

# Last Mile Connectivity” for Urban Water Supply Services

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Global South Academic Conclave on WASH and Climate linkages

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# Context of climate change is increasingly relevant in urban development and WASH sector

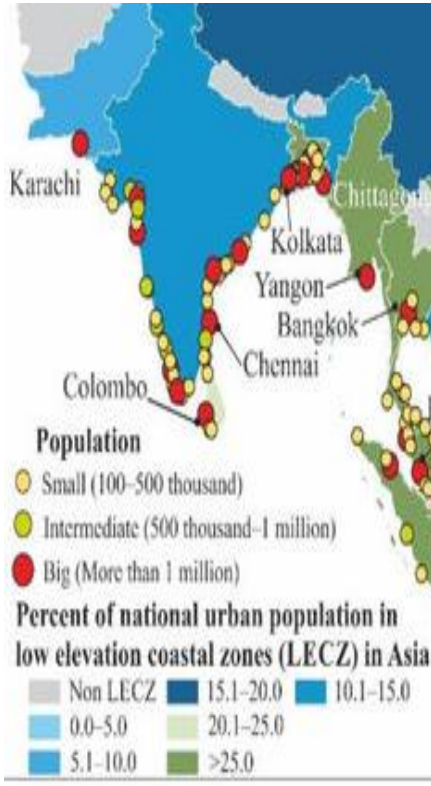
Drought and stress on water supply



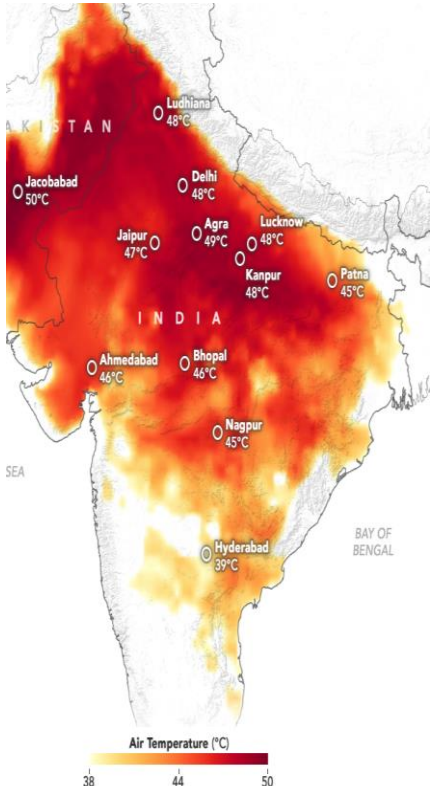
Floods and threat to life, infrastructure and economy



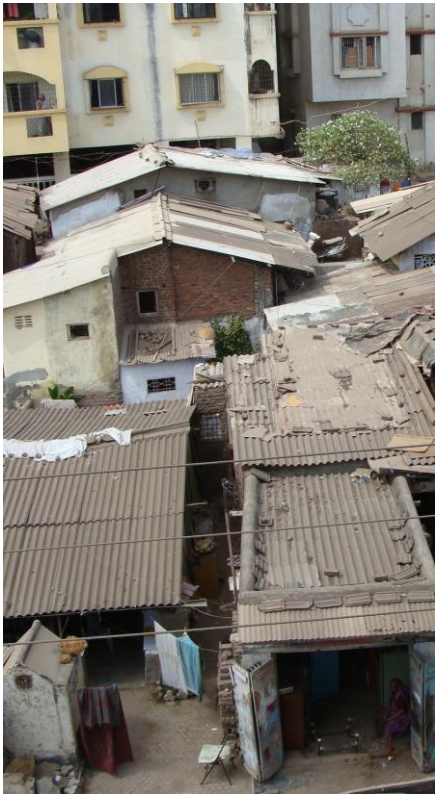
Sea level rise and threat to coastal cities



Heatwaves and carbon emissions

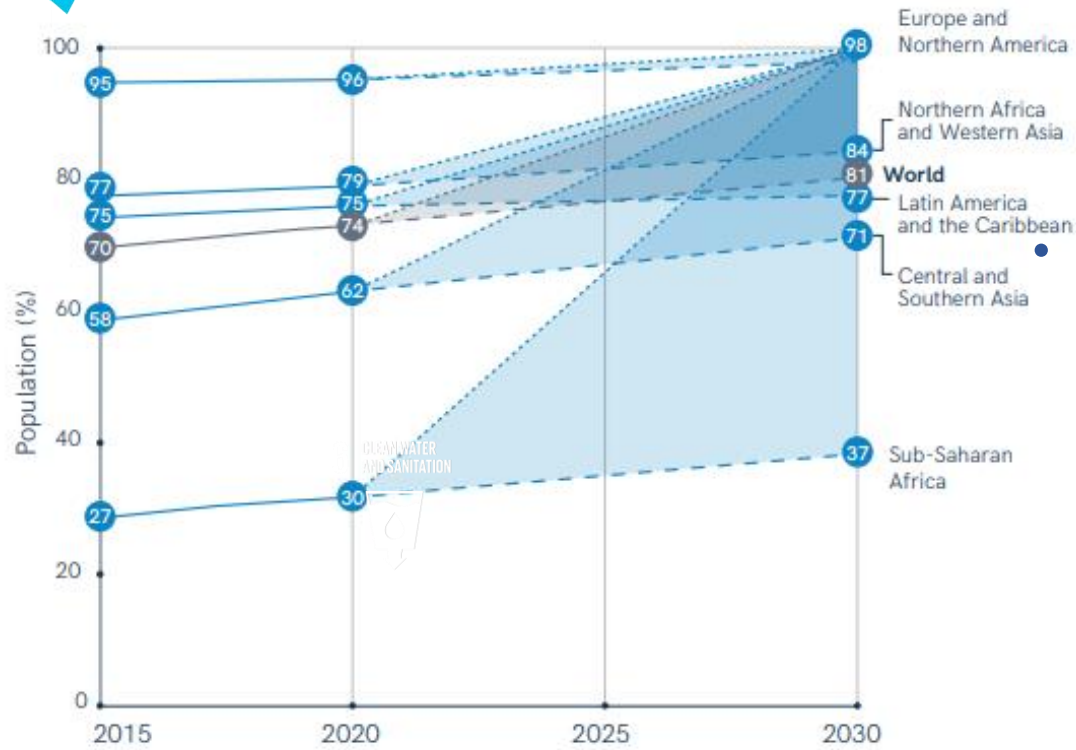


Inequality and resultant vulnerability



# Only 7 years are now left to achieve SDGs!

## SDG 6.1 – Progress on access to safe and affordable drinking water



- The world is not on track to achieve universal access to safely managed drinking water services by 2030, and requires **4 folds increase.**
- At current rates of progress, the world will only reach 81% coverage by 2030

Source: Progress on household drinking water, sanitation and hygiene 2000-2020: five years into the SDGs,p.31, WHO-UNICEF JMP, 2021

# AMRUT 2.0 reform in India focuses on “Har Ghar Nal” and “Har Nal me Jal”

- **AMRUT 1.0** focused on **500 cities** for providing services of water supply, sewerage infrastructure, storm water drainage, urban transport and development of green spaces and parks.
- **112 lakh HH water tap connections** were provided under AMRUT 1.0 in 500 cities
- A major objective of AMRUT 2.0 is **to move towards universal access to household level water tap** in all 4700 statutory towns of India



## Guidelines of AMRUT 2.0



To provide **2.68 crore new tap water connections** to all in all 4,700 statutory towns of India



Universal HH coverage of **sewerage/ septage services**



**Rejuvenation of water bodies & urban aquifer management**



**Recycle and reuse** of treated wastewater



Major reforms in water supply sector such as **reducing NRW to below 20%; 24x7 water supply**

# Last Mile Connectivity - universal access to water connections

Three key challenges:  
To achieve universal coverage of individual water connections

## Administrative and Legal Barriers



Multiple departments involved



Too many documents required



No Application Tracking System



Tenure requirements for basic services



Lack of citizen awareness



Complex, lengthy approval procedures

## Cost Barriers



High connection costs for new connections



High water tariffs

## Infrastructure Barriers



Lack of internal distribution networks



# The study focuses on ‘last mile connectivity’ of water supply to slums and low-income households

## Objectives of the study

- 1 To assess coverage of water supply connections
- 2 To review of household water connection procedures and costs
- 3 To assess water connections given in slums and other vulnerable areas.
- 4 To recommend Key Policy Interventions at both state and city levels

## Three broad areas of assessment



Spatial Coverage of Water Supply Network

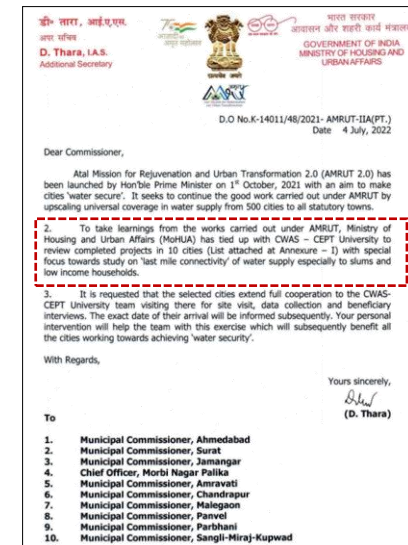


Administrative Processes of New Connections



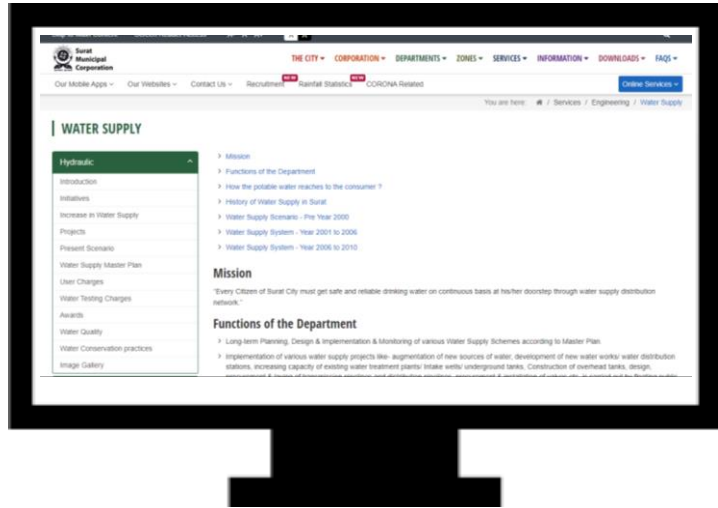
Constraints in Cost of Connection and Fees

## The letter from MoHUA to City Commissioners



# Study Methodology

## Secondary literature



### Desk based research and analysis

- Review of AMRUT DPRs
- Overview of city water supply using city website and PAS Data

## City Visits and Stakeholder Consultation



### Discussion with City officials

- Water Dept.
- Zonal office- Water supply connection provision and tax collection



### Discussion with slum residents

- Interview of slum residents to understand water supply process in slums

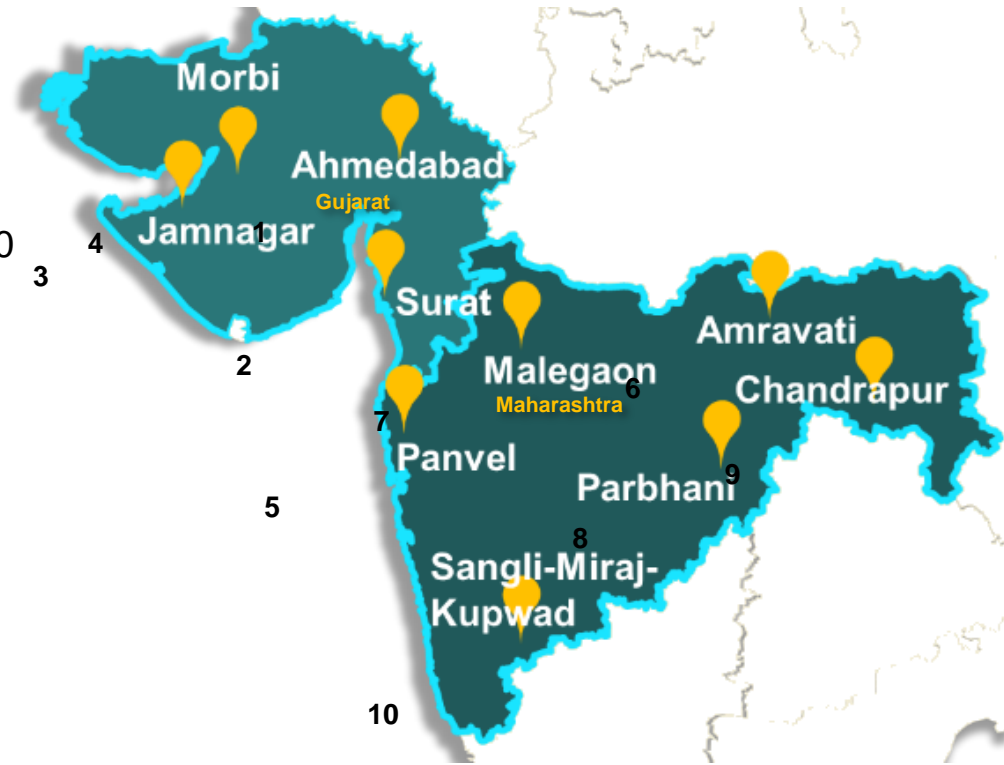


### Site Visits

- Site visits at projects covered under AMRUT scheme

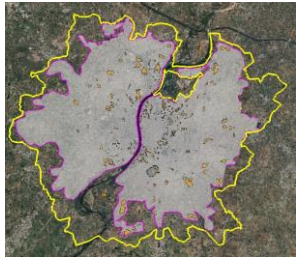
# 10 cities across Gujarat and Maharashtra

- Selected cities have **completed their infrastructure projects** under AMRUT 1.0
- Cities selected are of various sizes and population



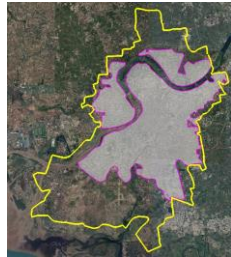
## Gujarat

HH Water Connection Coverage in the City | Slums



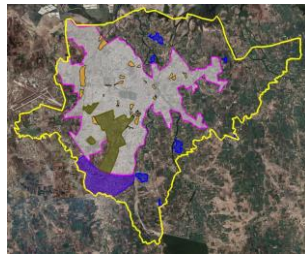
**Ahmedabad**  
(Municipal Corp.)

99% | 99%



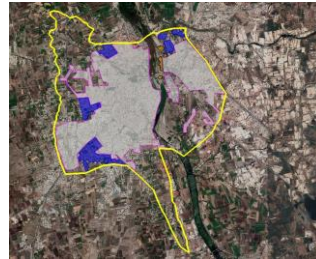
**Surat**  
(Municipal Corp.)

100% | 100%



**Jamnagar**  
(Municipal Corp.)

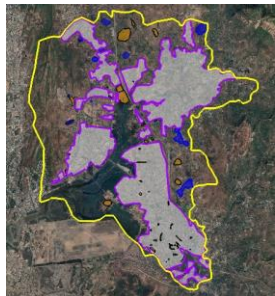
83% | 90%



**Morbi**  
(Class A Council)

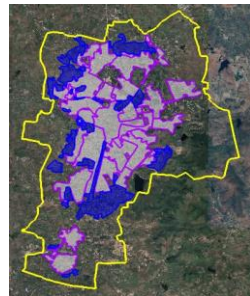
43% | 48%

## Maharashtra



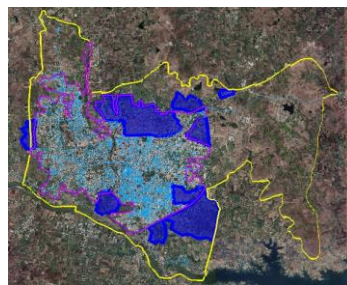
**Panvel**  
(Municipal Corp.)

74% | 69%



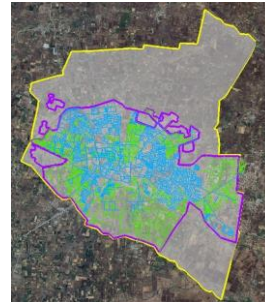
**Amravati**  
(Municipal Corp.)

68% | 30%



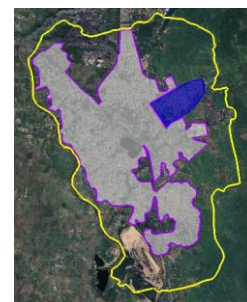
**Malegaon**  
(Municipal Corp.)

57% | 44%



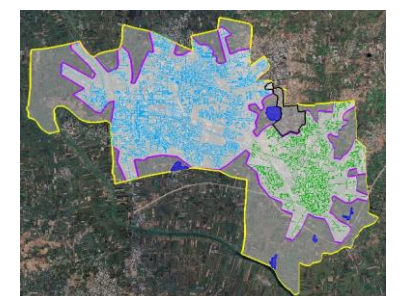
**Parbhani**  
(Municipal Corp.)

74% | 39%



**Chandrapur**  
(Municipal Corp.)

65% | 52%



**Sangli Miraj & Kupwad**  
(Municipal Corp.)

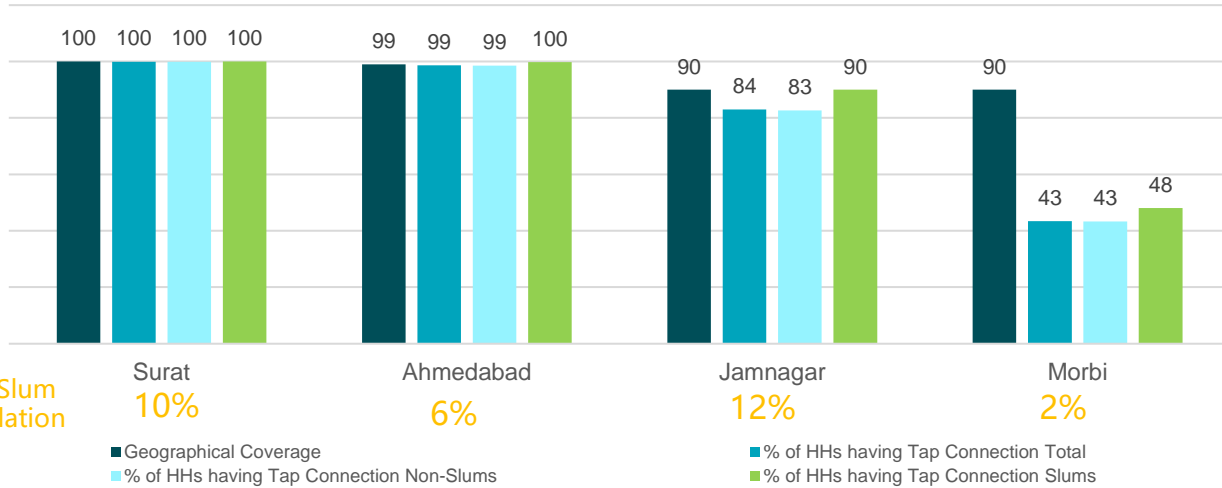
72% | 37%



# Cities in Gujarat have 90-100% coverage of water supply network and tap connections serving all its households

## Good Network Coverage in cities of Gujarat

- Network laid in **90-100% in cities of Gujarat.**
- Morbi has less than **45%** overall tap connections coverage as network is laid in 2021 under AMRUT



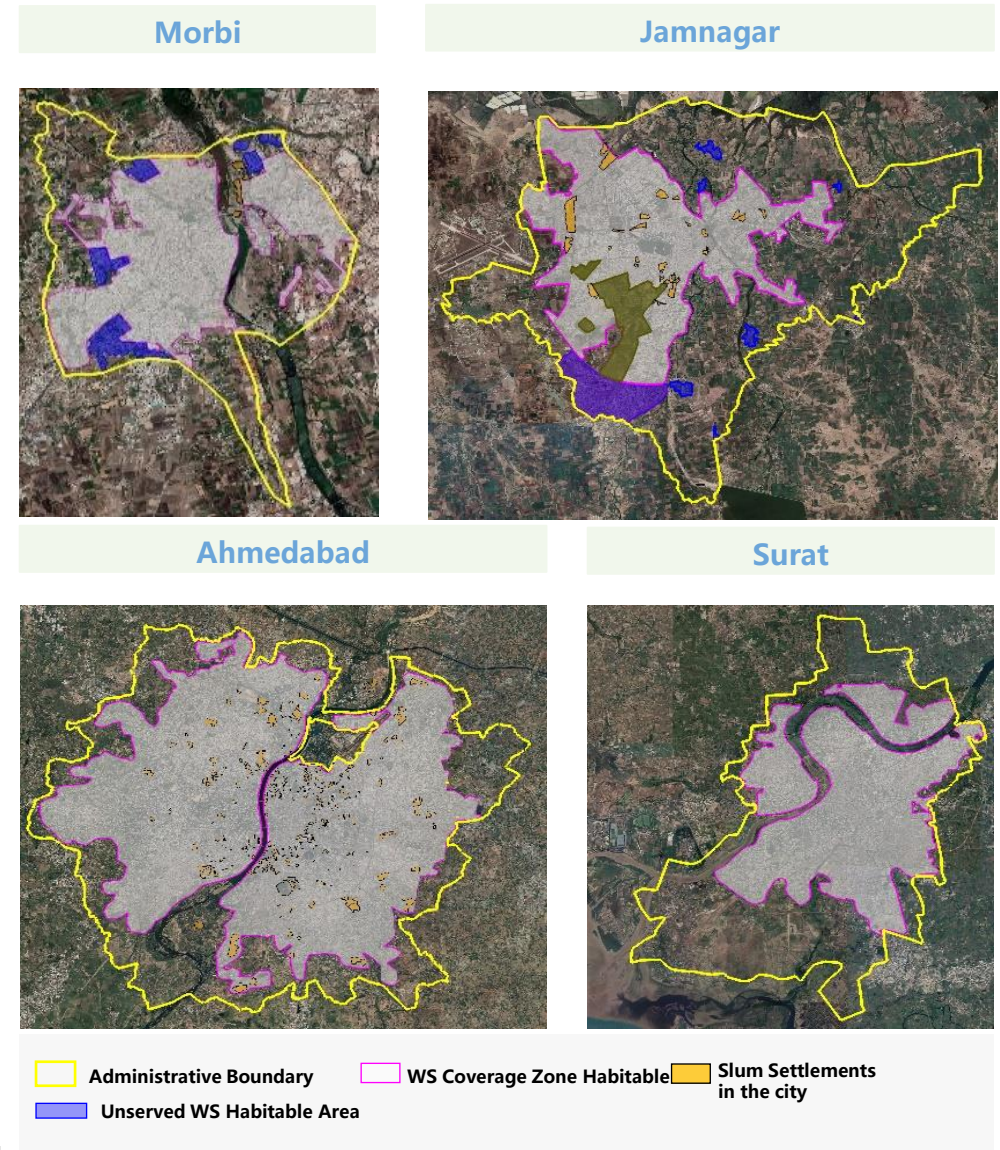
## Database Challenges

- Data for water connection is **not properly maintained and not digitized.**

\*For Jamnagar- A large part of the area is military area which counts as one connection

\*100 percent network coverage is to be achieved under AMRUT 1.0, due to Covid period there is delay in laying of piped network

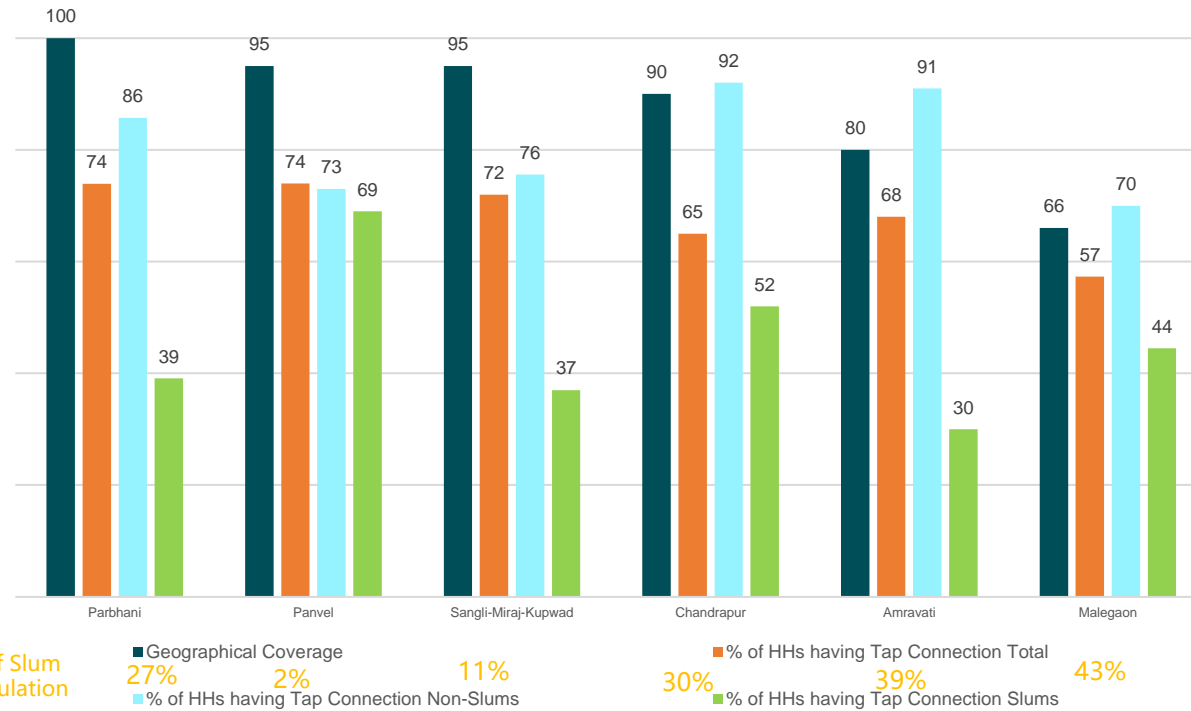
Source: SLB PAS Data for Ahmedabad, Surat and Morbi FY 2020-21; Jamnagar data verified and updated by city officials of Jamnagar, 2022



# Cities in Maharashtra have good network coverage, though coverage in slum areas need to improve

## Network Coverage

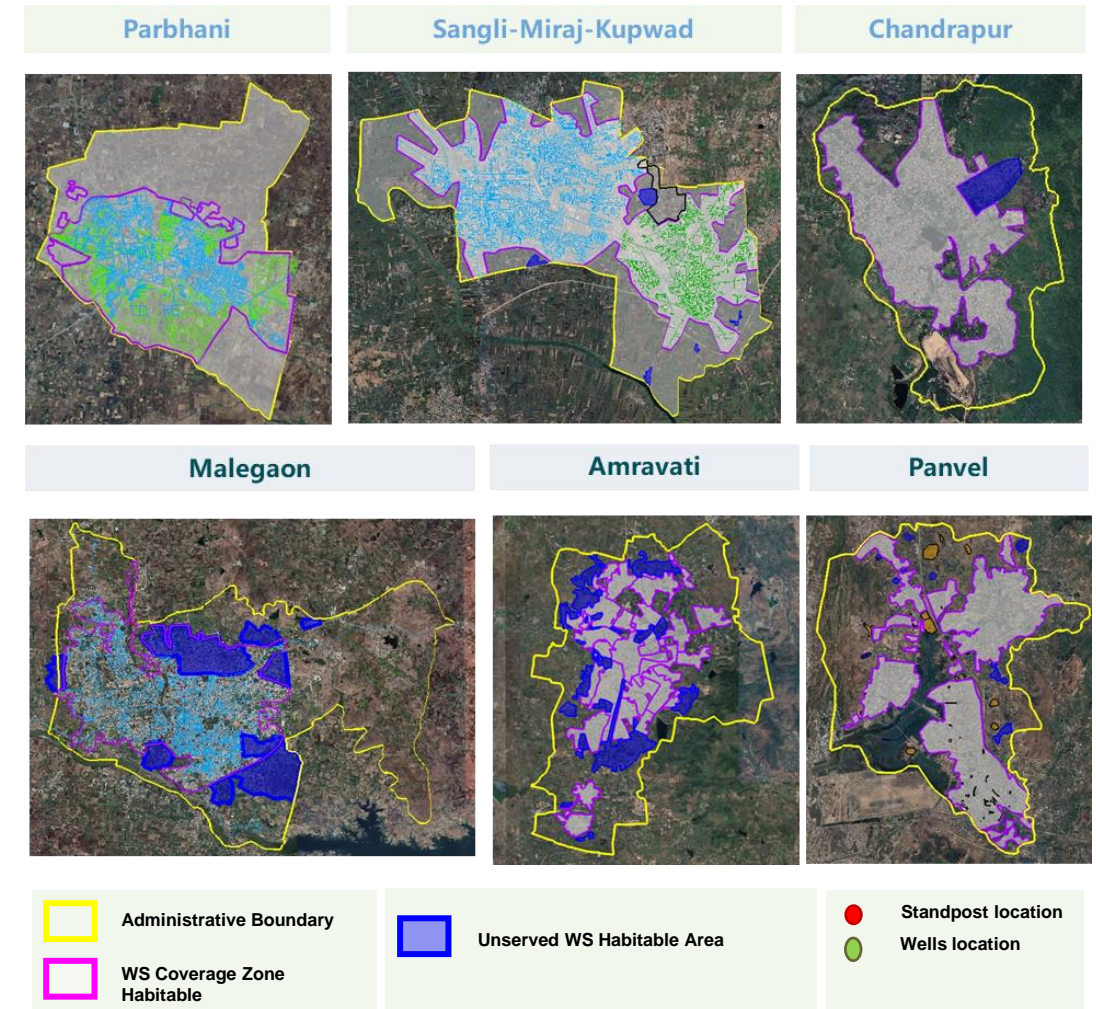
- Clear bifurcation between notified and un-notified slums, the slums which are un-notified do not get services.
- Dependency on water tankers. Arises possibility of private water market.



Source: Source: CWBP 2020-2021 data for Amravati, Panvel and Parbhani; Slum data for Panvel from Shelter Associates 2019 slum HH survey SLB PAS 2020-21 data for Malegaon ; Sangli-Miraj Kupwad data verified and updated by city officials 2022; Chandrapur data retrieved from Notesheet which Chandrapur submits to MoHUA for AMRUT monitoring

## Database Challenges

- Lack of digitized records in cities that do not have metered connection



# A four-step process takes 20-45 days to get a new water connection

1 day

## 1. Application and Documents Submission

Application for new water connection along with Documents

All cities have offline form submission process. Surat provides only the application form online

Document requirements is cumbersome for few cities

3 to 7 days

## 2. Internal Verification & Approvals

Application Received **ULB official**. And the documents verified

No

Sent back to applicant, informed via message.

Yes

Forward to officials who surveys, analyse the site

### Additional Assistant Engineer

(Any other higher official, can differ citywise)  
(Documents check and site verification)

### Deputy Engineer

(highest authority approvals, can differ city wise)  
(Identification of Water Main, Road Cutting details)  
(Mentioning Charges levied on application)

## 3. Fees to be paid for new connection

2 to 10 days  
Depends on the applicant

ULB official collects the fee amount from the applicant

Fees Depends

- Communication charges
- Water Charges
- O&M cost, Road charge
- Plumber Cost (Directly paid by applicant) etc.

7 to 15 days

## 4. Work Orders are given

After fee payment the work orders are provided by officials to the registered plumber

The work gets completed based on the no. of assignments with the plumbers

# In Gujarat, cities have limited document requirements which makes the process easier..

- Ahmedabad and Surat require supporting documents like Stamp Paper Guarantee, drainage connection receipt, copy of Plumber's license from corporation's website, etc.
- Morbi requires only the property tax receipt along with a handwritten application for getting a new connection

Supporting documents	Morbi	Jamnagar	Ahmedabad	Surat
Property tax receipt	√	√	√	√
Address Proof and Identity Proof		√	√	√
Copy of House Tax Assessment sheet registered as tenant in case of tenancy		√		
Drainage Connection Receipt			√	√
Building permission/ Certified letter of construction permission and user licence			√	√
NOC Form (Society Chairman)			√	√
Copy of layout plan (Incl. TP scheme final plot and subplot.)			√	
Rs. 300 Stamp Paper Guarantee				√
Income Certificate				√
Copy of Plumber's License (From registered Plumbers provided by Corporation)				√

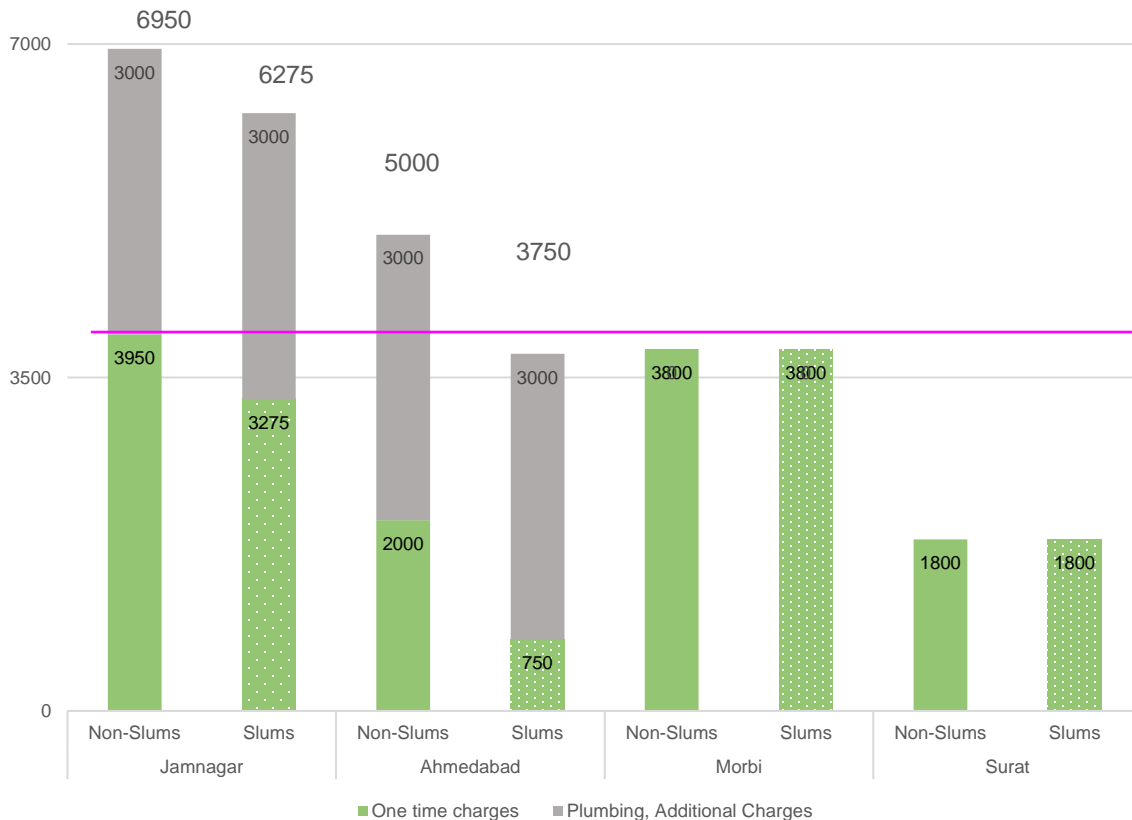
- Cities in Maharashtra require **too many documents** for verification and **need to visit 2-3 departments**

Supporting documents	Parbhani	Chandrapur	Sangli	Malegaon	Amravati	Panvel
Property tax receipt	√	√	√	√	√	√
Address Proof and Identity Proof	√	√	√	√	√	√
7/12, Property Card/Purchase Deed			√		√	
Building permission/ Certified letter of construction permission and user licence						√
Rs. 20 or Rs. 100 Stamp Paper/ Rs. 100 bond of applicant				√	√	
NOC Forms (Owner/Society/Council)				√	√	√
Applicant Passport Photo (3 copies)					√	
Road dismantle permission					√	
Income map						√
Owners NOC if applicant is not covered under Mumbai rent control act.						√
<b>Additional documents for slums</b>						
Matters considered by election commission regarding proof of residency will be considered						√
Slum declaration circular				√		

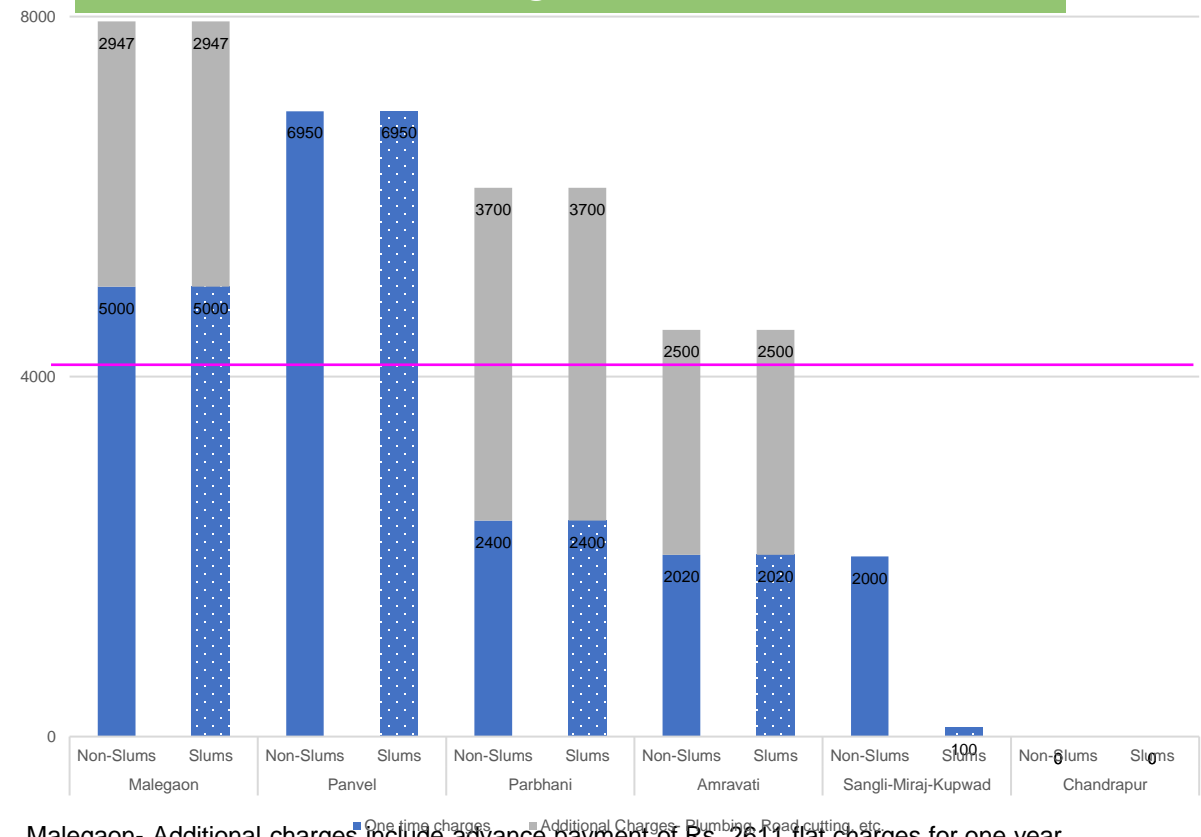
# Water connection charges vary significantly across cities even in the same state

- AMRUT 2.0 guidelines mention “Providing universal piped water supply with household water tap connection through Last mile connectivity to households” (Not exceeding ₹ 3,000 per HH)
- The total charges are one-time connection charges along with additional plumbing charges levied in a few cities

## Water connection charges in cities of Gujarat



## Water connection charges in cities of Maharashtra



Malegaon- Additional charges include advance payment of Rs. 2611 flat charges for one year  
 Panvel- One time charges include tap deposit amount, boring fee, labor charges, road repair charges and source generation fees (Bifurcation is not available)

# Higher water tariffs may be a barrier for urban poor households

## Cities of Gujarat:

Water tariff based on property tax and size and flat rates:

INR 600-3,750 per connection

## Cities of Maharashtra:

Flat rate and metered water tariff

INR1,430 to 6,720 per connection

Ahmedabad	Surat	Jamnagar	Morbi	Parbhani	Chandrapur	Malegaon	Panvel	Amravati	Sangli Miraj & Kupwad
Water tariff based on property tax/ property size		Flat Charges Per Year per connection					Metered and Non-Metered Charges Bifurcation Per Year		
30% of the property tax  Rs. 100-200 per year for 40-50 m <sup>2</sup> carpet area)	Rs. 174-3750 per year upon the size of the property (0-15m <sup>2</sup> to 501m <sup>2</sup> and above).	Non-slums: Rs.1,150  Slums: Rs.575	Rs.600	Rs. 2,400	Rs.1,430	Rs. 2,611	Metered Rs 9/KL  Rs. 2187* Per year Non-Metered Rs. 1500	Metered: Rs. 19 per KL till 15,000 L Rs. 29 per KL till 15k-25k L Rs. 5278* per year Non-Meter: Rs. 6,720	Metered: Rs 8/KL  Rs. 1,944* per year Non-Meter: Rs. 1,920



“Our monthly salary is equal to water tax that we pay, we have to fulfill basic priorities of eating...How can we pay so much water tax and connection cost”  
-Resident of Amrawati, Maharashtra

\*Charges derived for metered connections considering 135 lpcd consumption of water and family size of 5

Note: Assessment based on discussion with ULB officials of Gujarat and Maharashtra

# Key findings

## Infrastructure

Gujarat cities provide water connections to slums, irrespective of tenure; whereas in Maharashtra slum dwellers in non-notified slums do not get access to water connection

Illegal or unregistered connections reflect less coverage of water connections



## Administrative

Online systems are not available for application process and approvals in any city

**Administrative Barriers:** Water connection process requires **multiple documents for approvals**

Cities that do not have metered connections have poor water connection data base.



## Cost

High connection charges act as a barrier for households to get a formal water supply connection

User charges do not have bifurcation for slum and non-slum households for 9 out of 10 cities.



# Initiatives to improve water connection coverage in Gujarat

Slum Networking Program (1995)

Ahmedabad

Ahmedabad Municipal Corporation (AMC)



NGOs and Slum Communities

Infrastructure expanded: 80% cost of physical infrastructure by AMC, remaining 20% by participating HHs

500 NOC Scheme (2002)

Ahmedabad

Rs. 500 NOC Scheme

Eligibility



< 40 sq.



Rs. 500 per connection

Documents – Property Proof (if not) they take photograph and provide NOC only to have water and drainage

10,500 slum households

Free Drinking Water connections (2012)

Surat

Free Connections



< 25 sq. m

Eligibility- Homes which fall under the category of Slums and have only a roof or a shade on two sides of constructions.



< 20 m

SMC Distribution line

Documents- NOC from owner whose land is encroached.

'Nal Se Jal'- Urban scheme (2021-2022)

Gujarat State-Urban

Under Swarnim Jayanti Mukhya Mantri Shaheri Vikas Yojana- Nal Se Jal for urban

To Provide New WS Connection and regularize Illegal connections



Rs. 500 per connection

Documents- Application form and an Affidavit.

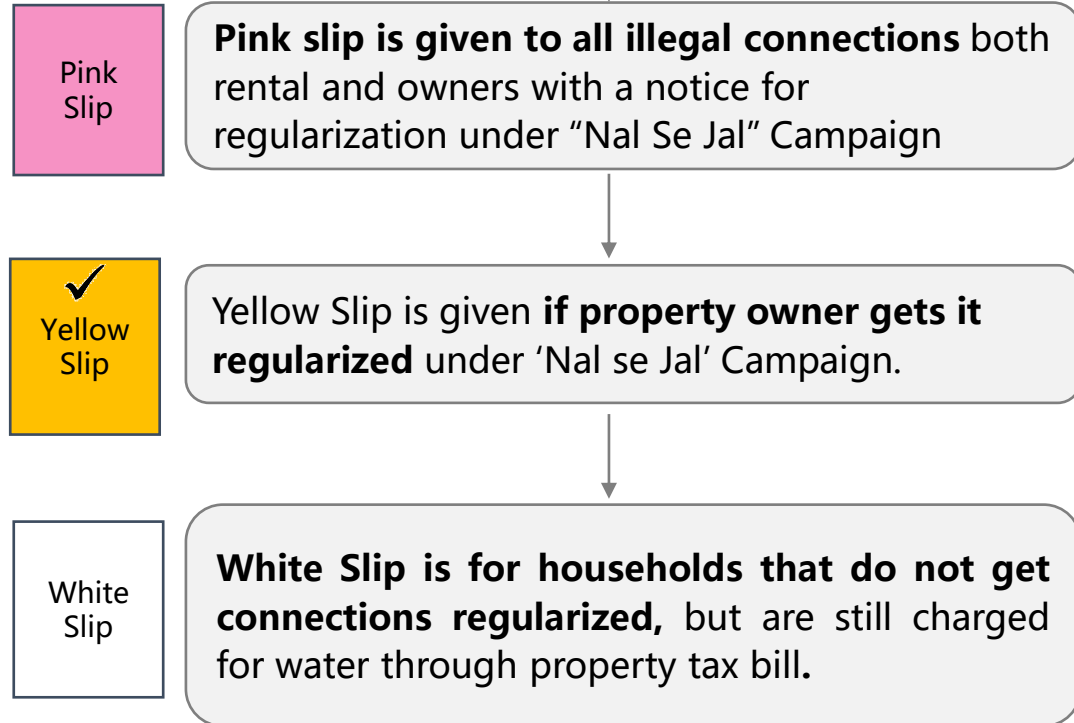


# Good Practice case: Jamnagar Municipal Corporation

## Identification of illegal connections :

- By matching property tax database with water tax database and cross verification through site survey

### Process



### Impact



Over all **22,442 connections** regularized and added to the tax base.



Increase in individual water connection coverage from **75% to 84%**



Additional revenue generation of **1.2 crore per annum**

# Initiatives to improve water connection coverage in Maharashtra

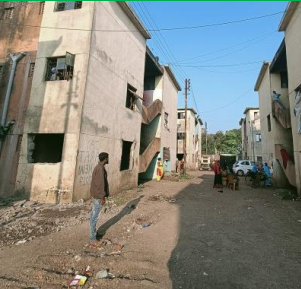
## Group Connections in slums

Sangali

### Slum Communities


Approach of group water connections, which is shared between 5 or more households

Cost per connection: **Rs.100**



## Illegal Connections and legalizing process

Malegaon

- In Malegaon, there were **~10,000 illegal connections**
- High connection charges hinder tap connections.
- **7200 connections** were legalized 



## State schemes for increasing connections

State

- **1990s-** Group connections to slums by DMA
- **Maharashtra Suvarna Mahotsavi Nagari Dalitvasti** Water Supply And Sanitation Scheme provides subsidy for taking tap water connections
- **Conversion of standposts** into group connections.
- Public water booths for non-notified slums
- Relaxing water connections



Additional fund is used from 13<sup>th</sup> & 14<sup>th</sup> FC and Ward development fund

## Central schemes for increasing connections

AMRUT

- Free water connections through AMRUT programme in Chandrapur.
- No connection charges for provision of new water connections.
- **Installation of meters** in all new water connections under **AMRUT**
- **Coverage: From 42% to 78%**



# Recommendations for improving coverage of household water connections

## Frameworks

## Capacity Building and Implementation

## Finance

### Central Government level initiatives

- **AMRUT guidelines** can suggest that **land tenure and rental status are delinked** from the provision of water connection (as in Gujarat)
- Add as an **“Urban Reform”** for additional borrowing by states and for access to 15<sup>th</sup> FC funds.

- **Prepare a Toolkit for States and Cities** to improve “Last Mile Connectivity” for water connections

- AMRUT can provide additional/earmarked funds for water connections in slums/vulnerable areas

### State level initiatives

- **Initiate relaxations for water connection** provision through State level schemes

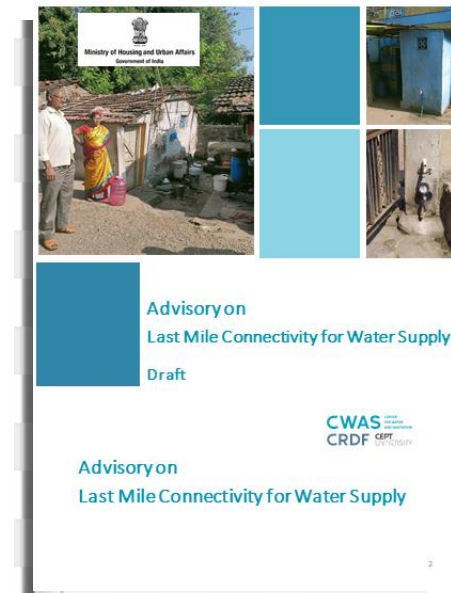
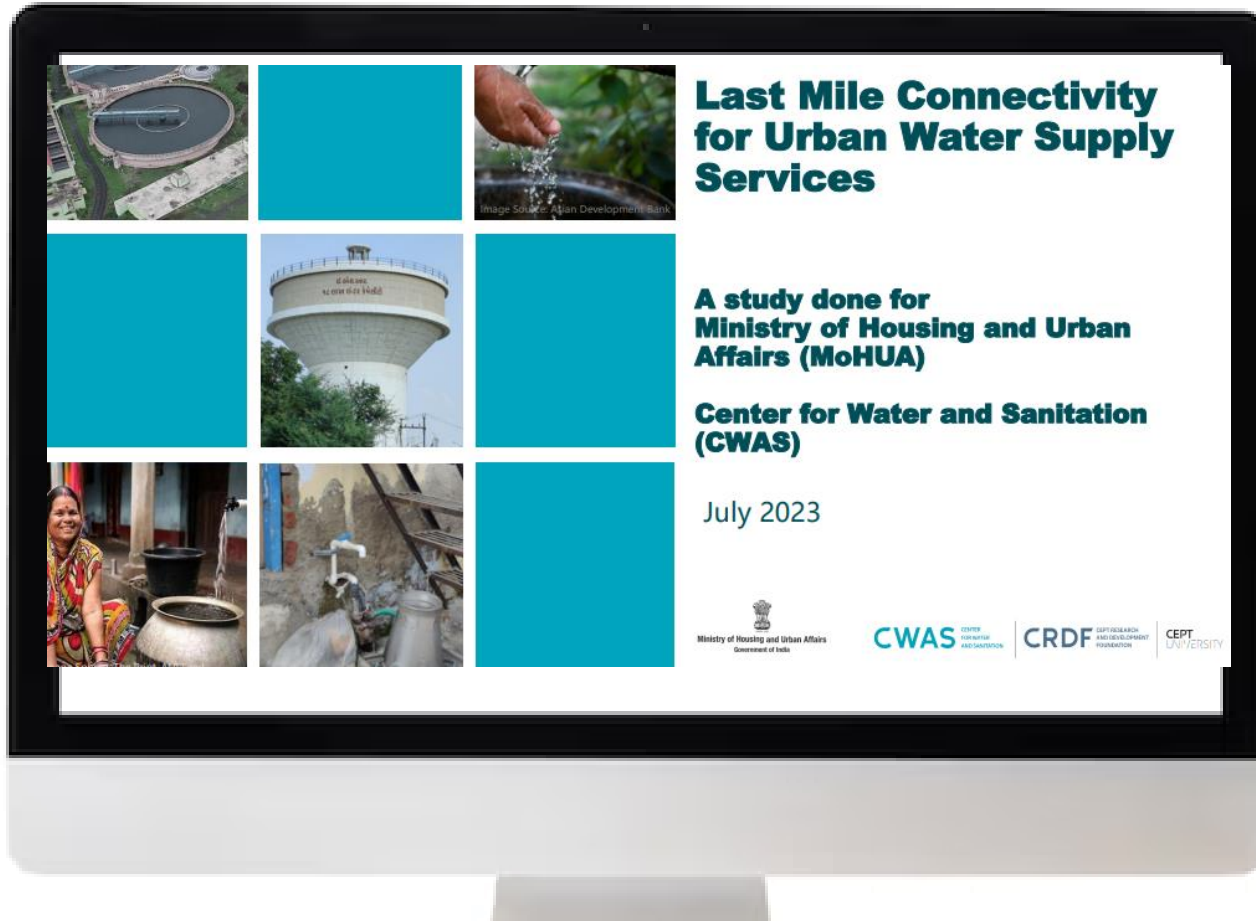
- Ask ULBs to **conduct detailed assessment of illegal connections** and gaps in coverage.

- State government can provide subsidy/ give incentive to take up new water

### City level initiatives

- Identify and **regularize illegal connections**
- Provision of water connections at an **affordable connection charge**
- **Online systems/ E-services** must be developed to ease the process for application of connections (Upload documents/ online verification/ and more)
- **Simplify connection process** by reducing required documents, and streamline through **single window systems**
- **Proper database maintenance systems** and making **centralized database** by linking all connections with property tax systems
- **Improved IEC campaign in city/slums** for availing new water connections under AMRUT, possible involvement of SHGs in this process

# Visit us at [www.cwas.org.in](http://www.cwas.org.in) to know more on Last Mile Connectivity in water supply service...



Advisory on Last Mile Connectivity for Water Supply with MoHUA to be published...

<https://cwas.org.in/cwas-resources/last-mile-connectivity-for-urban-water-supply-services>

# Thank You

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