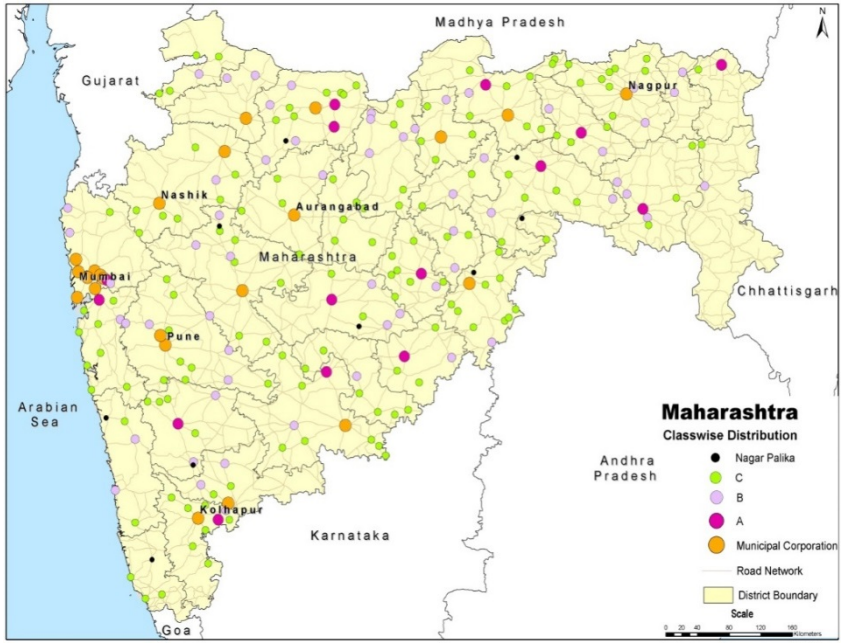
FSM Landscape Study for Maharashtra

pas performance assessment system

CEPT University, INDIA

Maharashtra is one of the most urbanized states in India, with ~23% of its population living in small towns and cities

Categorization of cities and towns in Maharashtra



City Class	Population definition	Nos. Cities	Urban Population (Millions)
MC	>300,000	26	38.2
Class A	100,000-300,000	12	2.1
Class B	40,000-100,000	59	4.4
Class C	<40,000	147	4.3
NP	As notified	15	0.4
Total		**259**	**49.4**

Demographic details

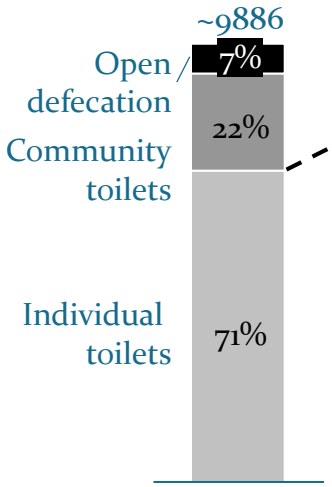
- Maharashtra is the 3rd **most urbanized state in India**, with **45%** of the population living in urban areas, far higher than the **national average of 13%**
- The state has experienced **rapid urbanization in the last decade** with the urban population **growing by nearly 24% between 2001 and 2011** to reach population of nearly **50 million**
- **~23% of the population** lives in Municipal Councils (small towns and cities) that have a population below 300,000 people.

Note: (1) Classification of cities: municipal corporation (>300,000), Municipal Councils: Class A (100,000-300,000), Class B (40,000-100,000), Class C (<40,000), NP (as notified)
Source: PAS Project (2013-14)

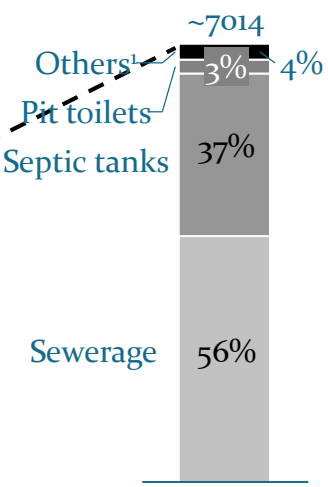
Significant gaps exist across the sanitation value chain in urban Maharashtra, 2011

Access | Collection | Conveyance | Treatment | Disposal/Reuse

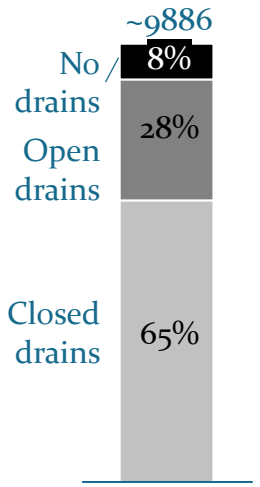
Access to type of sanitation *('000s of HH)*[3]



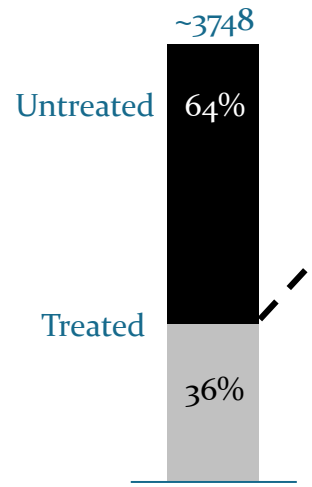
Method of collection of waste[2,3] *('000s of HH)*



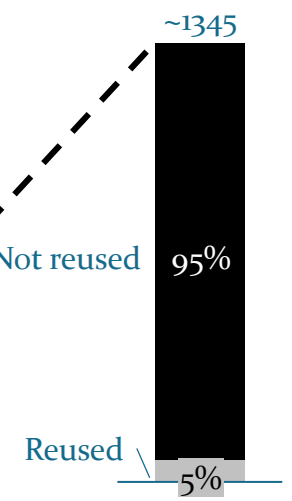
Methods of conveyance of waste[3] *('000s of HH)*



Treatment of wastewater[3] *(in MLD)*



Disposal of waste[3] *(in MLD)*



~690,000 HH practice open defecation and ~1/5th of HH depend on community toilets, even in non-slum areas

~250,000 HH with personal toilets use other method of waste collection

~730,000 HH have no drains for conveyance of wastewater

~2,400 MLD of wastewater is left untreated every day

~1,280 MLD of treated wastewater is disposed off without being reused

Note: (1) Includes other methods of disposal such as basic pour flush latrines, night soil disposed in open drains and latrines serviced by humans/animals

(2) Analysis for personal toilets only (data not available for method of disposal of waste by community toilets) across 249 Urban Local Bodies in Maharashtra

(3) Analysis for 249 Urban Local Bodies (ULBs) in Maharashtra

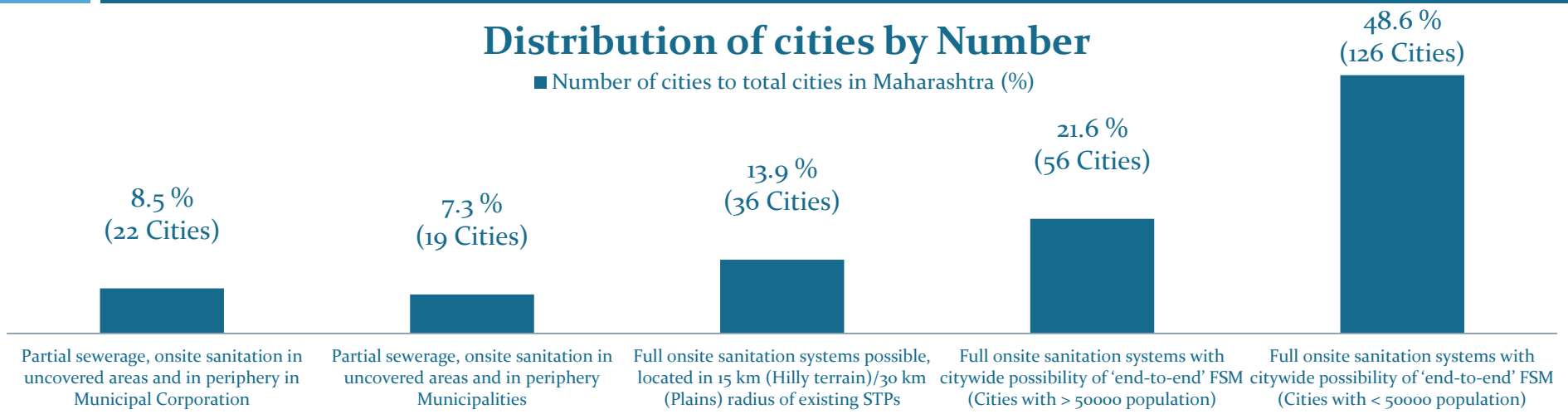
Source: CEPT PAS data 2011, Census of India 2011,

Five City Categories – by city type, size & extent of FSM reqd

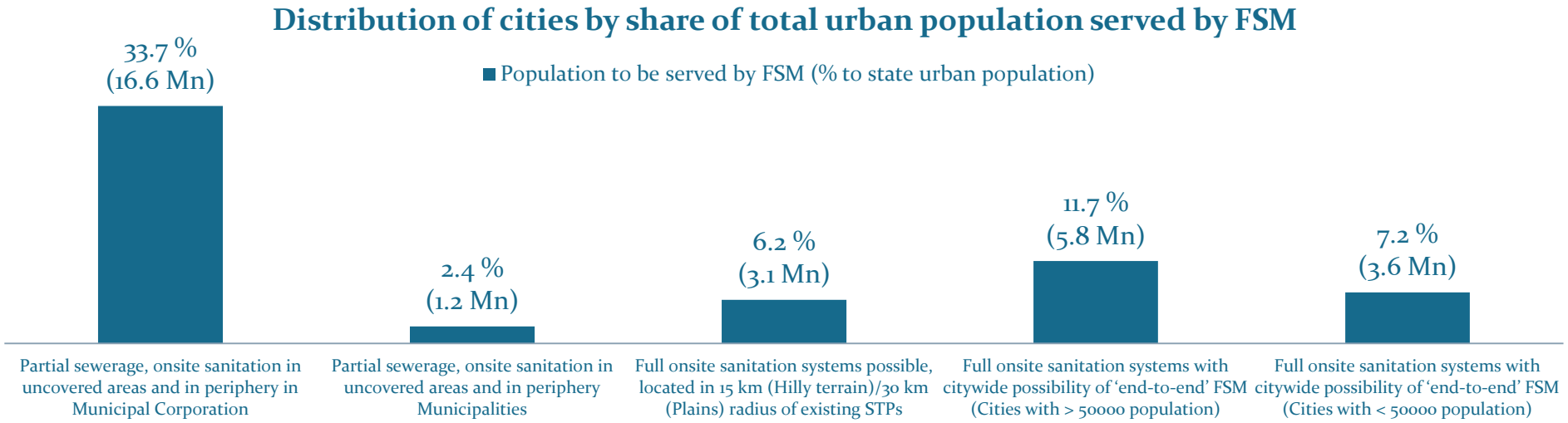
Total 259 Cities with 30.2 million population requiring FSM)

	Partial FSM	Citywide 100% FSM	
Municipal corporations	**1. Large city partial** 22 Cities (16.6 Mn population)		
Municipal Councils	**2. Small city partial** 19 Cities (1.2 Mn population)	**3. Medium-small cities near STPs** 36 Cities (with STP within 15/30 km.) (3.1 Mn population)	**4. Citywide FSM - medium** 56 Cities >50,000 Pop. (5.8 Mn population) **5. Citywide FSM - small** 126 Cities < <50,000 Pop. (3.6 Mn population)

Five City Categories



FSM is required for all the cities in the state to serve 61% urban state population

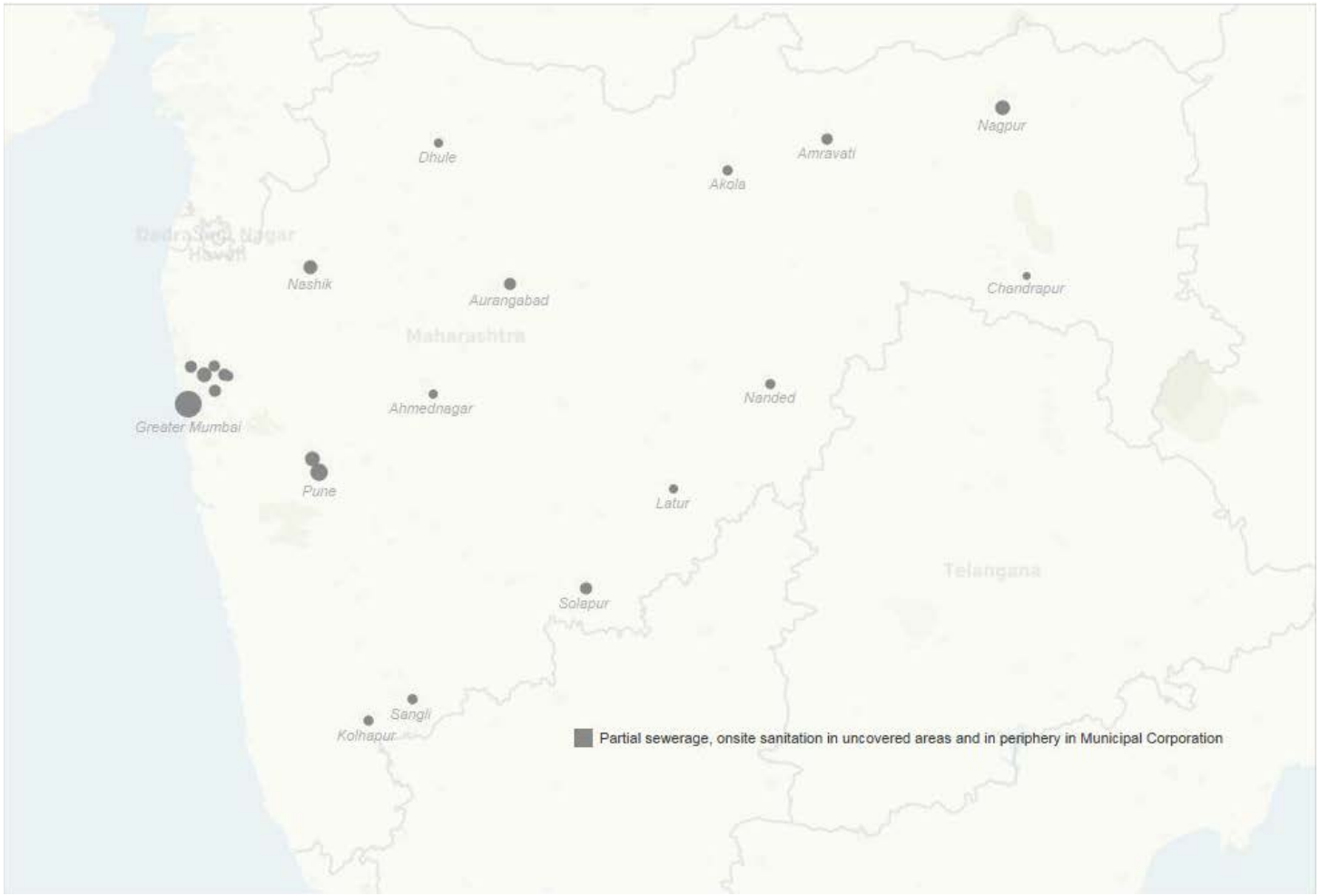


Possible approach to FSM Planning and PSP

	Categories	Possible approach to FSM planning and PSP
1	**Large City Partial FSM –** partial sewerage, onsite sanitation in uncovered areas and in periphery in Municipal Corporations	✓ **Demand based septic tank emptying** ✓ **Licensing** of private player **existing in the city** ✓ **Differential charges** for emptying based on type of property and distance to treatment facility ✓ **Explore treatment** of septage **at existing STP** ✓ **Financing and regulation of Municipal Corporations and Municipal Councils is different**
2	**Small City Partial FSM –** Partial sewerage, onsite sanitation in uncovered areas and in periphery in Municipal Councils	
3	**Medium-small cities near STPs** Full onsite sanitation systems possible, located within 15 km (Hilly terrain)/30 km (Plains) of existing STPs	✓ **Citywide scheduled septic tank emptying**, (for larger cities it maybe in two zones/contracts) ✓ **Contracts** with private players from **within and outside the city** ✓ **Taxation based system** for all properties ✓ **Construction** of independent **septage treatment facility OR for Category 3, use existing STPs if transport versus STP costs seem favorable** ✓ **Exploring PSP** for **emptying and treatment operations** ✓ **Awareness drives and regulations** required for implementation of IFSM
4	Full onsite sanitation systems with citywide possibility of 'end-to-end' FSM in cities with > 50,000 population	
5	Full onsite sanitation systems with citywide possibility of 'end-to-end' FSM in cities with < 50,000 population	

Category 1: Partial sewerage, onsite sanitation in uncovered areas and in periphery in Municipal Corporations

- ✓ Around **18 cities** have been **considered** under some **major grant**
- ✓ **Likely to remain partially sewered** for **next 10-15 years**
- ✓ **FSM required for non-sewered areas; largely** in city **periphery**



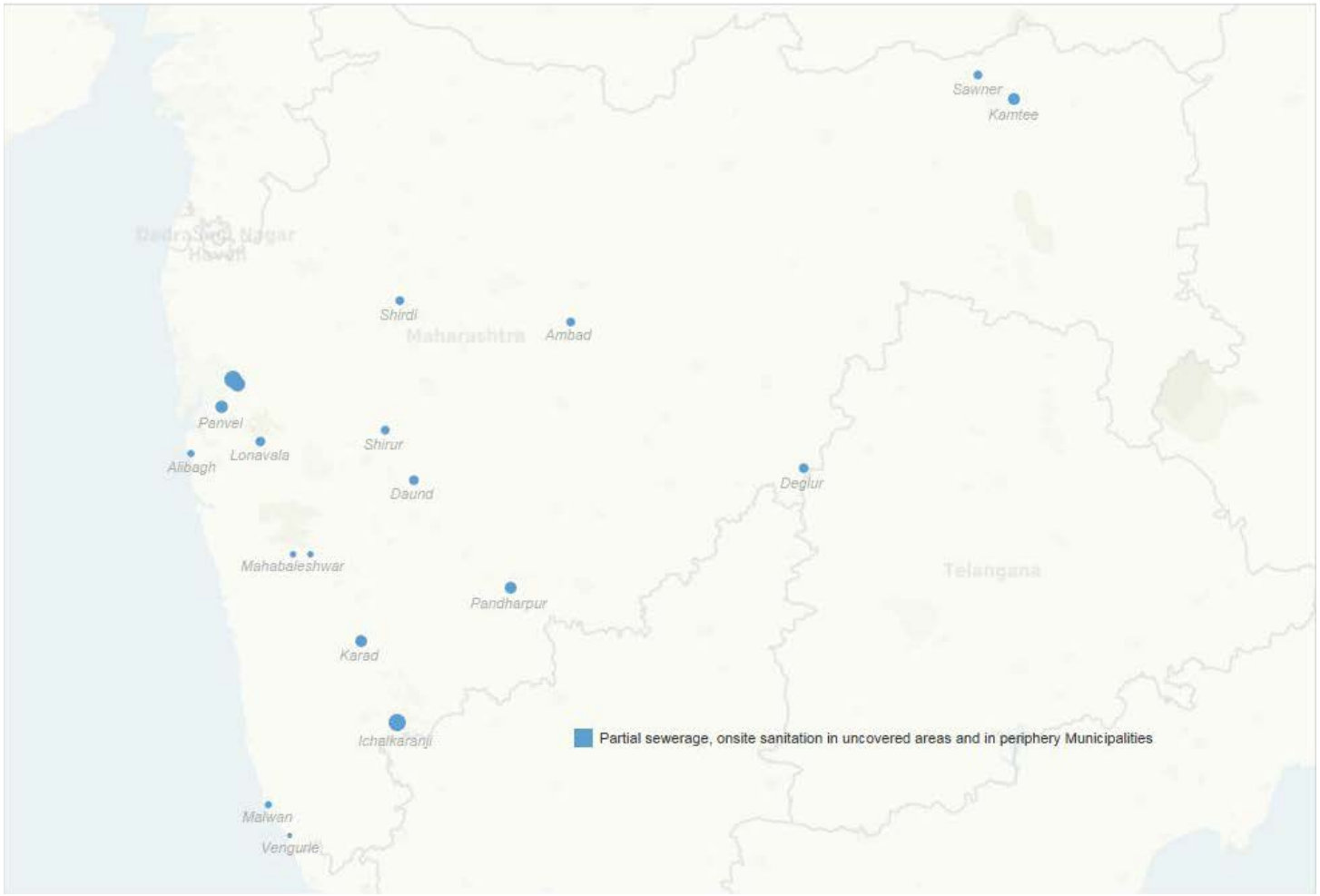
22 cities

~ 54 % of the city area is dependent on onsite systems

Cover 34 % of the state's urban population

Category 2: Partial sewerage, onsite sanitation in uncovered areas and in periphery in Municipal Councils

- ✓ Around **13 cities** have been **considered** under some **major grant**
- ✓ **Likely to remain partially sewered** for **next 10-15 years**
- ✓ **FSM required for non-sewered areas; largely** in city **periphery**



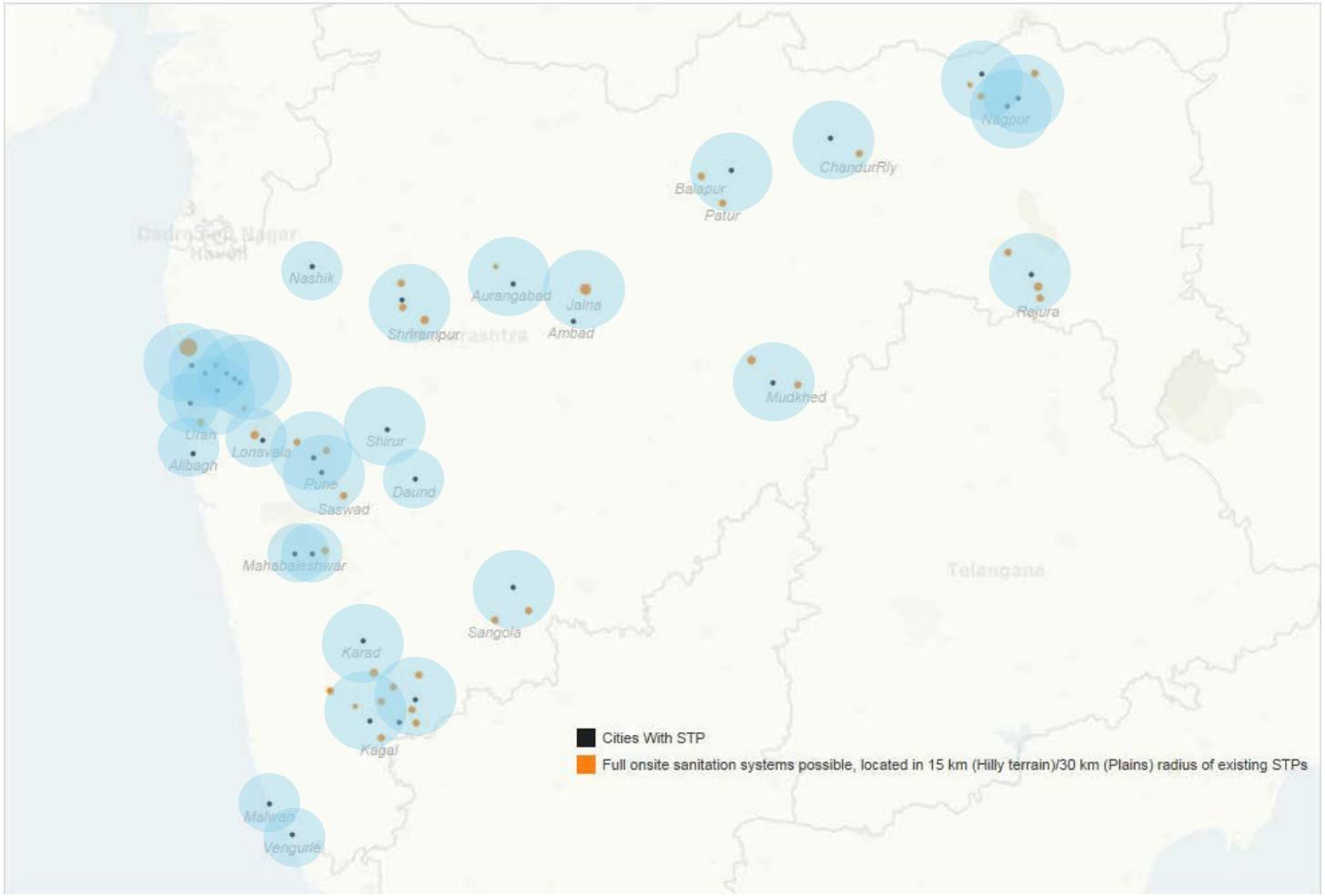
19 cities

These are under different legal framework

Cover 2.4 % of the state's urban population

Category 3: Full onsite sanitation systems possible, located in 15 km (Hilly terrain)/30 km (Plains) radius of existing STPs

- ✓ **Cities** where **FSM required; septage** can be **treated at an existing STP (within 15 km for Hilly terrain** areas and **30 km** for **plain areas**).
- ✓ Need to assess trade-off between transport costs and a new treatment facility



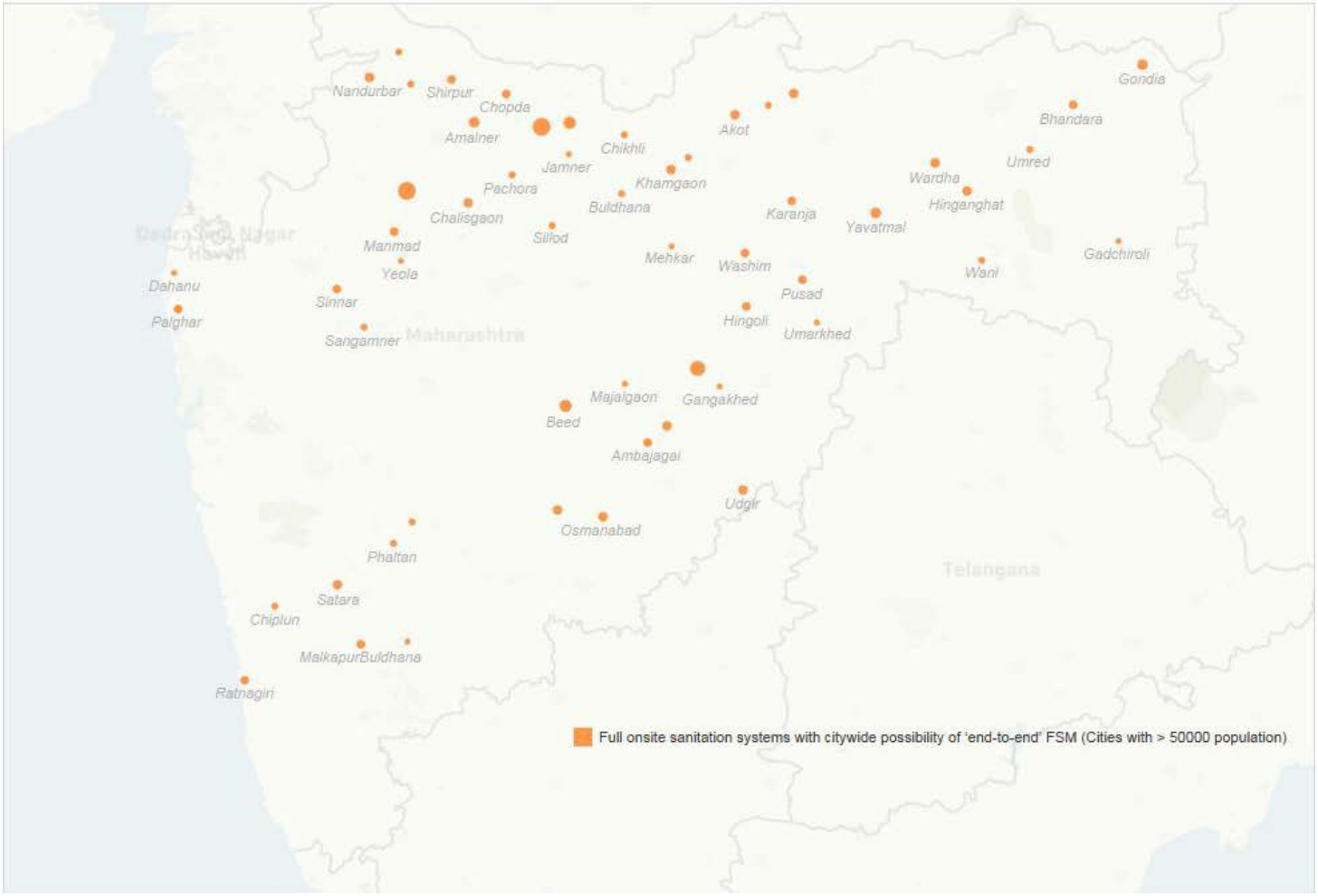
34 cities with STPs

36 add. cities can treat their fecal sludge at existing STPs – after assessing trade-off with transport costs

Cover 6% of the state's urban population

Category 4: Full onsite sanitation systems with citywide possibility of 'end-to-end' FSM in cities with > 50,000 population

- ✓ These **cities** will **require a citywide FSM plan covering all the components of sanitation service chain** from collection , conveyance, treatment , reuse / disposal,
- ✓ These cities may have two zones for planning and contracts



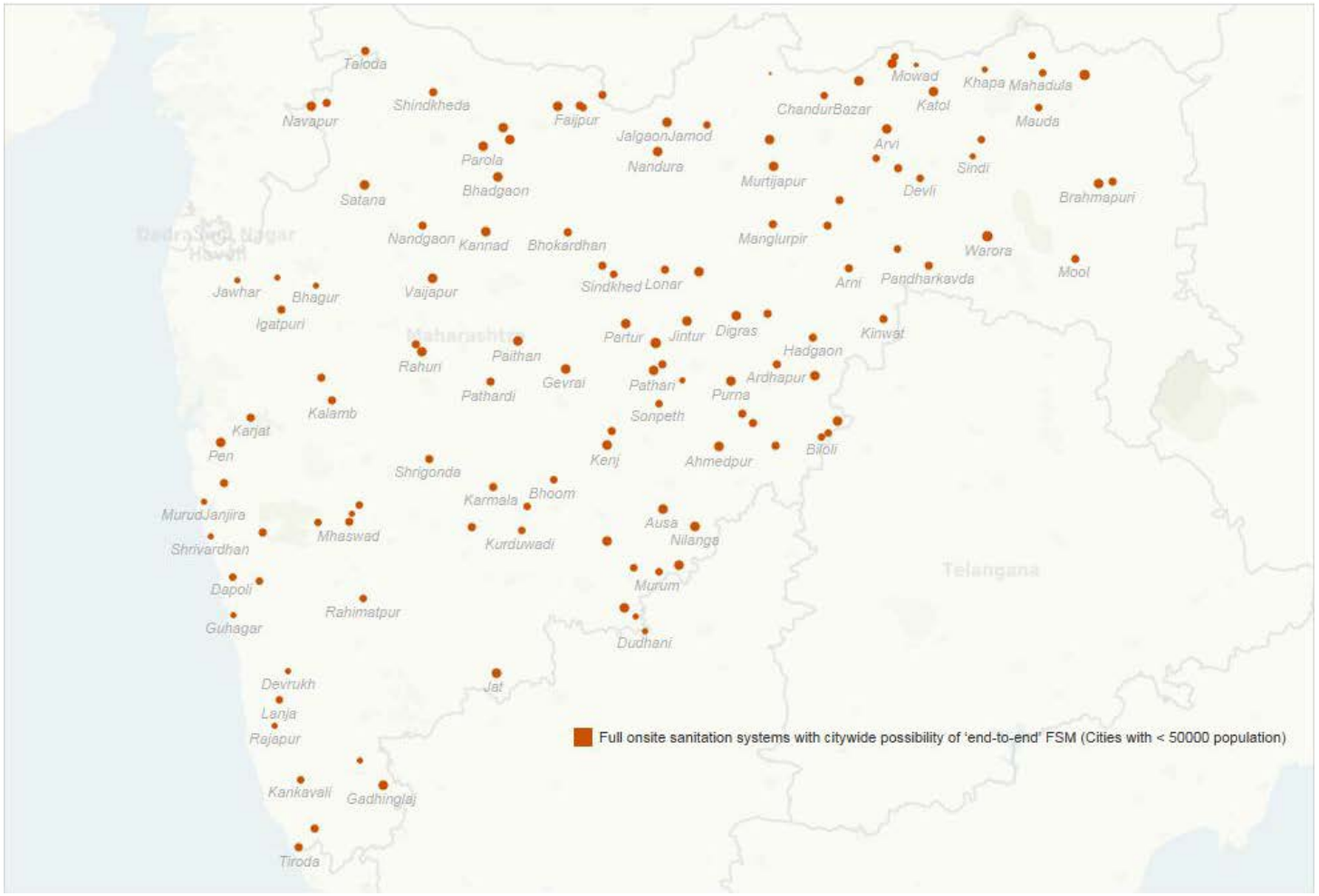
56 cities

Mainly municipal councils (largely Class B)

Cover 12% of the state's urban population

Category 5: Full onsite sanitation systems with citywide possibility of 'end-to-end' FSM in cities with < 50,000 population

- ✓ These **cities** will **require a citywide FSM plan covering all the components of sanitation service chain** from collection , conveyance, treatment , reuse / disposal and sanitation tax



126 cities

Mainly municipal councils (largely Class C)

Cover 7% of the state's urban population

Thank you

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