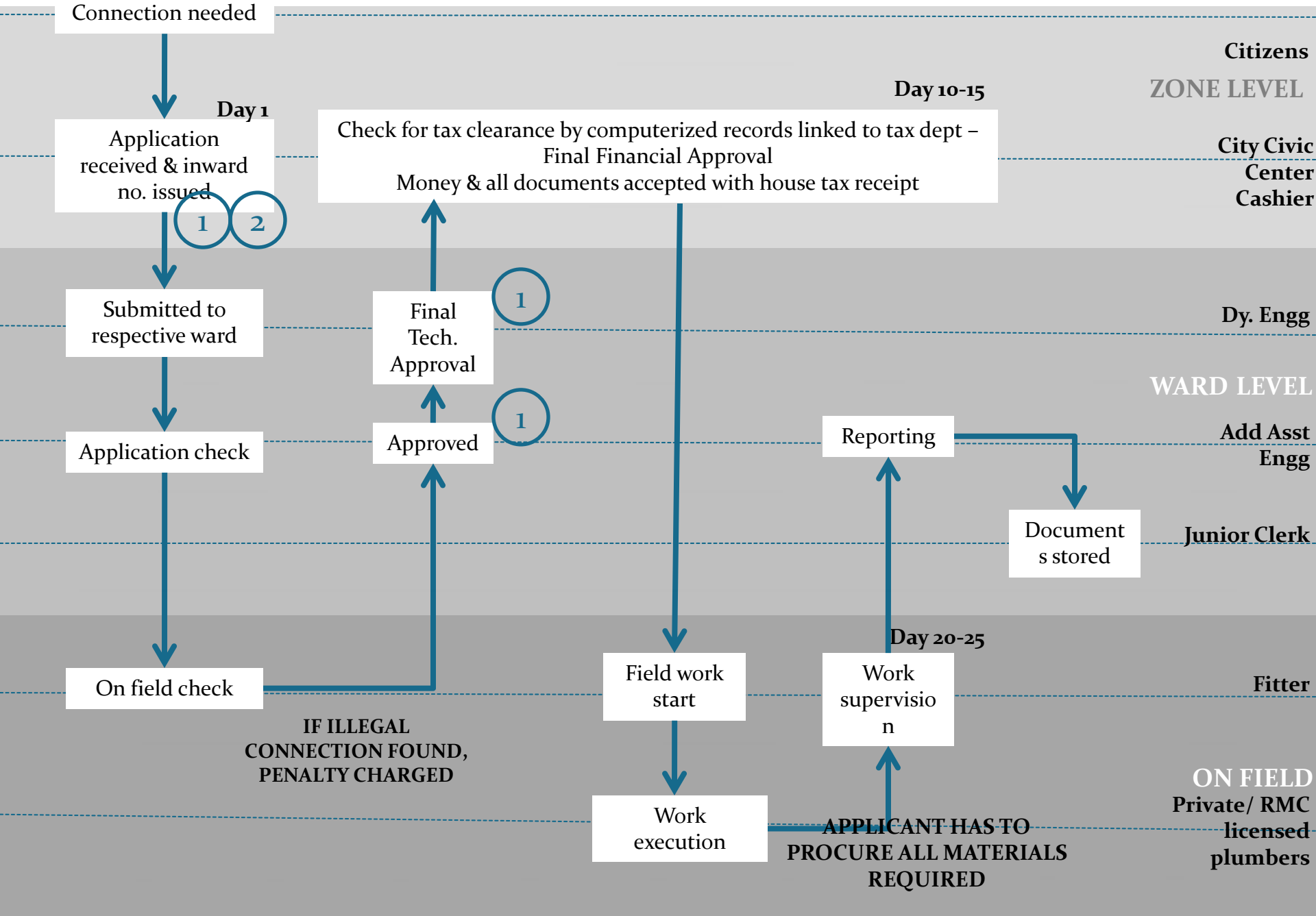
Nirmal Gujarat Sanitation Program (2004 onwards)

Biometric & Total station Slum Survey (2009)

New Water Supply Connections for Slum HHs: Ahmedabad Municipal Corporation



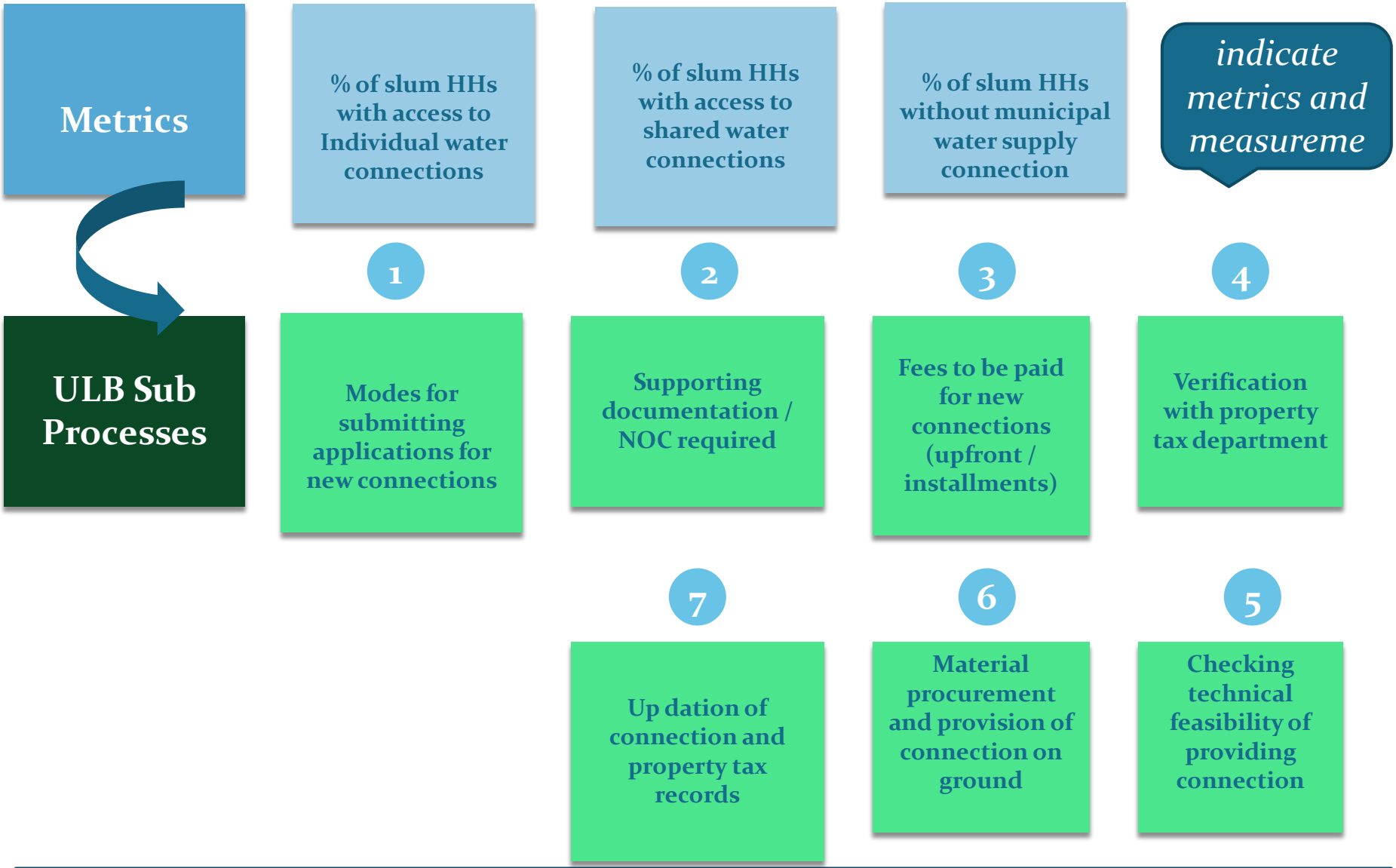
New Water Supply Connections for Slum HHs: Navsari Municipality



Comparative Analysis : New Connection Process

		Ahmedabad Municipal Corporation	Navsari (A Class Municipality)
	Time taken for the process	*7 days*	*7 days*
1	**Modes for submitting applications**	Through the city civic centres. Many of slum dwellers are unaware of this scheme	Through the city civic centres
2	**Supporting documentation required**	• NOC to be obtained by slum dwellers (with dwelling unit area not exceeding 40 sq mts) by submitting identify proof (ration card, voter ID, Electricity bill etc.) this scheme is applicable only for slums HHs located on lands other than GoG or AMC.	The HHs need to produce drainage tax receipt before applying for water connection. Documentation consists of property tax receipt
3	**Fees to be paid for new connection**	• For NOC : Rs 510 • For Drainage connection : Rs 300 • For Water Connection: Rs 200	• Connection fees: Rs 300 • The average cost per connection comes to 1250/- including connection fees, road cutting and other expenses.
4	**Internal verification and approvals**	• Application to Add. City engineer and final approval by him. Application checked by Dy. Engineer • Asst. City Eng. – to identify main water line location through technical supervisor /plumber and issue work order for execution	• Dy Eng. Approves the application • Add Asst Eng. checks the application at ward level • Fitter does the field check for the connection on site
5	**Checking technical feasibility of providing connection on ground**	Asst. City Engineer through Technical supervisor and Plumber	Fitter does the field check for the connection on site
6	**Material procurement and provision of connection on ground**	By Plumber	Actual connection is provided by Private/ RMC licensed plumbers
7	**Up dation of connection and property tax records**		

Key Stages of Water Supply Connection Process for Slum HHs



Path from Performance indicators to Process Structure & Organization Structure

Key Findings

PAS Project

- Time taken for providing new connection is around 7 days in the ULBs selected for process studies.
- Documentation required along with new connection application is more for MC as compared to Class A ULB. For class A the only documentation required is the property tax bill. For the new connection process to be effective, it is essential to prescribe minimum documentation proof to be provided by the slum HHs. For new construction, it may be useful to link the new connection permission with Building built-up certificate .
- The NOC process as evident in the Ahmedabad case has several formalities and is applicable to slum HHs on non government land. This can be one of the barriers to universalizing access to larger slum HHs
- The water connection fees in Class A ULB is similar to fee for non slum HHs. Further it does not have provision for payments through instalments. In the case of MC studies, although the fees for water connection appears low, combined fees for NOC, water and drainage connection are similar to the Class A ULB.
- It is also essential for ULBs to popularize such schemes and create proper awareness for slum dwellers to take benefit of it.

4.3 Process for Detection of Illegal Connections

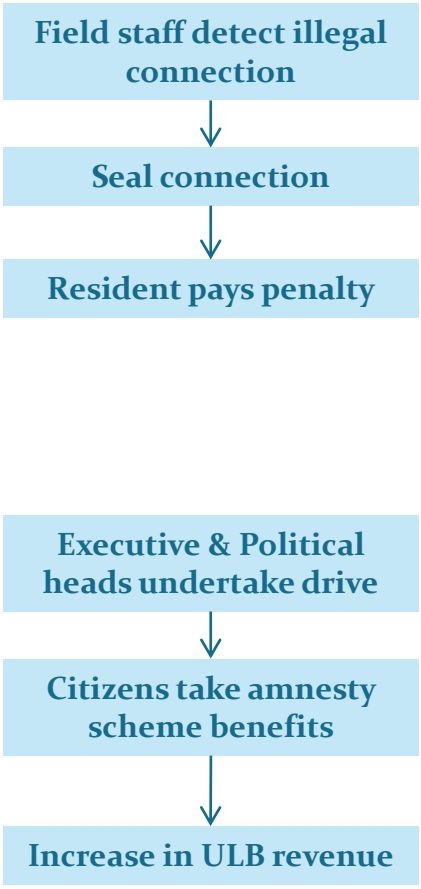
- Illegal Connection Detection and Regularization
- Comparative Analysis : Illegal Connection Detection and Regularization
- Key Stages of Illegal Connection Detection and Regularization
- Key Findings

Illegal Connection Detection and Regularization

Illegal water supply connections lead to unauthorised consumption of water. It increases the non revenue water. Connection policy of ULB, high connection costs, bureaucratic connection process lead to illegal connections. Detection and legalisation of illegal water connections lead to increased revenues for ULBs. Under reform programs, each ULB is expected to recover its O&M costs.

Process Description

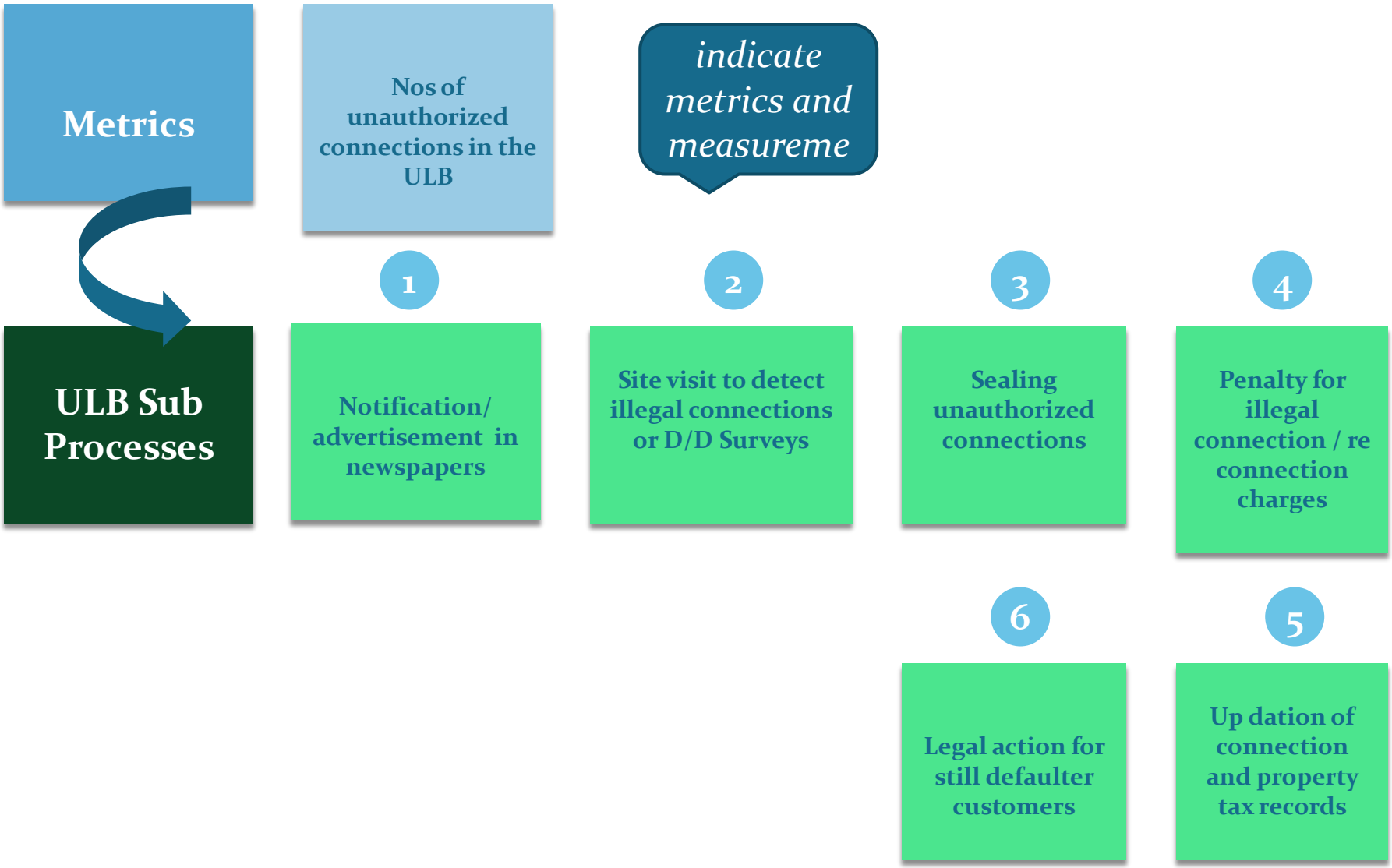
- Illegal connection detection
- A team of engineers and field staffs are ordered to detect illegal connections through field visits by Chief officer.
- Once detected it is disconnected and sealed.
- A notice is issued and advised to apply for new legal connection.
- Illegal connection special drives
- Illegal connections' detection and regularization has been undertaken as part of special drives once in a year or once every two years.
- These drives continue for a month, wherein people can come forward to regularize their illegal connections.
- Incentives are given in terms of less paper work in new connection process; reduced penalty charges etc. to encourage people for taking initiative in regularizing their connection.



Comparative Analysis: Illegal Connection Detection and Regularization

	Kalol (A Class Municipality)	Rajkot Municipal Corporation (RMC)
Notification/ advertisement in newspapers	Advertisement in newspaper is given by the municipality to convert the illegal connections into legal ones.	RMC had launched a connection legalizing scheme two years back, wherein a connection was provided despite lack of adequate documents. The response to this scheme was overwhelming. Since then, on regular basis engineers search for illegal connections during daily field visits. A periodic report is produced in RMC, wherein number of illegal connections detected by each engineer is noted and reviewed by Commissioner and City Engineer. The drive was 18 months continuous program till 15th August, 2008 and around 3000 connections were regularized during this period.
Site visit to detect illegal connections or D/D Surveys	In April – May 2009, it was observed that city has 813 illegal water connections and 2215 illegal drainage connections, which are being regularized since then. Following procedure is adopted when information about illegal connection is received: • Ground staff, consisting of tax recovery and engineering department of municipality together visit the site during recovery. • They will verify on site the actual situation for connections and try to find out the connections and its legality. • If it is found illegal, it is disconnected immediately.	Regular drives in RMC included door to door survey by assistant engineers with field staff to detect illegal connections
Sealing unauthorized connections		Maximum illegal connections were detected in slums and unauthorized colonies. Connections were legalized without sufficient documents.
Penalty for illegal connection / re connection charges	The consumer has to pay the following charges to regularize. • Normal application charge • Water / Drainage Tax (as applicable) • Penalty • Total pending water and / or drainage tax	Connection charges included Rs.2000 as penalty charges during scheme, otherwise regular penalty charges are Rs.5000 per connection.
Up dation of connection and property tax records		
Legal action for still defaulter customers	If the consumer refuses to pay, then municipal authorities register police complaint against the consumer	

Key Stages of Illegal Connection Regularization Process



Path from Performance indicators to Process Structure & Organization Structure

Key Findings

- For the illegal connection detection process in MC studied, regular visits are undertaken by staff (Asst. Engineer and field staff) to detect illegal connections. Amnesty schemes are also announced the ULB to regularize illegal connections
- For the Class A city, the amnesty schemes are not planned but awareness is spread through advertisements in newspapers.
- Penalty is applicable in both the cases for regularization of illegal connections
- From case of RMC, it is evident that connection legalizing scheme was successful where connection was provided despite lack of adequate documents.
- The practice for filing periodic report in RMC, wherein number of illegal connections detected by each engineer is noted and reviewed by Commissioner and City Engineer is also an effective internal mechanism to keep track of unauthorized connections and plan effective steps.

4.4 Water Production and Delivery Processes

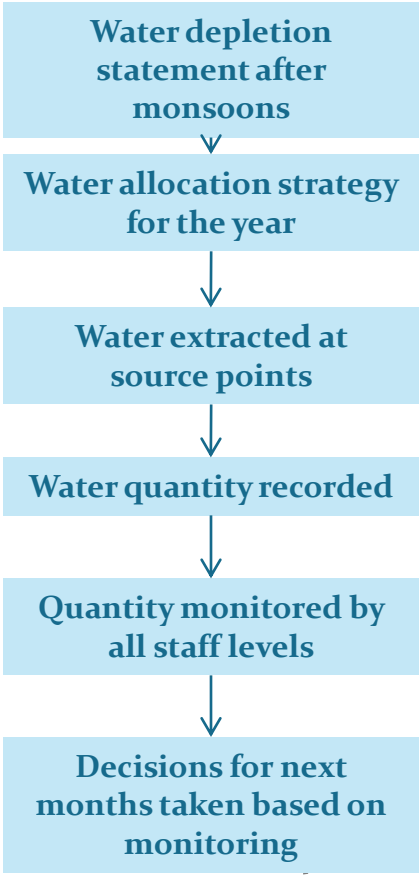
- Planning for Water Supply
- Water Quantity Monitoring : Rajkot Municipal Corporation
- Water Quantity Monitoring : Kalol Municipality
- Comparative Analysis : Water Quantity Monitoring
- Key stages of Water Production and Delivery Process
- Key Findings

Planning for Water Supply

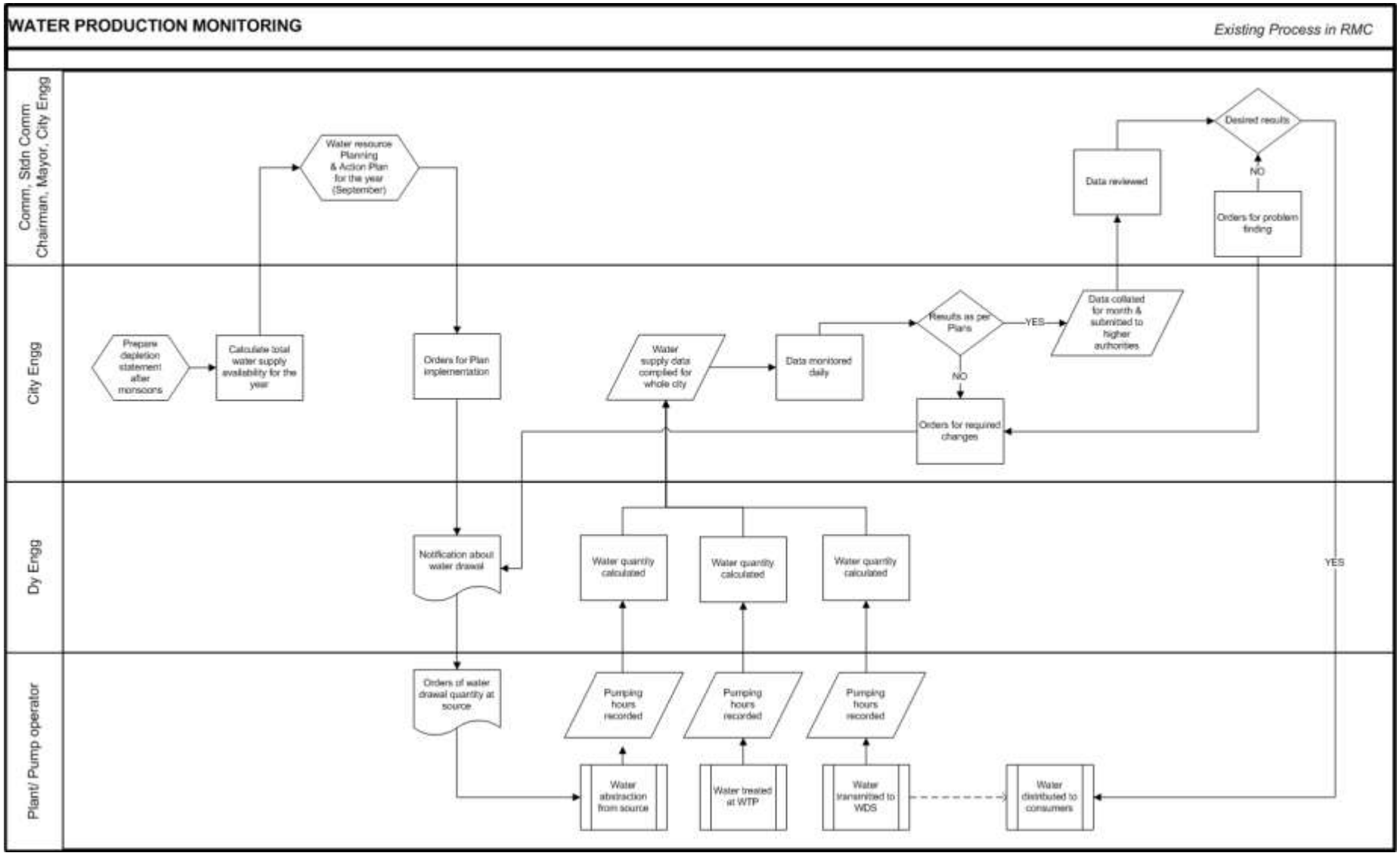
Daily supply of water from all the sources is essential to record and monitor on regular basis. This is essential especially during summer months when water supply is much lower than normal. Monitoring of water from irrigation projects and other sources is important as ULBs have to pay for this water.

Process Description

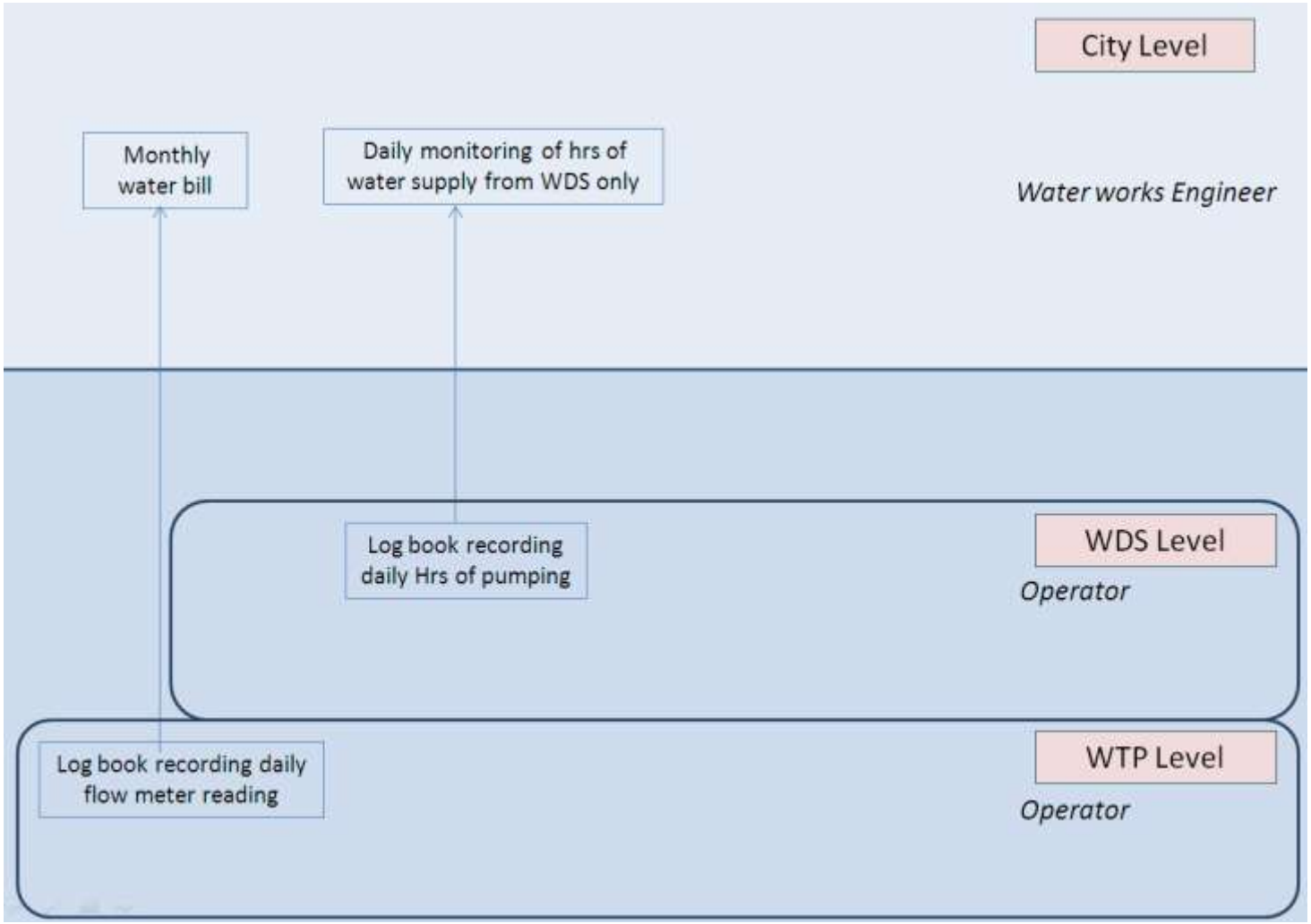
- The first task is to estimate total water available after monsoons at the water extraction points for the ULB.
- Based on this water allocation strategy is framed for the entire year in terms of total MLD to be supplied.
- Water is extracted from the sources including both surface and ground water.
- The quantity of water extracted is calculated based on pumping hours where bulk flow meters are not installed.
- Similarly quantity released from the treatment plants to various water distribution stations is also recorded.
- The quantity figures from all these units are aggregated and reported to city engineer's office for daily monitoring.
- City Engineers and Commissioners also review status of water supply and availability of water in the source every month.



Water Quantity Monitoring: Rajkot Municipal Corporation



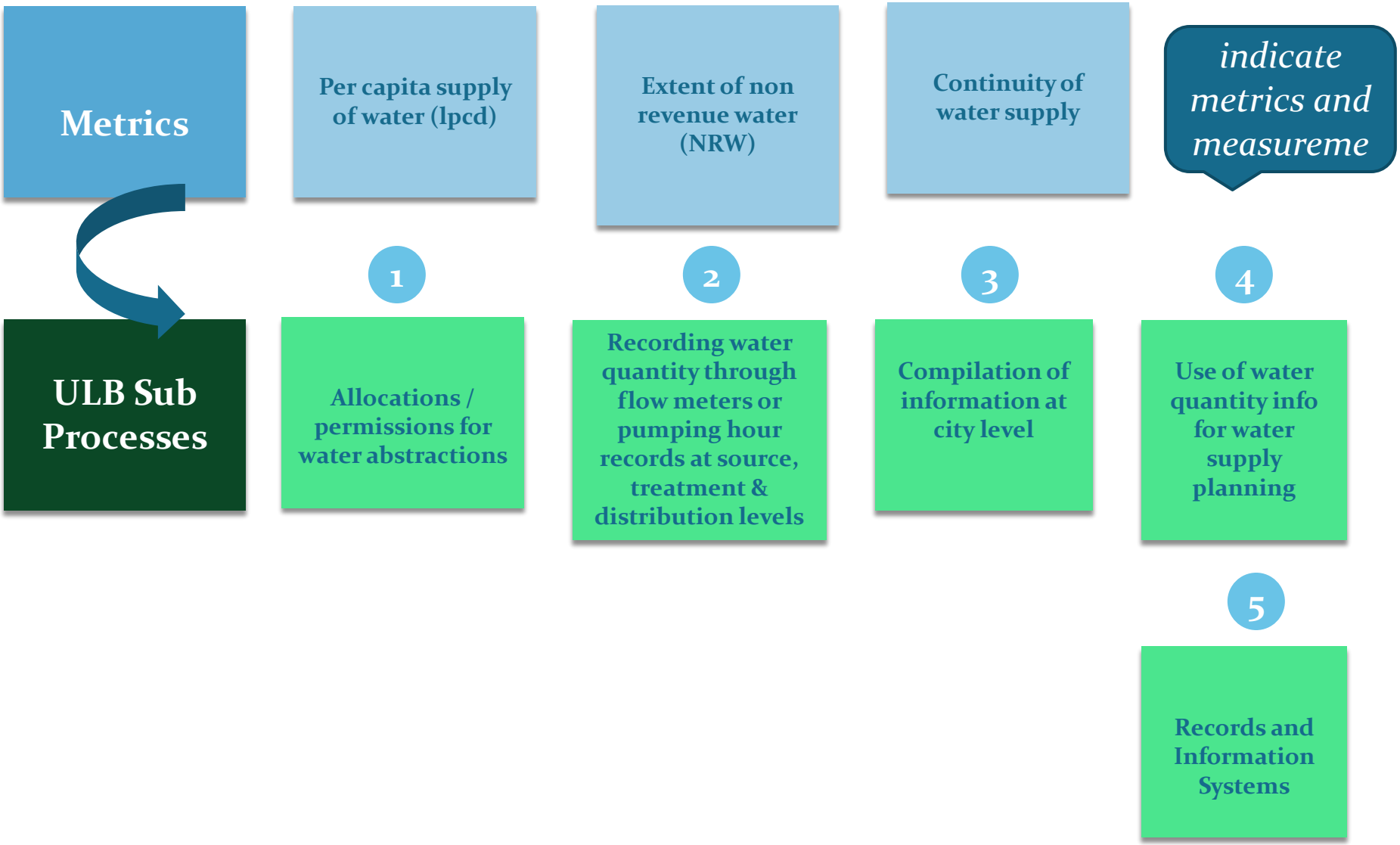
Water Quantity Monitoring: Kalol Municipality



Water Quantity Monitoring

		Rajkot Municipal Corporation	Kalol (A Class Municipality)
	Time taken for the process		
1	**Allocations / permissions for water abstractions**	All surface sources are currently used.	Bulk surface water, ground water
2	**Recording water quantity through flow meters or pumping hour records at source, treatment & distribution levels**	Is currently done based on pumping hours. Rajkot should install bulk flow meters at all major source and distribution points to monitor the exact quantity supplied.	Is currently done based on pumping hours and after verification of bills from bulk water purchase
3	**Compilation of information at city level**	• Is done by Technical staff – City Engg – on Daily basis • Referred to Executive/ Political – Commissioner/Standing Committee – on Monthly basis	• Is done by Technical staff – Water works engineer – Daily basis • Referred to Executive/ Political – Chief officer – on Monthly basis
	Quantity measured by	Quantity measured by Deputy engineer at WTP/ ESR	Quantity measured by Water works engineer at WTP/ ESR
4	**Use of water quantity info for water supply planning**	There is a greater scope to use water quantity information for improving water supply service	
5	**Actual records for water supply quantity**	Records pumping hours, water quantity on daily basis at WTP by Deputy Engineer, Daily reporting formats to City engineer	Records maintained by operator at WDS and WTP levels. Water works engineer monitors water supply at WDS levels only
6	**Records / Information systems**	Manual Log book maintained to record pumping hours, water quantity calculations on daily basis at WTP by Deputy Engineer, Daily reporting formats to City engineer	Log books maintained by operator at WDS and WTP levels. Water works engineer monitors water supply at WDS levels only

Key Stages of Water Production and Delivery Process



Path from Performance indicators to Process Structure & Organization Structure

Key Findings

- For both the MC & Class A city, the water quantity recording is done on pumping hours
- Interestingly for the class A city, the water quantity at WDS is monitored but for ground water source and GWSSB supply, it is not monitored
- There is a greater scope to incorporate the information generated at various levels to draw insights on :
  - Spatial in equity in the city in terms of service delivery
  - Better planning of water supply hours and quantity
  - Long term planning in terms of water supply requirements
  - Improving reliability of water supply information systems at the ULB level for efficient planning
  - Setting realistic targets for service delivery

4.5 Water Quality Monitoring Processes

- Water Quality Surveillance
- Water Quality Monitoring: Rajkot Municipal Corporation
- Water Quality Monitoring: Navsari Municipality
- Comparative Analysis : Water Quality Surveillance
- Key Stages of Water Quality Monitoring Process
- Key Findings

Water Quality Surveillance

CPHEEO has provided guidelines to ULBs for maintaining water quality level to minimum acceptable limits. The quality of water supplied is ensured by regular quality tests conducted by officials at various levels. Each ULB has norms of conducting these tests with appropriate frequency at treatment, distribution and consumer level. The CPHEEO norms and method of treatment for ground and surface water varies.

Process Description

- The surface water ideally has to undergo a treatment of chlorination, coagulation and flocculation and filtration in a water treatment plant.
- Water supplied post treatment is added with excessive chlorine to maintain sufficient residual chlorine level when it reaches consumer end.
- Residual chlorine tests are conducted frequently and at every level of water distribution. Along with it, bacteriological and chemical tests are required to be conducted, but often not done by municipalities.
- It is specified by CPHEEO that ground water is inherently potable and hence only chlorination is required. But for this, ULB has to ensure whether ground water is pollution free and does not exceed fluoride levels. This is to be verified by regular tests of water. Also, residual chlorine tests need to be conducted regularly at ESR and consumer level by Engineer.
- In case of poor quality of water, Engineer of that jurisdictional area is immediately notified. He would stop the flow of water in that area till fault is corrected.
- In Municipal Corporations, a Chemist is appointed to carry out these tests in their own laboratories. Municipalities do their own chlorine tests but have to send samples to district laboratories for bacteriological and chemical tests.

Quality test components

Residual chlorine test -

Chlorine content in water

Bacteriological tests –

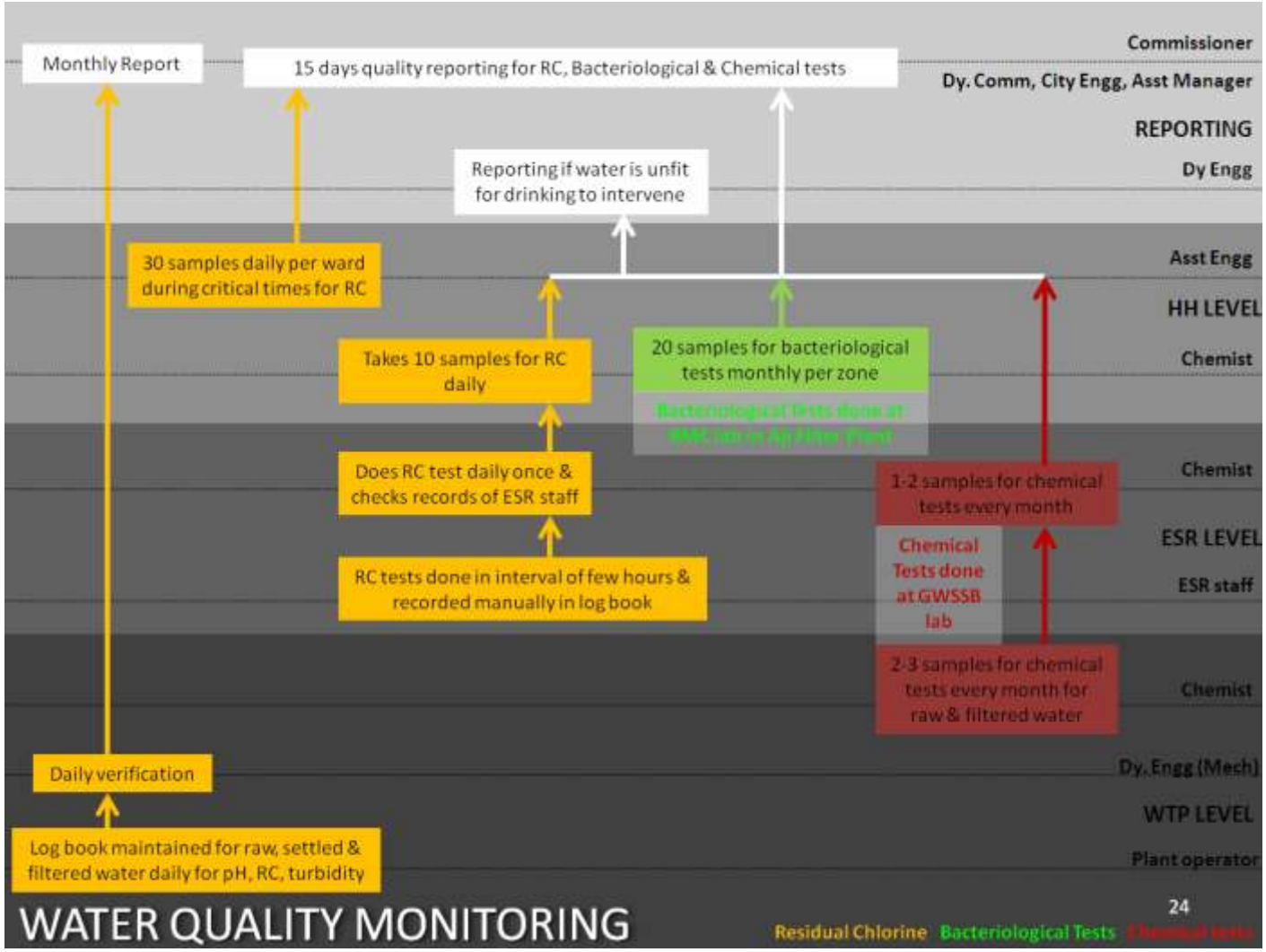
MPN index
Colifrom organism

Chemical tests–

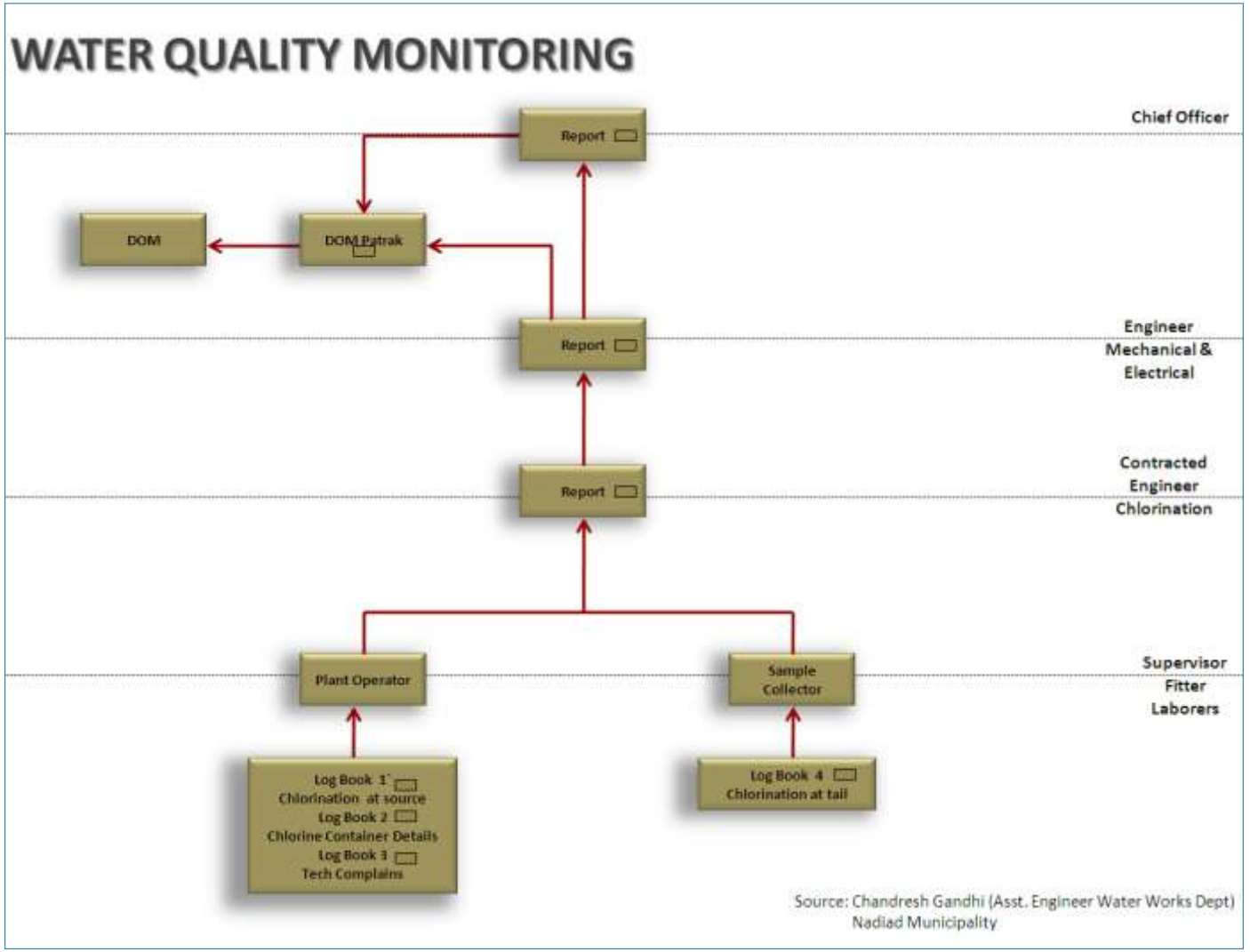
TDS, hardness, chloride, sulphate, flouride, alkalinity, acidity

Water Quality Surveillance: Rajkot Municipal Corporation

Case Study: Rajkot Municipal Corporation



Water Quality Surveillance: Nadiad Municipality



Comparative Analysis: Water Quality Surveillance

	Rajkot Municipal Corporation (RMC)	Nadiad (A Class municipality)
Decision on nos of samples and types of tests	Residual chlorine, Chemical tests, Bacteriological tests	Residual chlorine, Chemical tests
Adherence to water quality testing standards	Bureau of Indian Standards (BIS)	Bureau of Indian Standards (BIS)
Laboratory compliance for water testing	RMC has own laboratory	District level GWSSB laboratory used
	• Staff involved:- Commissioner, Deputy Comm., Asst. Manager, City Engineer, Chemist, Deputy engineer, Asst. Engineer, ESR staff, WTP plant operator. • Key person for maintaining water quality:- Chemist	• Staff involved:- Chief Officer, Contracted engineers, pump attendants, sample collector, fitters • Key person for maintaining water quality:- Sample collector
Data records for quality testing and reporting formats	Highest authority to review quality test results:- Municipal Commissioner	Highest authority to review quality test results:- Chief officer, DoM
Corrective measures for failed quality samples		
Updation of records for quality testing		

Quality tests at Rajkot	Staff	Location	Reporting Freq
Residual Chlorine, pH, turbidity	Plant operator	WTP	Daily
Residual Chlorine	Chemist	ESR, consumer level	Daily
Residual Chlorine	Asst Engg	Consumer level	Daily
Bacteriological tests	Chemist	Consumer level	Monthly
Chemical tests	Chemist	WTP, ESR	Monthly

Quality tests at Nadiad	Staff	Location	Reporting Freq
Residual Chlorine, pH	Pump attendant	ESR	Daily
Residual Chlorine	Field staff	Consumer level	Daily
Chemical tests	Sample collector	Consumer level	3 months

Key Stages of Water Quality Monitoring Process

Metrics

Quality of water supply

indicate metrics and measureme

ULB Sub Processes

1. Decision on nos of samples and types of tests
2. Adherence to water quality testing standards
3. Laboratory compliance for water testing
4. Data records for quality testing and reporting formats
5. Corrective measures for failed quality samples
6. Updation of records for quality testing

Path from Performance indicators to Process Structure & Organization Structure

Key Findings

- MC studied has its own water quality monitoring laboratory and chemist that monitors water quality. Periodic tests are conducted with appropriate sampling at WTP,ESR and consumer end. Appropriate reporting formats are also maintained at these levels for water quality results.
- Whereas the A Class ULB studied depends on district level GWSSB laboratory for quality monitoring. The chemical tests are conducted quarterly, while for MC they are conducted monthly. Between the sample collector and Chief officer, there is no dedicated staff for monitoring water quality.
- Decision making on nos of samples to be tested by ULB at various levels and type of tests to be conducted is critical to maintaining desired water quality. In Rajkot during monsoons additional tests for pathogens are also conducted at consumer end to ensure early warning of water borne diseases.
- In the both the cases studies, strong linkage needs to be established in terms of failed water samples and corrective measures by engineering department
- While in both the cases studies, the quality sampling report is reviewed by Chief officer / Commissioner, there is no provision of third party monitoring or audit for water quality results

4.6 Consumer Grievance Redressal Processes

- Consumer Redressal System
- Consumer Grievance Redressal System : Rajkot Municipal Corporation
- Consumer Grievance Redressal System : Nadiad Municipality
- Comparative Analysis of Consumer Grievance Redressal System
- Key Stages of Complaint Redressal Process
- Key Findings

Consumer Redressal System

Many ULBs have prepared citizen charter elaborating time required to redress a particular type of complaint. It is observed that higher level officers and political leaders also intervene to ensure quick redressal of complaints. In larger ULBs, automated systems have been designed to record, track and monitor progress of redressal.

Process Description

- Citizens report their problems related to service delivery at ULB office through various means.
- Complaints are aggregated by administrative staff and engineers of respective areas are notified about problems to be solved.
- Engineer sends fitter on the field to check the status.
- The maintenance works in ULBs is often contracted out to private contractors as part of service contracts. In such cases, contractor is notified about the complaint.
- ULBs may have a system of informing citizen about the redressal of their complaint and their feedback.
- A general practice observed in most ULBs is that higher level officers like Chief Engineer or even Commissioner/ Chief Officers concentrate on redressal of these complaints and monitor its status in daily operations.

Means of lodging complaint

Personal complaint registered at ULB central office/ city civic centers/ ward offices

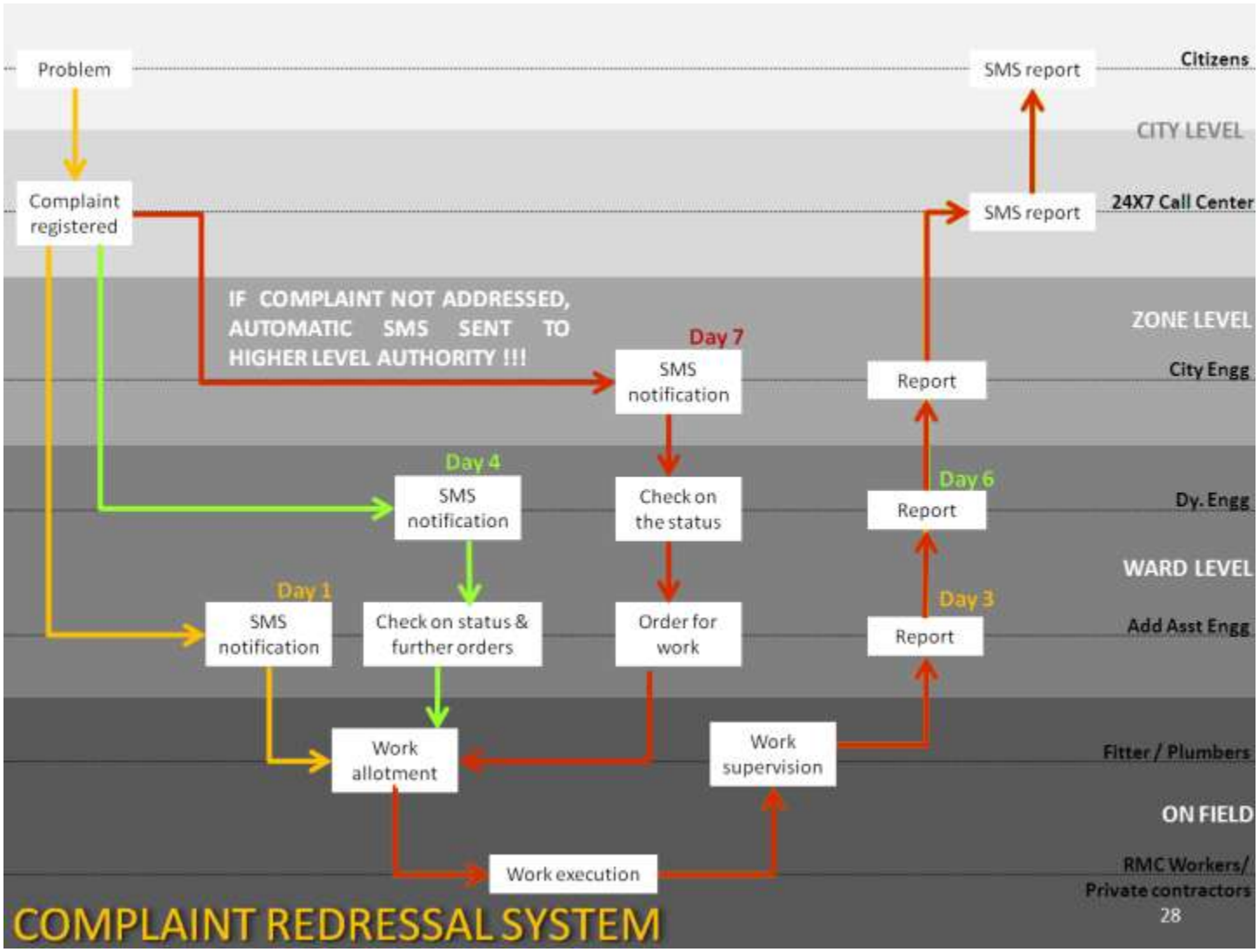
Complaint notified to ward Councillor

Complaint registered on phone

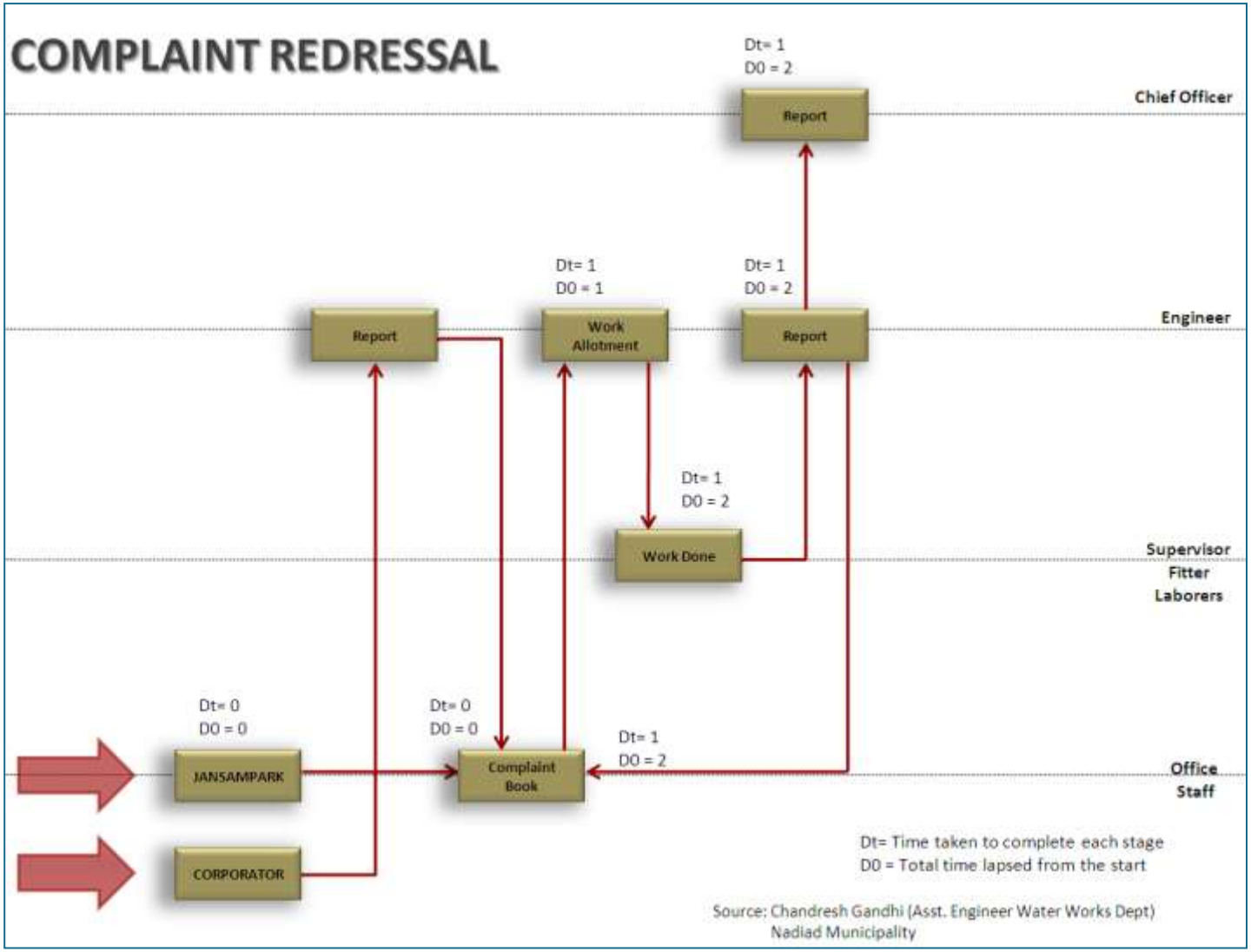
SMS based complaint register system

Online registration of complaints

Consumer Redressal System: Rajkot Municipal Corporation



Consumer Redressal System: Nadiad Municipality



Consumer Redressal System

		Rajkot Municipal Corporation	Nadiad (A Class Municipality)
	Time taken for the process	3 days	
1	**Modes for registering complaints**	RMC has an excellent consumer grievance system. It has integrated 24x7 call center, mobile technology, monitoring system and automatic database updation. Citizens lodge their complaint on a toll free number. Every complaint is given a unique ID number, linked to location and is useful for tracking the status.	Nadiad Municipality has a manual system of lodging complaints and notifying to technical staff. Complaints are lodged at the Jansampark Kendra. Citizens also inform Councillors about the complaints. All complaints are recorded in complaint register.
2	**Notification to respective authority in the ULB**	• RMC in-house system for all the engineers gives automatic updates of complaint list under their jurisdictional area. • There is also a parallel system of notifying engineers by SMS about complaints lodged in their area. In cases where complaint is not redressed before pre-decided time limit of 3 days, this SMS notification is escalated to next higher level staff automatically and it continues so forth after another 3 days.	Each complaint is coded and noted with different colours for each sector. Concerned engineers are notified about complaint to redress. He directs field staff under him to solve the problem.
3	**Work allocation to field staff for addressing complaints**	Assistant engineers are nodal officers for field work execution in RMC and they receive the complaint notification first	The engineer directs field staff under him to solve the problem
4	**Field level action to resolve complaints**		
5	**Reporting back to responsible authority**	AE resolves the complaint and notifies it by SMS to call center, from where it is reported back to the person who made the complaint.	The field staff reports back to the Engineer. Completion of complaint redressal is also notified to Chief Officer on a regular basis
6	**Reporting back to consumer**	• The complaints are segregated by sector and by type in the database.	

Key Stages of Complaint Redressal Process

Metrics

Efficiency of complaint redressal

indicate metrics and measureme

ULB Sub processes

1. Modes for registering complaints
2. Notification to respective authority in the ULB
3. Work allocation to field staff for addressing complaints
4. Field level action to resolve complaints
5. Reporting back to responsible authority
6. Reporting back to consumer

Path from Performance indicators to Process Structure & Organization Structure

Key Findings

- The MC studied has a call centre dedicated for complaint redressal, while in A class ULB it is facilitated by Jansampark kendra that also deals with other functions like tax collection etc.
- Various modes of registering complaints seems more convenient for the users and is also used for communication within the corporation staff (for eg. notifying responsible engineers for complaints pertaining to their wards). Such a system also allows reporting back to consumer that the complaint has been resolved.
- The MC also segregates types of complaints in categories and has scope to relate this to their performance data (seems this is not being practised currently). Such as system also allows for better accountability for the engineers to resolve complaints in their jurisdiction.
- While for the MC studies, there is already an excellent system for lodging and monitoring complaint redressal system. However one if the uses of such a system can be enhanced if the ULB starts using this data for asset maintenance and other related decision making.

4.7 Billing and Collection Processes

- Billing and Collection
- Tax Collection Process : General Practice
- Billing and Collection Processes : Kapadvanj Municipality
- Billing and Collection Processes : Kalol Municipality
- Processes in Vadnagar, Unjha, Halvad, Surendranagar
- Comparative Analysis : Billing and Collection Processes
- Key stages of Billing and Collection processes
- Key Findings

Billing and Collection

The average collection efficiency for all ULBs in Gujarat is about 50%. This essentially implies that there is scope to improve and eventually add to the revenue. The improvement needed is in terms of administrative processes related to billing all consumers on time and devising innovative measures to ensure increased collection of bills.

Process Description

- Bills are sent to citizens in April or after the budget is approved by the state government and has come into effect.
- Generally, change in tariff are amended along with budget proposal.
- There is also a clause for hearing citizens' views regarding tariff changes.
- Once the bills are distributed, citizens have to pay taxes within specified date.
- ULBs may have policies regarding rebate on early tax payment and interest on late payment.
- In practice, maximum collection is observed during the month of March, the end of financial year.
- In smaller ULBs, door to door bill collection is also practiced.

Example of rebate/interest rate charged

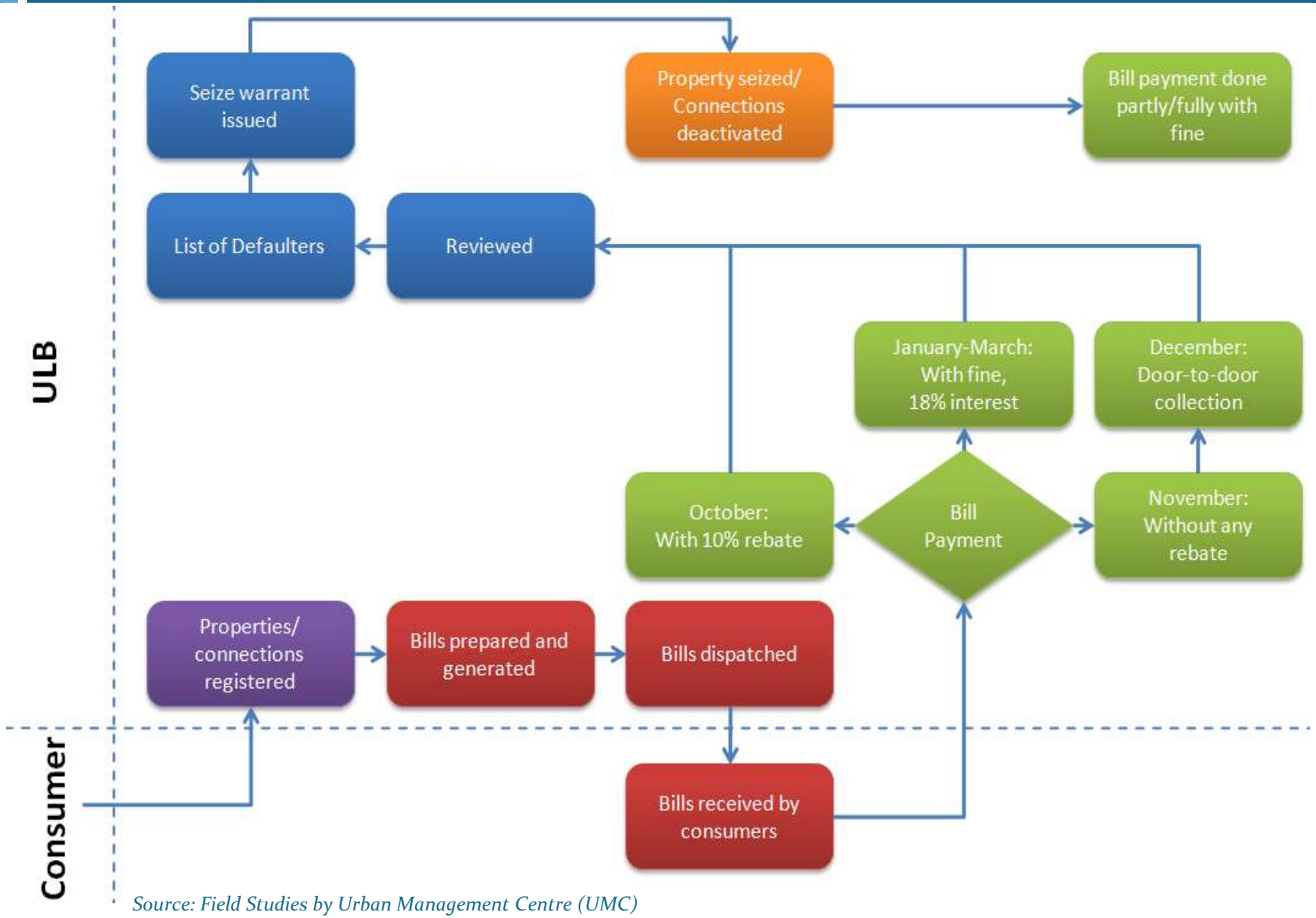
Rebate on early payment:-

Before bills are issued – 10%
1 month after bills – 5%

Interest on late payment:-

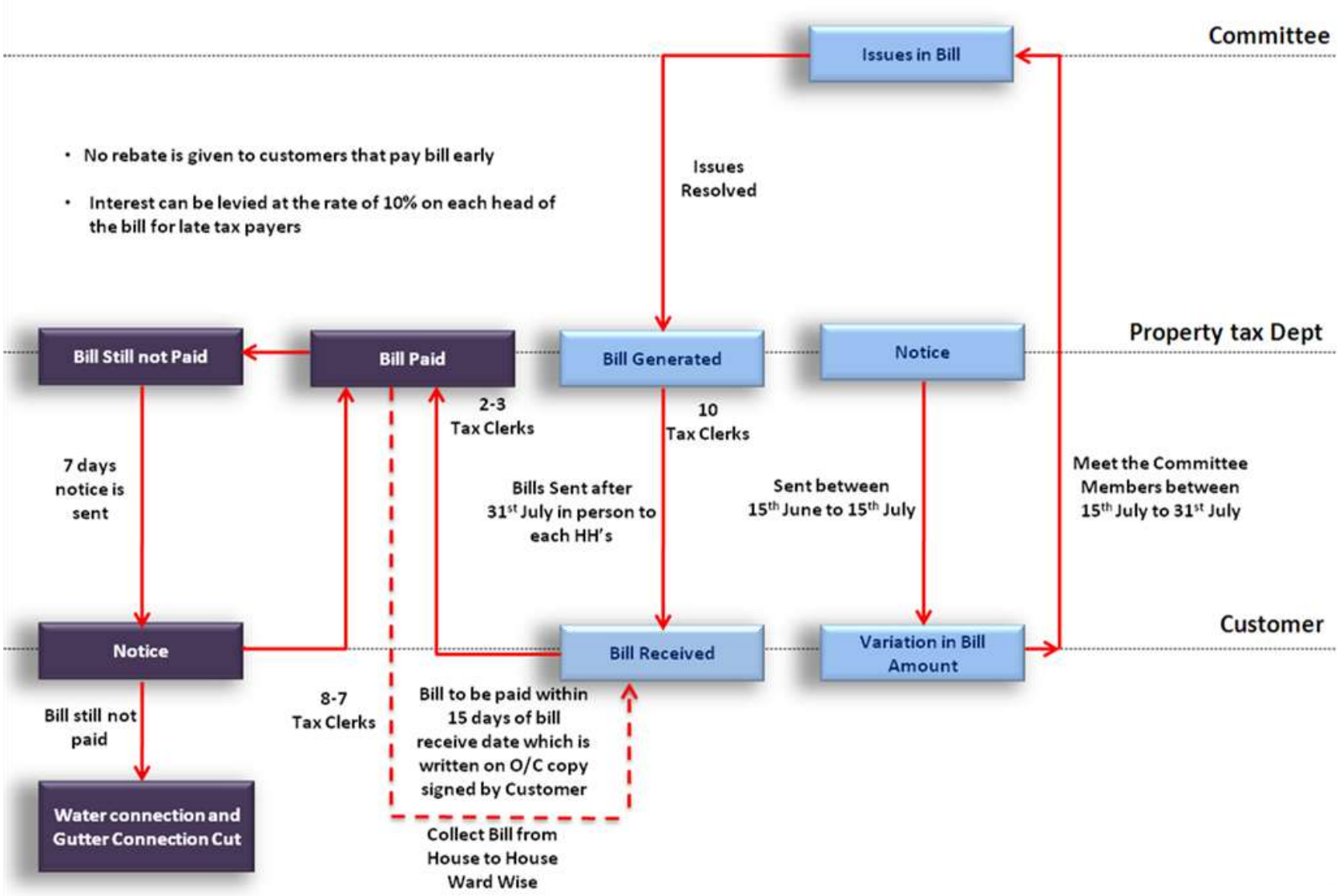
Interest after 3 months of bills issues – 18%

Tax Collection Process : General Practice

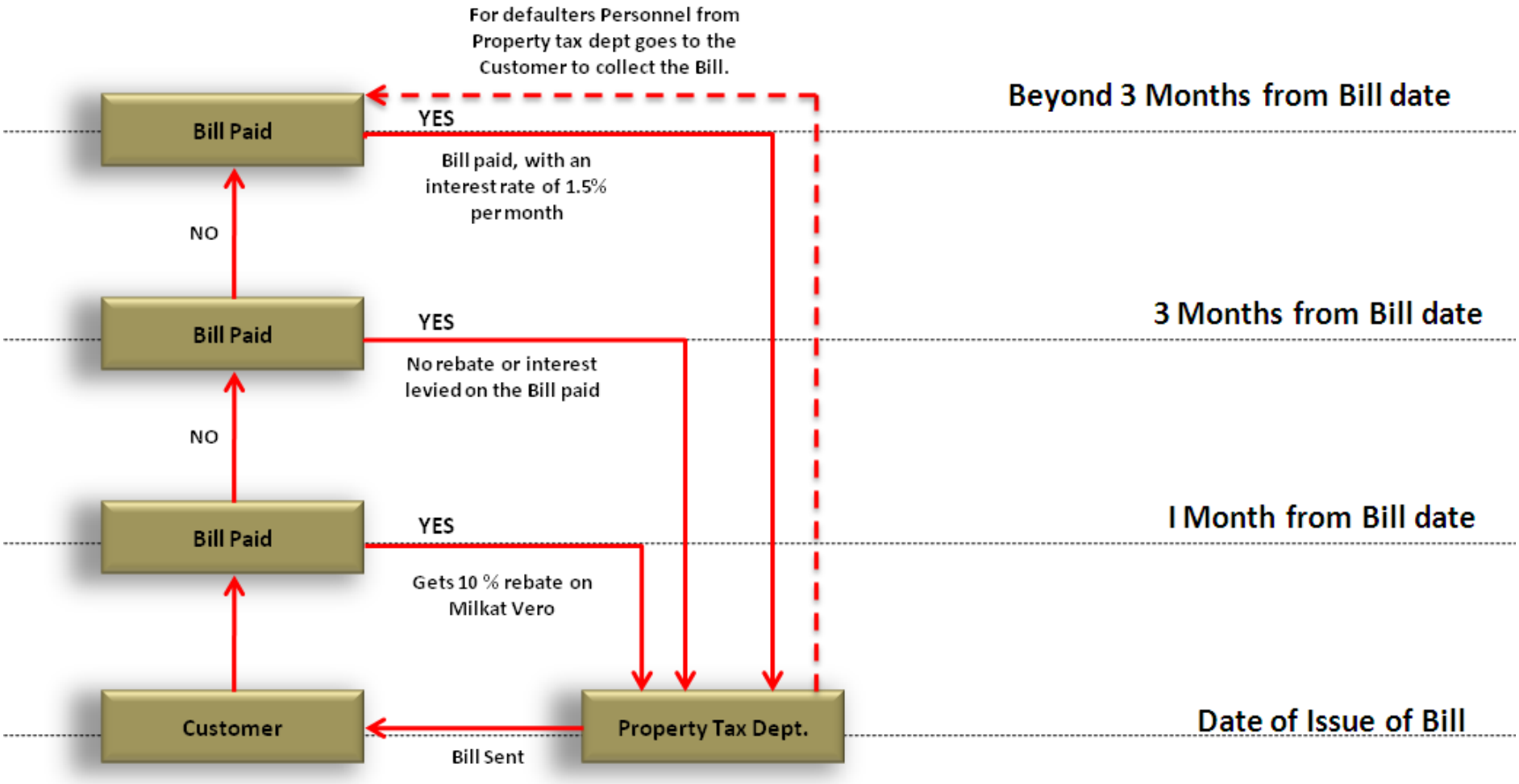


Source: Field Studies by Urban Management Centre (UMC)

Billing and Collection Processes: Kapadvanj Municipality



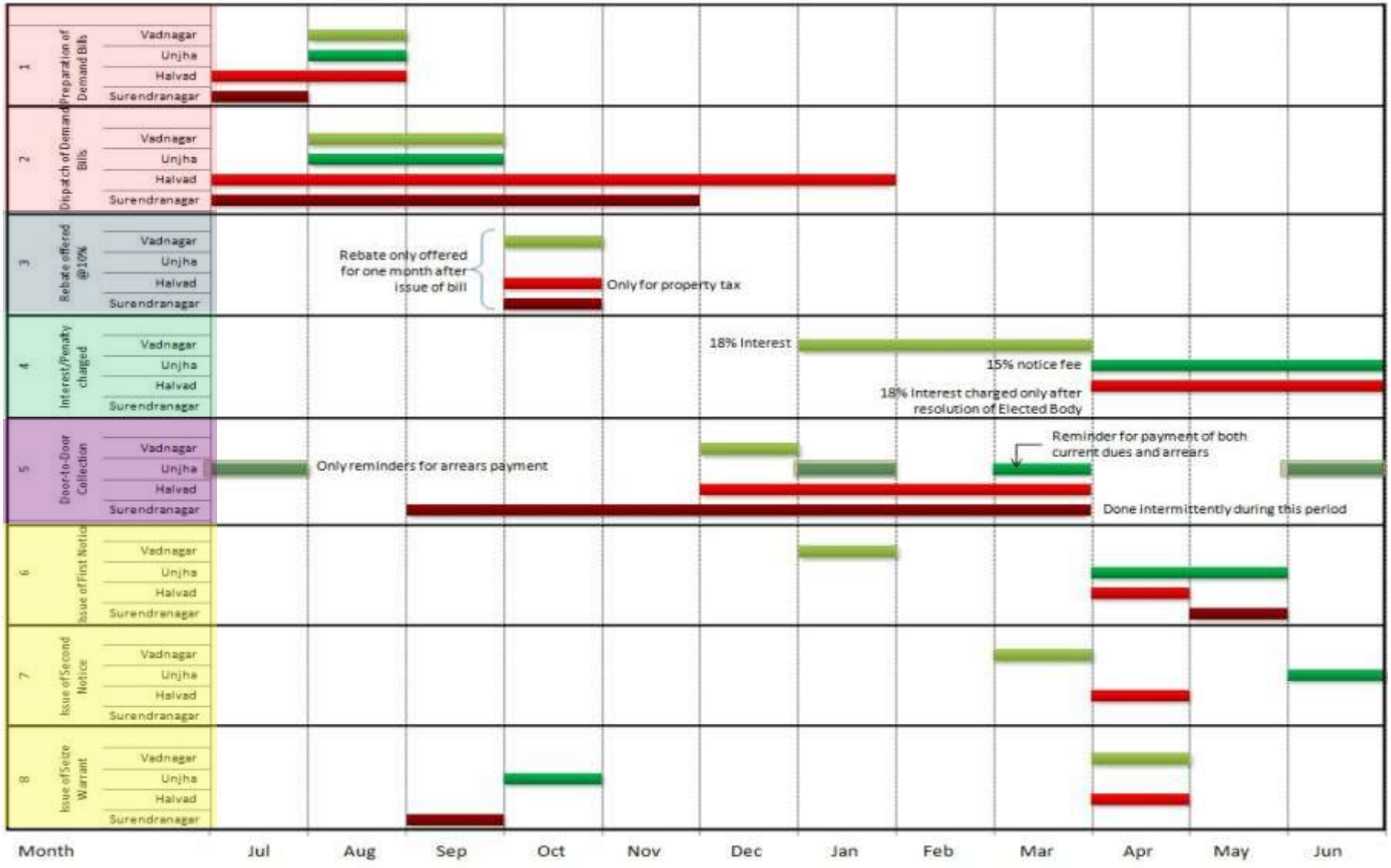
Billing and Collection Processes: Kalol Municipality



Comparative Analysis: Billing and Collection Processes

		Kapadvanj (C class Municipality)	Kalol (A class Municipality)
	Time taken for the process		
1	**Dispatch of bills to consumers**	Charges in billing amount is notified before bills are sent by 31st July. Citizens with grievances regarding billed amount can meet the committee between 15th July to 31st July . Main collection of bills generally comes in the month of March, the last month of financial year.	There is a bill date given on bill, which mentions the date on which the bill was generated
2	**Announcement of rebates for early payers**	No rebate is given to customers who pay bill early or on time . Bills sent are to be signed no objection by customers. Taxes have to be paid within 15 days henceforth.	• There is a Rebate date: If the tax is paid before this date, then the payer gets 10% rebate only on property tax (period is 1 month from bill date). • Other 2 months are given to the tax payers in which there is no interest levied on tax and no rebate is given.
3	**Penalties for late payments**	No interest is levied at the rate of 10% on each head of the bill for late tax payers. But the ULB here generally does not levy interest on late payers.	After 3 months form bill date, interest rate is charged per month at the rate of 1.5% per month.
4	**Strategies for collection (D/D, civic centres, private partners)**	For Bill collection there are 10 Tax clerks, of which 2-3 stay in office rest visit their respective wards for collection from each household.	For defaulters the ULB staff goes to each and every defaulter household and collect property tax.
5	**Defaulters list and legal notice for non payers**	For non-tax payers a 7 day notice is given to them after the last date of paying tax passes off. If within this notice period the tax is not paid, then the water connection is cut from the main line and in toilet the gutter line is choked with sand and pebbles.	

Processes in Vadnagar, Unjha, Halvad, Surendranagar



Source: Field Studies by Urban Management Centre (UMC)

Comparative Analysis of Processes

		Vadnagar, Unjha, Halvad & Surendranagar
1	**Dispatch of bills to consumers**	• Vadnagar, Unjha - well defined periods of bill preparation and dispatch • Surendranagar, Halvad- Extended period of bill dispatch • reduces the time available to consumers to pay the bill • interferes with the rebate period incentive as well • delays other stages of the bill payment process (like notices etc.)
2	**Announcement of rebates for early payers**	• Vadnagar, Surendranagar, and Halvad officially offer the same rebates for the same period • However, in Surendranagar and Halvad, because of ill-defined issue period, rebate is not always honored • Sometimes bill received after the rebate period decrease incentive to consumers • Unjha, in spite of no rebate incentive, has great efficiency. Different strategies?
3	**Penalties for late payments**	• Vadnagar and Unjha both have strict rules in practice regarding penalties • Vadnagar also has an early interest period • Absence of penalizing policy reduces incentive as in case of Surendranagar • In Halvad, interference of the elected body officials is a major factor in non-payment of taxes and penalties.
4	**Strategies for collection (D/D, civic centres, private partners)**	• Vadnagar and Unjha undertake committed door-to-door collection of taxes, with a defined collection period • Specific collection team • Surendranagar and Halvad indicated a large period of intermittent collection • Conducted by existing staff as and when needed • Laidback approach to collection of current dues and arrears
5	**Defaulters list and legal notice for non payers**	• Vadnagar- early process- first notice three months before the other three ULBs • Leaves consumers enough time to follow up till second notice in March • Unjha- any request official work is preceded by checking for tax payment; request completed only after payment • Surendranagar does not release a second notice • Halvad provides only 15 days each between issue of first notice, second notice and seize warrant • Not enough notice time

Source: Field Studies by Urban Management Centre (UMC)

Key Stages of Billing and Collection Process

Metrics

Collection efficiency of water supply related charges

indicate metrics and measureme

ULB Sub processes

1. Dispatch of bills to consumers
2. Announcement of rebates for early payers
3. Penalties for late payments
4. Strategies for collection (D/D, civic centres, private partners)
5. Defaulters list and legal notice for non payers

Path from Performance indicators to Process Structure & Organization Structure

Key Findings

- The C Class ULB studied has a good system for rebate for early tax payers. In case the bill is still not paid by the consumer after 7 days of due date, water and sewerage connection is cut off. While the A class ULB does not have a system of rebate for early payers; nor does it cut off connections for defaulters. Instead interest is charged for late payers and ULB follow ups with defaulters by individual visits to HHs
- Interestingly the C class ULB has a system of issuing notification of changes / revisions in property tax charges before issuing the final bills. This can help spread awareness in advance and also help reduce applications that get diverted to the committee for dispute resolution on bills
- For C class ULB, there are 10 dedicated tax clerks, of which 2-3 stay in office rest visit their respective wards for collection from each household. Such internal systems can also help contributed towards rigorous follow ups for timely collections
- Thus Consolidated period of bill preparation and dispatch helps ULBs to better organize tax collection. Proper definition of Incentives and rebates can also add to the tax collection. Similarly strict enforcement of penalty can result on aware customers
- For follow up on demand raised or arrears, committed door to door collection by the ULB has resulted in better results. This can be coupled with multiple periods and reminders. Although there needs to designation of dedicated staff for carrying out rigorous follow ups.
- For dealing with Defaulters, it always helps to issue defaulter lists and Notices after early preparation of first defaulters' list. There needs to be enough time between issue of notices and seize warrant

Thank You