

Sanitation worker safety and livelihoods in India: A blueprint for action

Phase 1: Understanding the problem

21st November 2017



Agenda

Project context

Sanitation worker ecosystem

Worker profiles, challenges and personas

Underlying insights

Focus areas

Next steps

Unsafe sanitation work continues to persist in multiple forms in India in spite of it being banned in 1993 and several initiatives by CSOs

State of sanitation workers remains a blind spot

- There's been incredible progress in sanitation coverage in India, esp. in recent years; dialogue shifting to waste mgt.
- However, the state of sanitation workers remains a blind spot

Workers face significant challenges on multiple fronts – financial, health and social

- Hazardous work environment leading to acute mental and physical health issues; rampant drug abuse and alcoholism
- Poor pay and exploitation by sanitation contractors
- Social stigma and lack of access to public resources

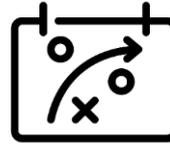
There are some systemic drivers of this problem

- Social barriers such as caste and gender based discrimination
- Lack of technological substitutes
- Challenges in implementation of the law
- Entrenched behavior which perpetuates the practice
- Lack of awareness of workers about their rights and alternative job options

Existing initiatives fail to address the entire system

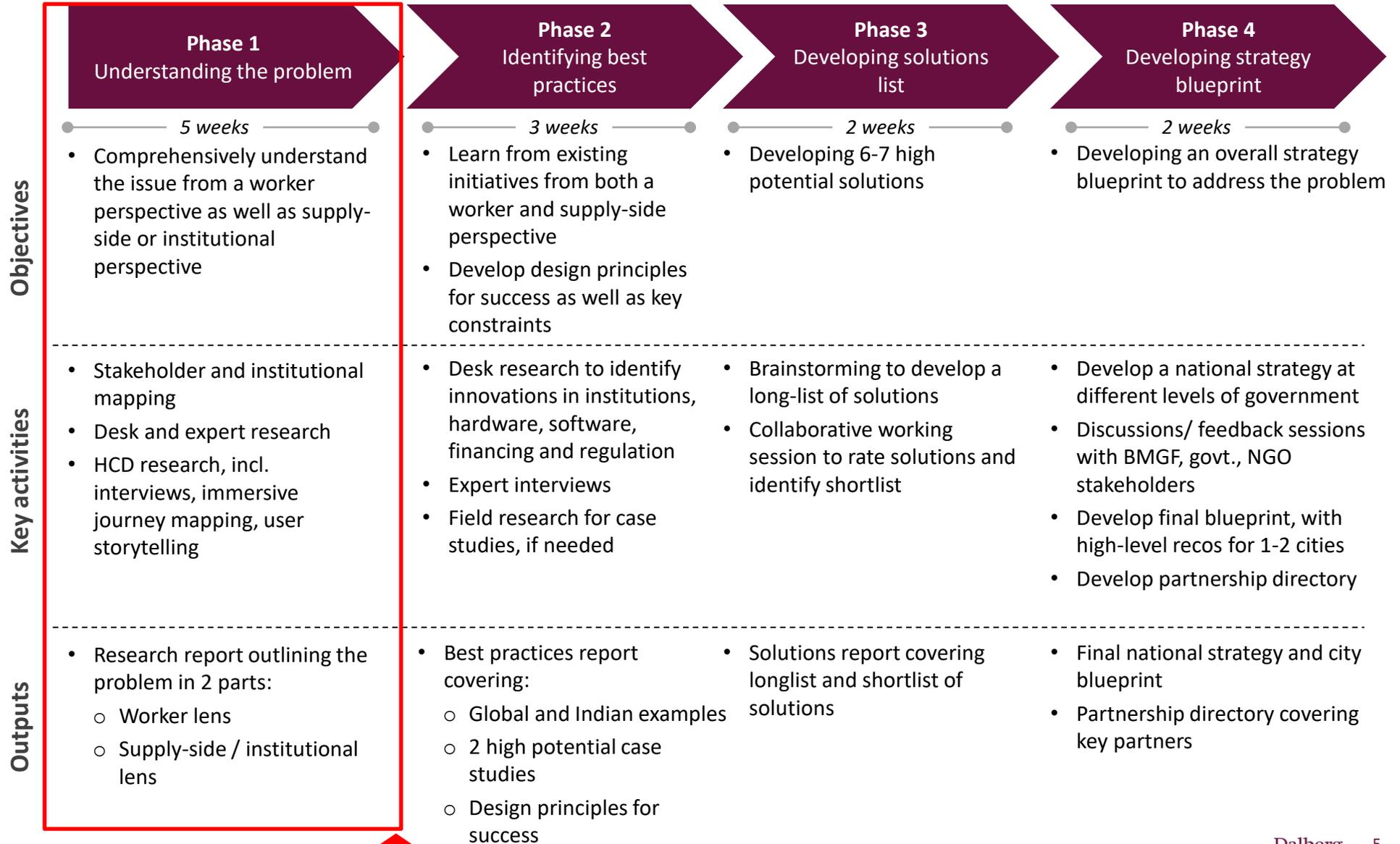
- Legal and policy measures by government (e.g., the MS Act) and initiatives by CSOs (such as alternative sanitation tech, advocacy, awareness building, and skilling) don't address entire system

The objective of the project is to help improve sanitation workers' safety and livelihoods through a fact base, national strategy, and city-level blueprint



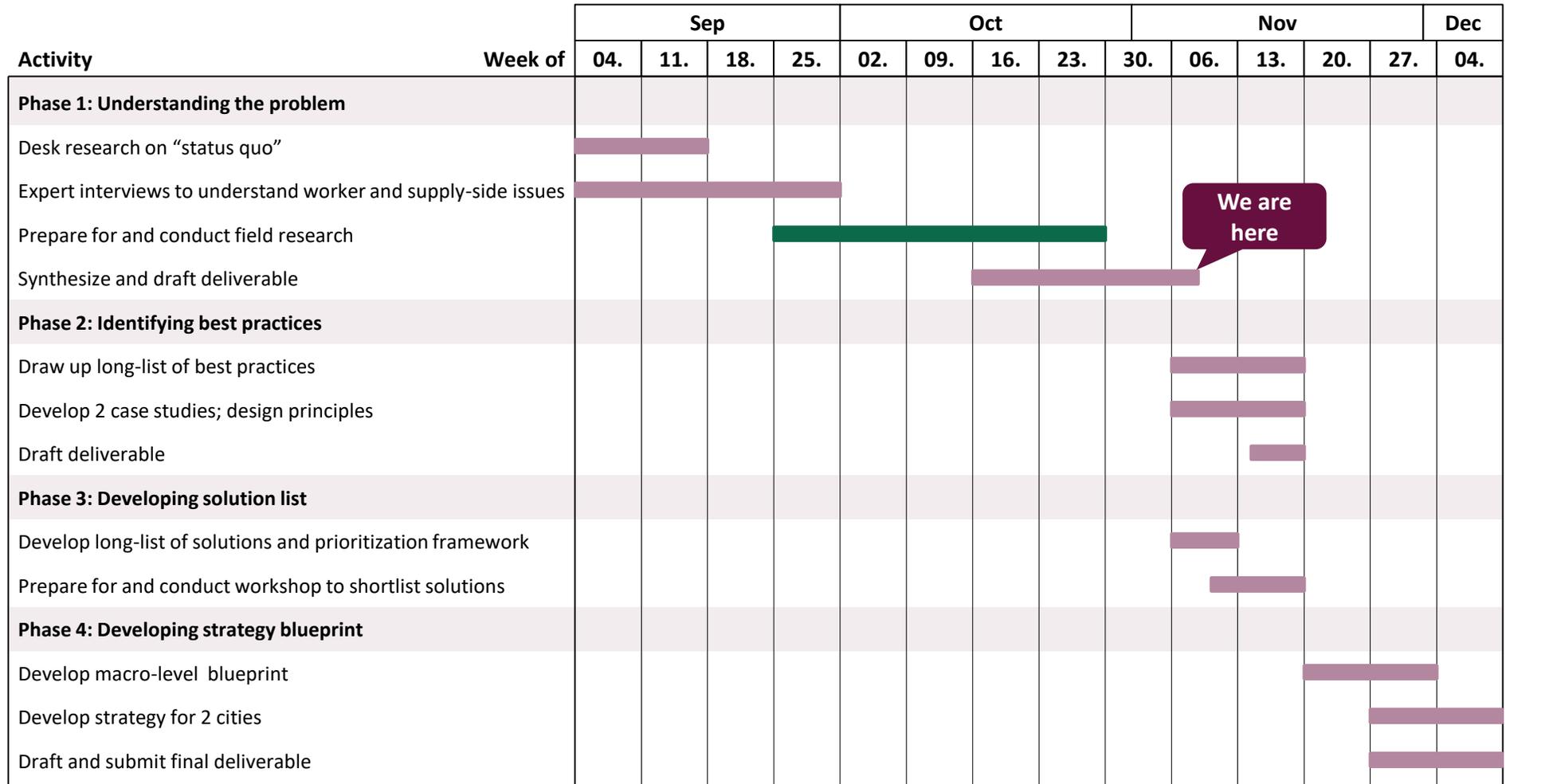
Fact base on unsafe sanitation	National strategy	City-level blueprint
<p>Deeply understand the state of unsafe sanitation work, incl.:</p> <ul style="list-style-type: none">- Typologies of work and personas of workers; scale of problem- Challenges faced on the worker and supply-side and underlying issues- Policy framework- Ecosystem map- Interventions tried and success/ failure factors	<p>Develop national strategy, including:</p> <ul style="list-style-type: none">- Vision and goals- Program mix and roadmap- Institutional structure- Partnerships	<p>Develop city-level blueprint for 1-2 cities of BMGF interest, incl.:</p> <ul style="list-style-type: none">- Specific interventions- Directory of potential implementation partners- Roadmap and implementation timelines

We have structured this project in four phases and are at the end of Phase 1 (understanding the problem)



We are here

Where we are on the project



Check-ins

Kick-off

Update meeting

Multi-stakeholder workshop

Client presentation

Field work

In the diagnosis phase, our research has focused on four key sets of questions

1

What is the sanitation worker ecosystem?

- What are the typologies of sanitation work? What is the scale of the problem?
- Who are the key stakeholders in the worker ecosystem? What are their roles and connections?
- What is the regulatory and policy framework? What is the governance structure?

2

What are the challenges they face?

- What are the challenges in executing the work?
- What are the implications of the work on the financial, social and health status of workers?
- What are the aspirations of workers and challenges faced in exiting?

3

What are the underlying demand- and supply-side drivers?

- What are the underlying insights, from both a worker and supply-side/ institutional perspective?
 - Behavioural
 - Social
 - Infra/ tech
 - Governance

4

What should be the focus areas?

- Which areas should be prioritized for addressing, basis:
 - Criticality
 - Solvability
 - Additionality

We have employed multiple research methods to uncover insights



Desk research

Overview

Review of government policies & initiatives, worker conditions (media and academic reports)

Points of inquiry

- Understanding the sanitation system (offsite V/s onsite) and plans for expansion
- Current and proposed initiatives w.r.t. sanitation work
- Existing understanding of sanitation workers
- Identification of key stakeholders



Expert interviews

Interactions with government officials at the national and ULB level, IIHS, ASCI, NGOs

- Scale of problem / extent of unsafe sanitation work
- Key underlying drivers of the issue
- Interventions done by govt/ others to alleviate the situation – and their impact/ efficacy
- Potential solutions



Field research

Interactions with 53 sanitation workers. Multiple methods were used with workers – shadowing, observation at work-sites, in-depth interviews, group discussions

- Profile/ background; how they entered the job
- Challenges faced on-the-job and in exiting the profession
- Key financial, health, and social challenges
- Aspirations and goals

We interviewed 41 stakeholders including CSOs, government officials, and experts (1/3)

#	Name	Position	Organization
<i>Government</i>			
1	Krishna Kumar Bhagat	Manager (Projects)	NSKFDC
2	R.K. Gupta	DY. Manager (Projects)	NSKFDC
3	Yasmin Sultana	Assistant Director	NCSK
4,5	Spoke on condition of anonymity	Zonal Engineer (2)	DJB
6		Junior Engineer	DJB
7		Contractor	For DJB
8	Amit Garg	Executive Director	Indian Railways
<i>CSOs/Academics</i>			
9	Bezwada Wilson	Founder	SKA
10	Ashif Shaikh	Founder	Jan Sahas
11	Anurag Anthony	CTO	UMC
12	S. Anand	Journalist	Ex Tehelka
13	Sukhdeo Thorat	Professor	Indian Institute for Dalit Studies; JNU
14	Arkaja Singh	Fellow	CPR
<i>Manufacturers</i>			
15	Arati Krishna	Head, Sales and Marketing	Kam-Avida

We interviewed 41 stakeholders including CSOs, government officials, and experts (2/3)

#	Name	Position	Organization
<i>Warangal- Govt.</i>			
16	Shruti Ojha	Municipal Commissioner	GWMC
17	Amrapali Kata	District Collector	GWMC
18	Bommana Rajareddy	Medical Health Officer	GWMC
19	Shankar	Deputy Director	Telangana Scheduled Castes Co-Operative Development Corporation
20	Krishnamacharya	Program officer	Schedule Caste Development Department (Urban)
21	D. Suresh	Deputy Director	Schedule Caste Development Department (Rural)
22		Program Manager	MEPMA
<i>Warangal- CSO</i>			
23	V. Srinivas Chary	Director	ASCI
24	Y. Malini Reddy	Associate Professor	ASCI
25	Rajmohan Reddy	Team Leader	ASCI

We interviewed 41 stakeholders including CSOs, government officials, and experts (3/3)

#	Name	Position	Organization
<i>Trichy- Govt.</i>			
26	Ravichandran	Municipal Commissioner	TCC
27	Dr. Chithra	Chief Health Officer	TCC
28	Amuda	Chief Engineer	TCC
29	Thalaiviruchan	Sanitary Officer	TCC
30	Ravindran	Assistant Executive Engineer	TCC
31	Guru	Health section clerk	TCC
32	Ravi	Vehicle In-charge, Engineering section	TCC
33	Loganathan	AEE Mechanical	TCC
34		Junior Engineer	TCC
35	Raj Laxmi	District Manager	Trichy branch, TADHCO
36	Vijay Kumar	Assistant Manager	Trichy branch, TADHCO
<i>Trichy- CSO</i>			
37	V. Ganapathy	Journalist/Activist	Ex Hindu
38	S.Damodaran	Founder	Gramalaya
39	Kavita Wankhade	Senior Lead – Practice	IIHS
40	Rajesh Ramamoorthy	Specialist – TNUSSP	IIHS
41	Srinithi Sudhakar Moopnar	Specialist – TNUSSP	IIHS

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Project context

Sanitation worker ecosystem

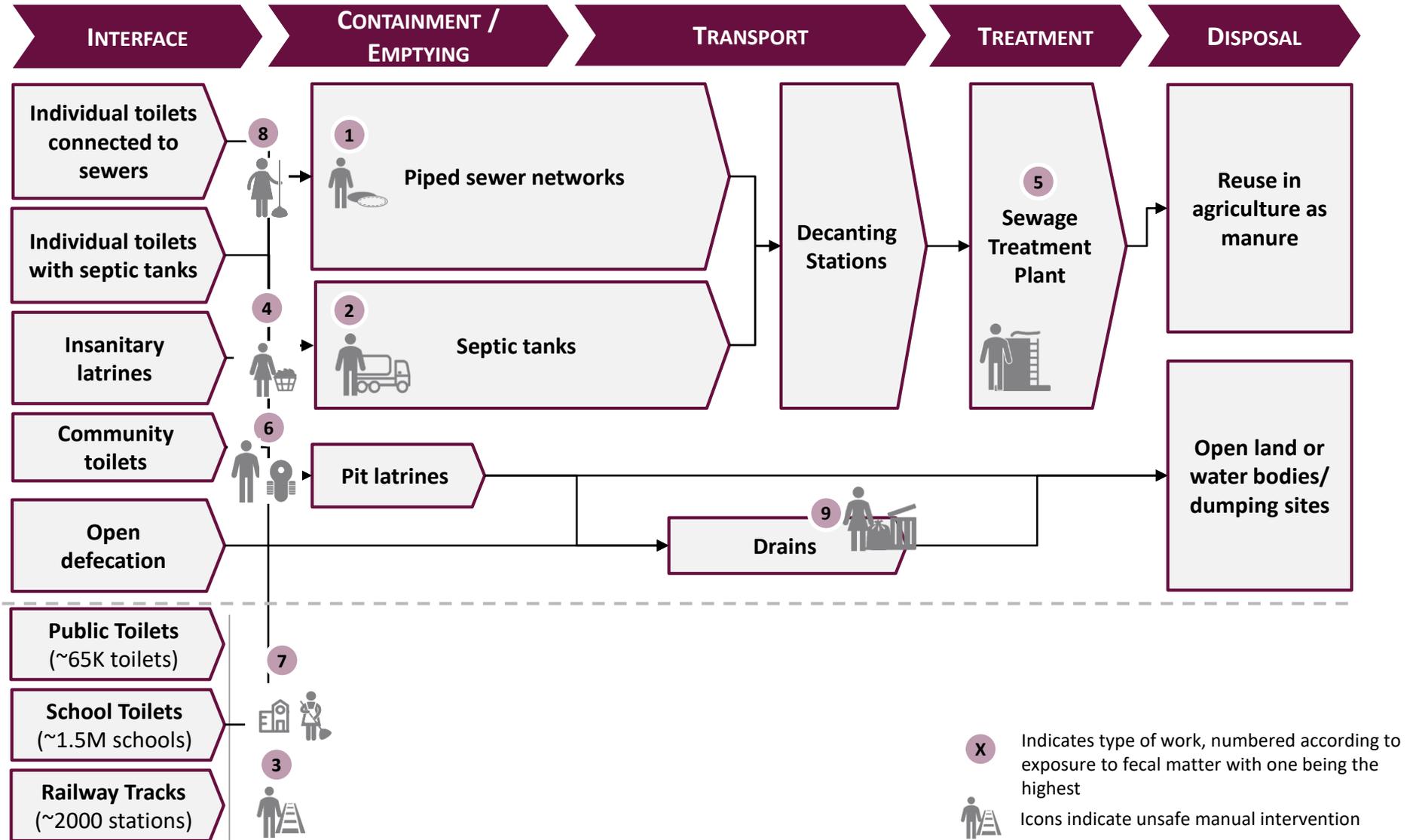
Worker profiles, challenges and personas

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Sanitation workers are broadly understood to be a single amorphous category, but there exist nine types of work across the value chain



Note: Icons indicate unsafe manual intervention; Interface use: insanitary latrines include without slab, night soil serviced by human/animal; open defecation figures include night soil disposed into open drain; latrines with slabs/improved pits and flush latrines connected to other systems excluded from percentage break-up Dalberg 13

Source: Data on interfaces is from Census 2011 estimates, Dalberg analysis

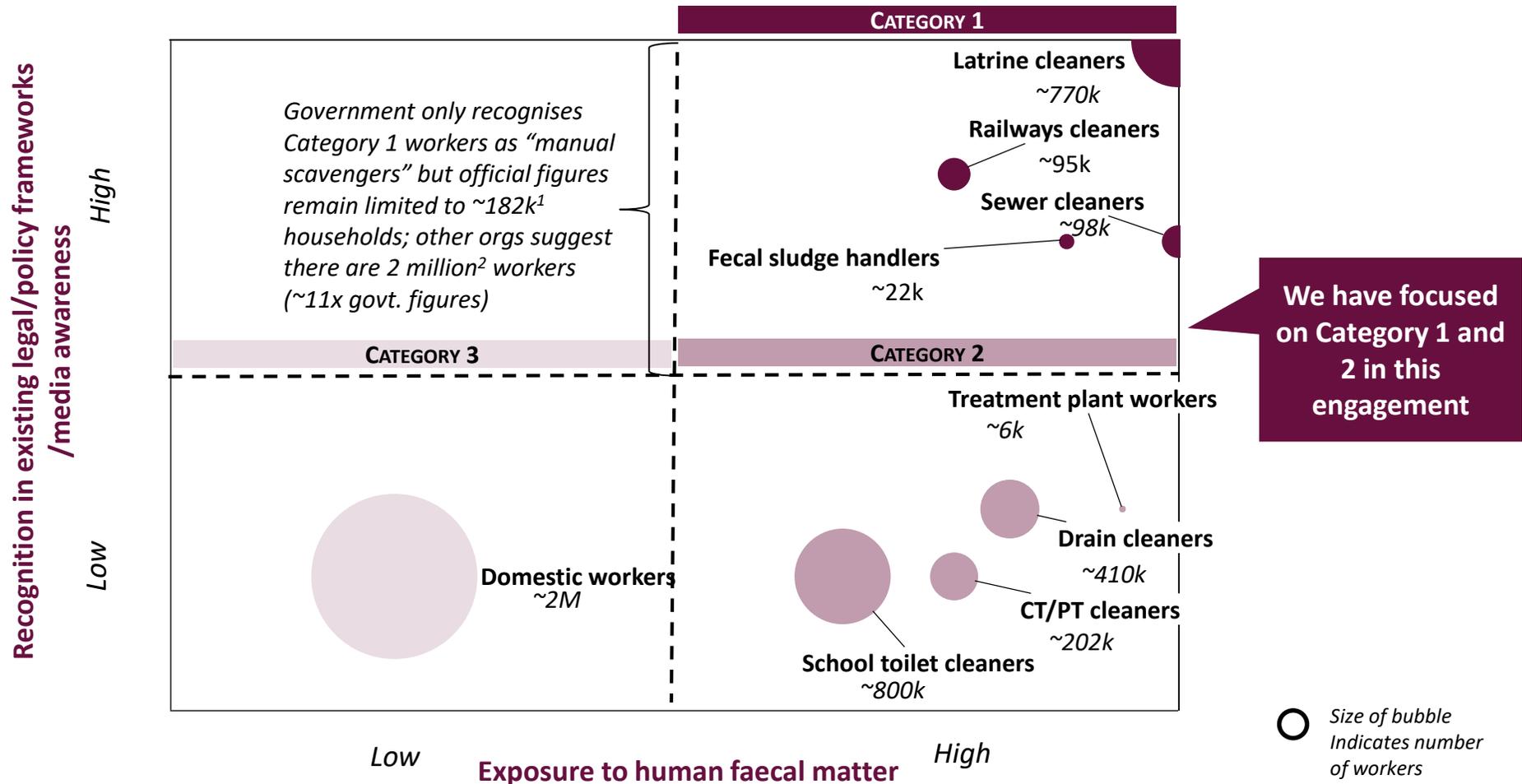
Most hazardous sanitation work, sewer cleaning and faecal sludge handling, is concentrated in urban areas

Type of work	Description	Location
<p>1</p> <p>Sewer cleaning</p> 	<ul style="list-style-type: none">• Unblocking and cleaning sewer and wastewater drains• Complaint-based, seasonal (rainy season) and occasionally for preventive maintenance	<ul style="list-style-type: none">• Urban areas
<p>2</p> <p>Faecal sludge handling</p> 	<ul style="list-style-type: none">• Emptying, collection and transport of human waste from septic tanks• On-demand; de-sludging frequency varies greatly ranging from 6 months – 10-15 years	<ul style="list-style-type: none">• Primarily urban, mostly unplanned localities
<p>3</p> <p>Railway cleaning</p> 	<ul style="list-style-type: none">• Cleaning faecal matter from railway tracks and platforms; several times a day• Cleaning faecal matter from railway toilets and platform toilets	<ul style="list-style-type: none">• Rail network and railway stations
<p>4</p> <p>Latrine cleaning</p> 	<ul style="list-style-type: none">• Emptying of dry/single-pit latrines primarily in rural areas; daily collection and transport/emptying of faecal matter	<ul style="list-style-type: none">• Primarily rural

Treatment plant and drain cleaning, prevalent in urban areas, is comparatively more hazardous than various types of toilet cleaning

Type of work	Description	Location
<p>5</p> <p>Treatment Plant work</p> 	<ul style="list-style-type: none"> Maintaining and operating sewage and faecal sludge treatment plants on a daily basis 	<ul style="list-style-type: none"> Urban, across the ~527 STPs/FSTPs in India
<p>6</p> <p>Community/Public Toilet keeping</p> 	<ul style="list-style-type: none"> Maintaining public/community toilets (often insanitary) on a daily basis 	<ul style="list-style-type: none"> Rural and urban CTC²s, mostly in slums; public convenience shelters
<p>7</p> <p>School toilet cleaning</p> 	<ul style="list-style-type: none"> Operating and maintaining school toilets on a daily basis 	<ul style="list-style-type: none"> Schools-rural and urban
<p>8</p> <p>Sweeping/Drain cleaning</p> 	<ul style="list-style-type: none"> Cleaning open drains and road sweeping, often encountering fecal matter due to open defecation and insanitary latrines connected to drains 	<ul style="list-style-type: none"> Urban- drains alongside roads
<p>9</p> <p>Domestic Work</p> 	<ul style="list-style-type: none"> Cleaning toilets in middle-high income households/institutions, encountering insanitary conditions at times 	<ul style="list-style-type: none"> Urban areas

We estimate that there are ~5 mn full-time equivalents of sanitation workers nationally; they vary by degrees to risk exposure and policy recognition



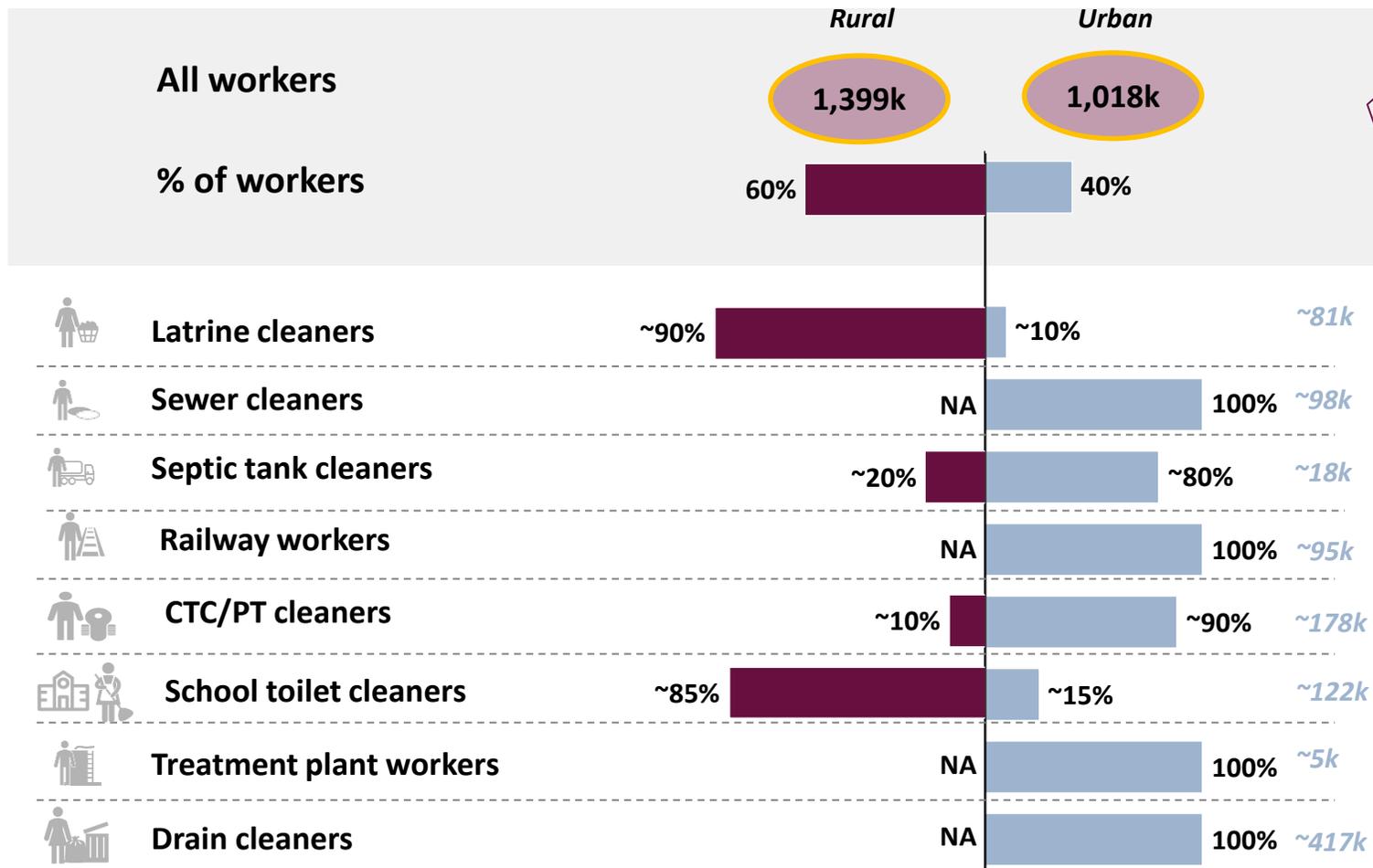
There is a need to identify and estimate the number of workers involved in unsafe sanitation work via an independent and verifiable third-party assessment

(1): SECC survey, 2011; (2): Ashif Shaikh, Jan Sahaas; Source: Dalberg analysis

~1 mn (~40%) sanitation workers are in urban areas, with drain and CT/PT cleaning accounting for 60% of the total

Number of sanitation workers (2017)

% of individuals



Number of urban sanitation workers is lesser than rural workers, but urban workers carry out the most risky jobs such as sewer cleaning and septic tank cleaning

We have focused on urban sanitation workers in Category 1 and 2

~50% of urban sanitation workers are women, working primarily as school toilet and drain cleaners

Number of sanitation workers (2017)

% of individuals

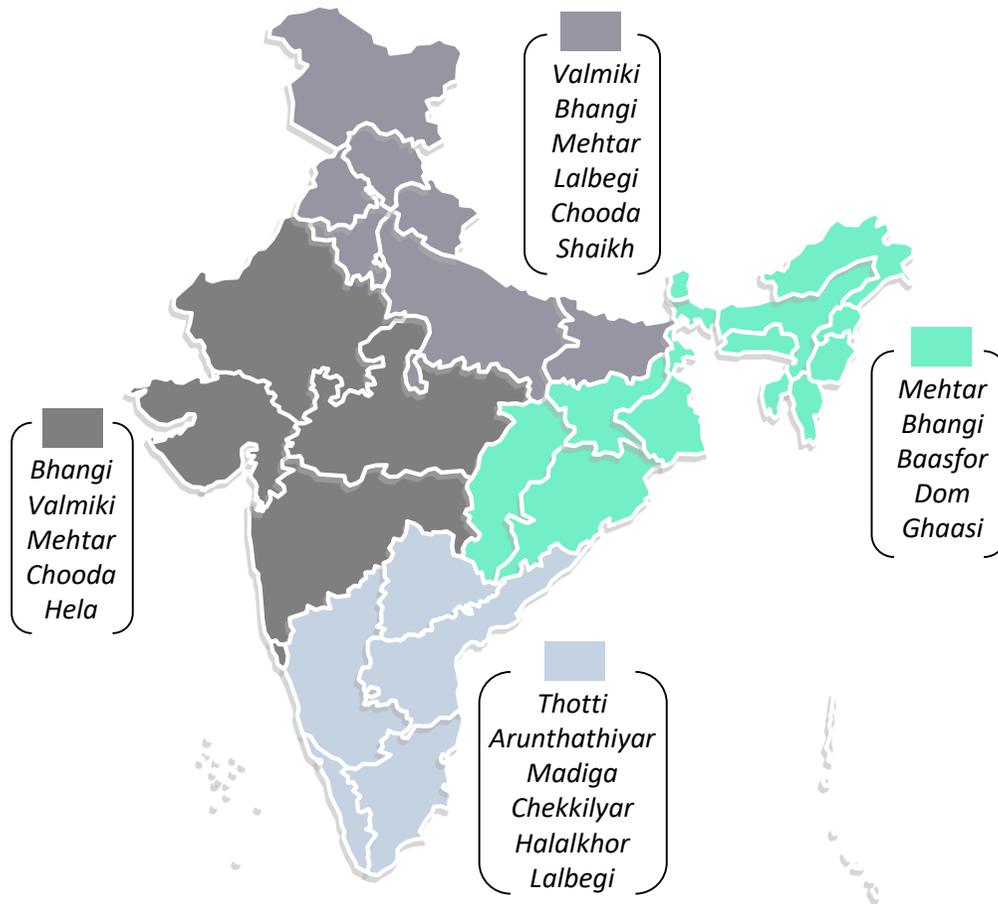


Women sanitation workers are found in jobs that bear low fatality risk/less hazardous, but often their husbands are involved in more risky jobs such as sewer cleaning

Women prefer working as school toilet cleaners due to an "emotional attachment" with children and assured monthly income

Almost all sanitation workers belong to the lowest Dalit sub-caste communities

Regional Dalit sub-castes tied to manual scavenging/sanitation work



28.6 mn people¹ currently in these lowest sub-castes within Dalits (i.e., 5.5-6 mn households)

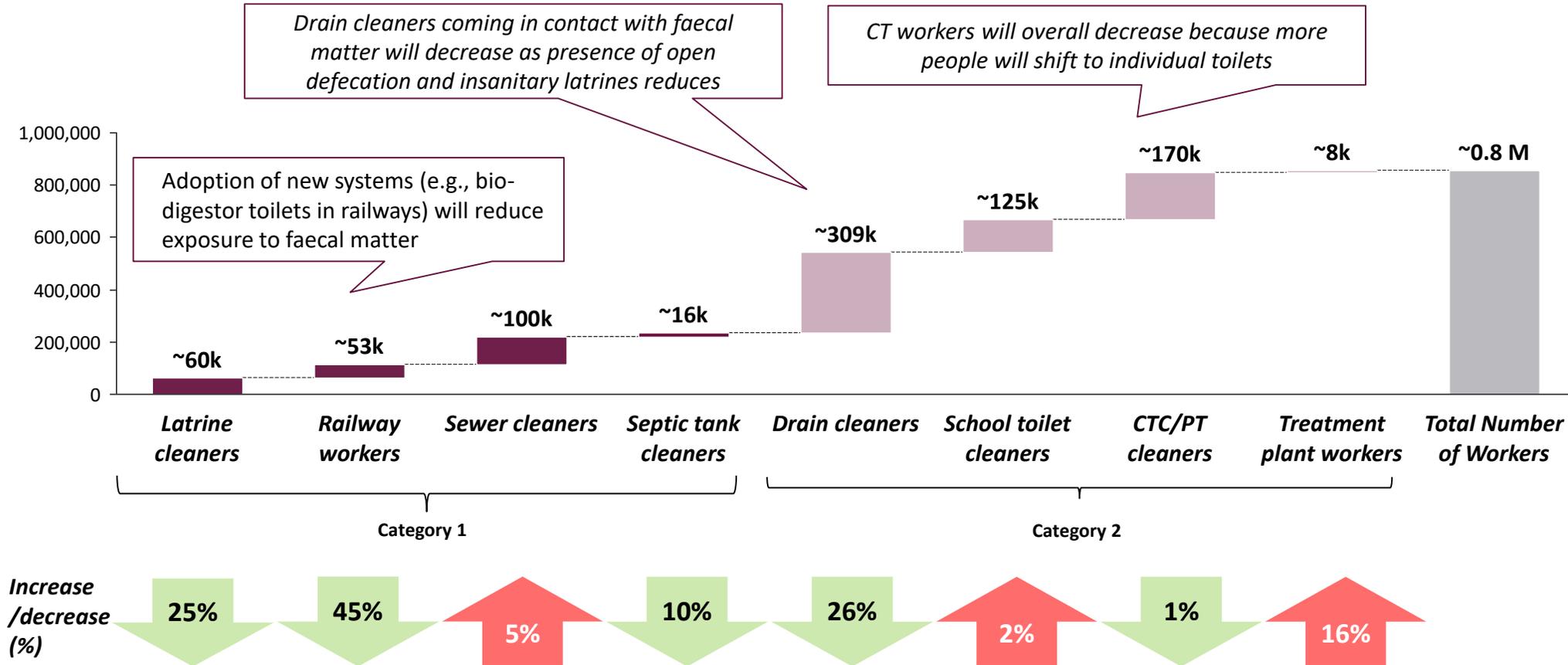
40-60% of these households are engaged in sanitation work², with the remainder predominantly in daily wage or agricultural labor

96% of the workers we spoke to are from these sub-castes³

Members of these lowest sub-caste groups occupy jobs across the sanitation value chain; there are no patterns of social mobility across job types

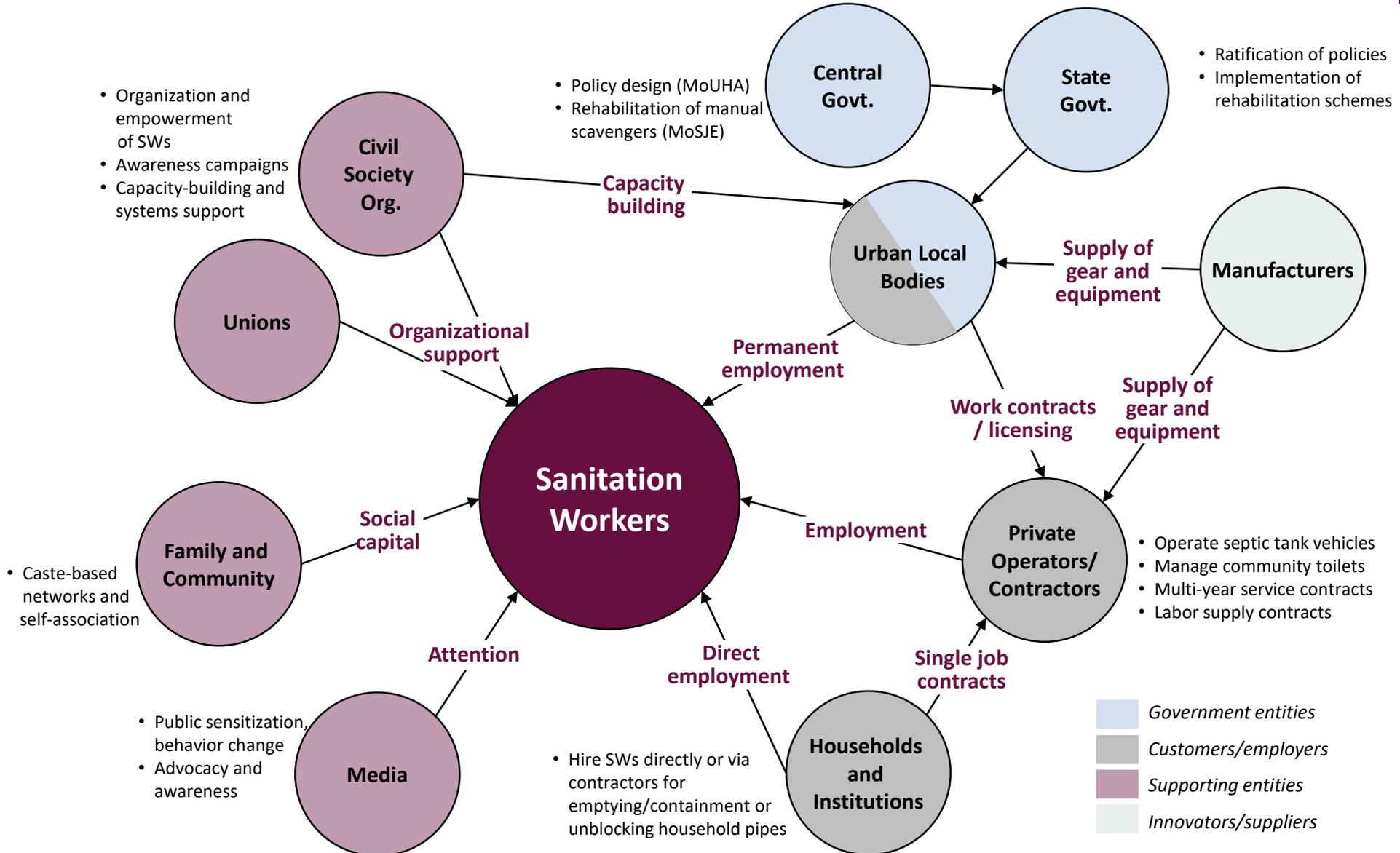
Going forward, the need for urban sanitation workers is expected to reduce to 0.8 mn, primarily driven by decrease in need for railway workers

Number of urban sanitation workers (2022)

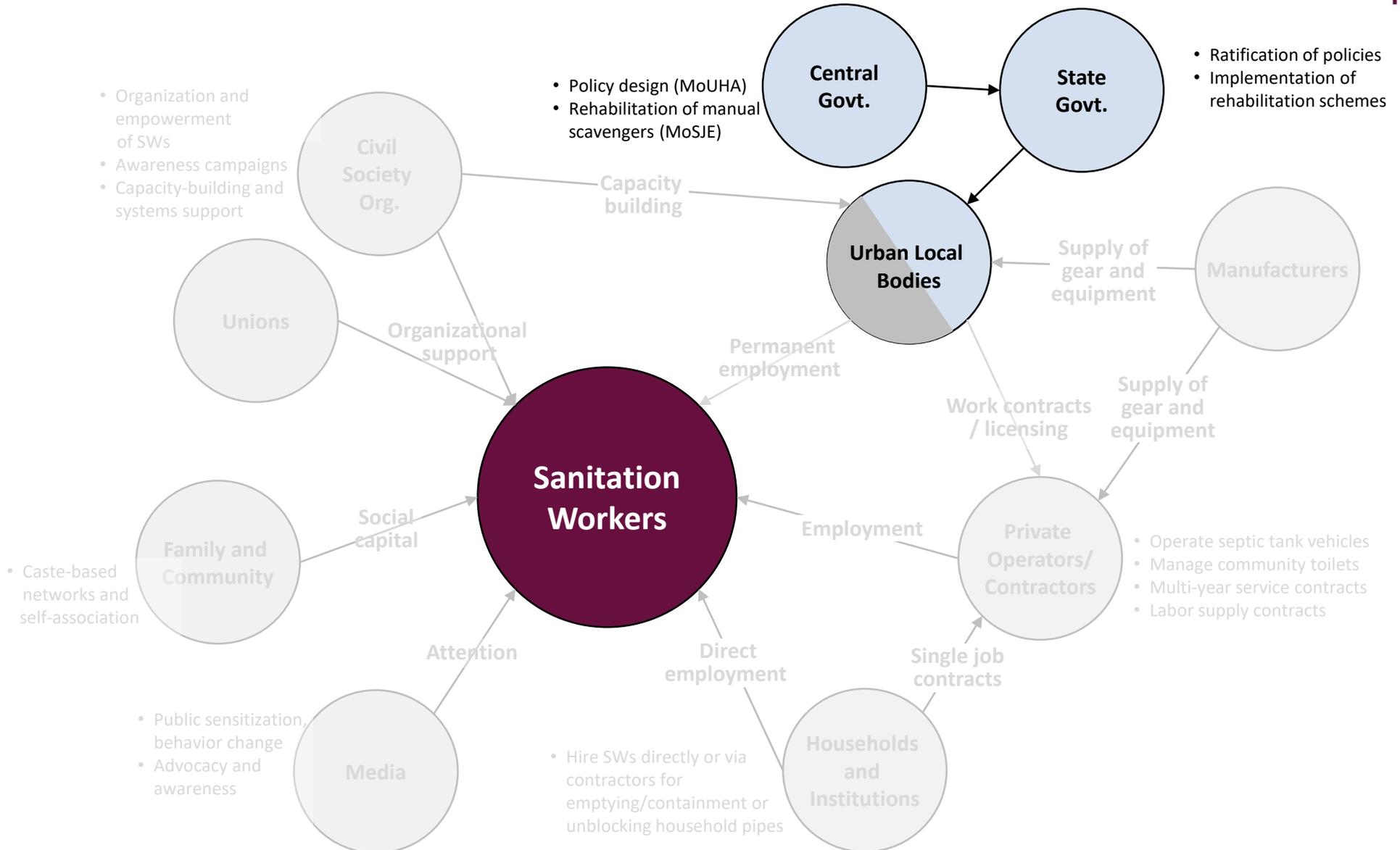


Note: Projections based on business as usual scenario without taking account mechanisation (except railways which has announced installation of bio-toilets)

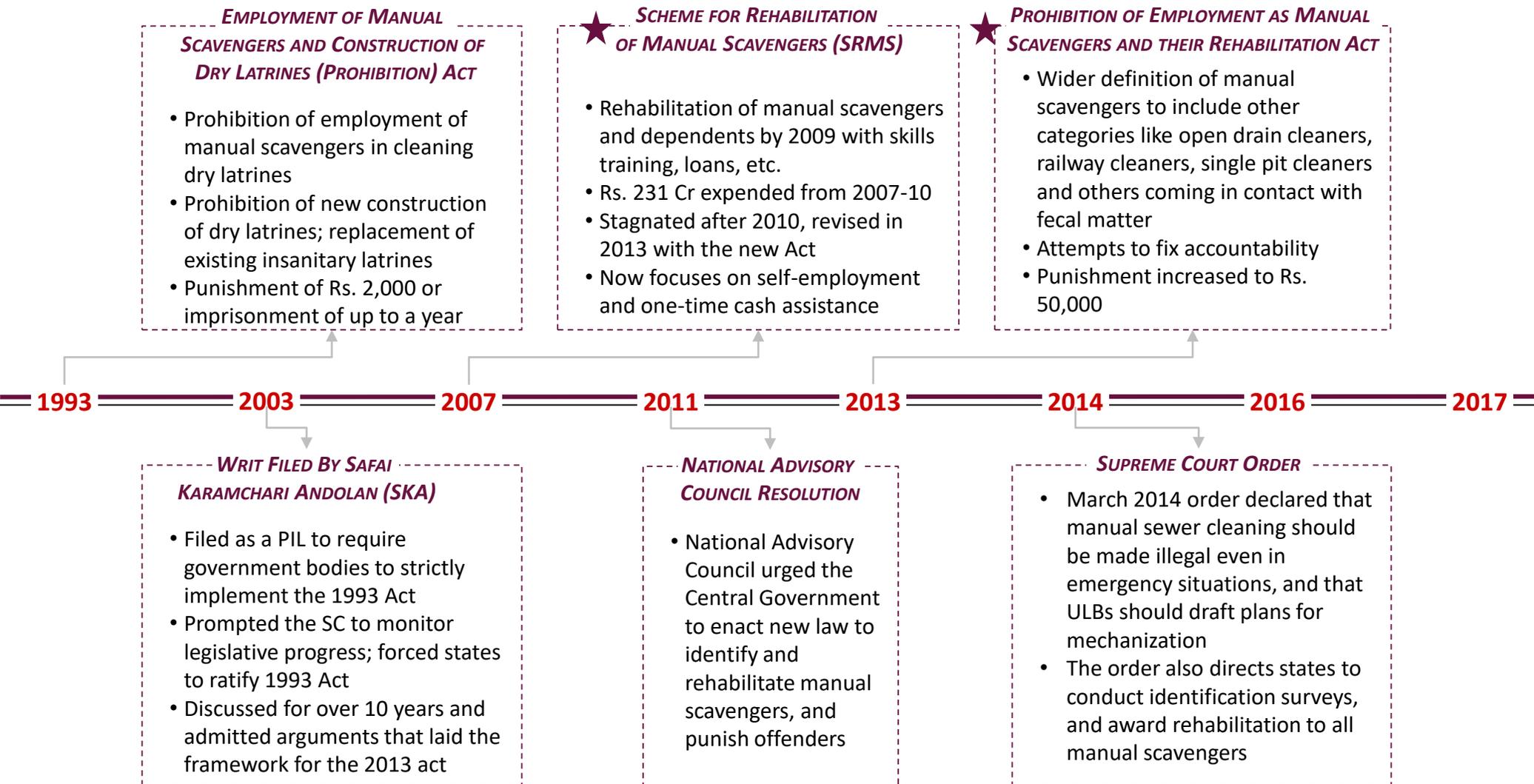
Sanitation workers engage with various stakeholders in the sanitation ecosystem; we have evaluated the role of each stakeholder



Policy, governance, funding – stakeholders involved

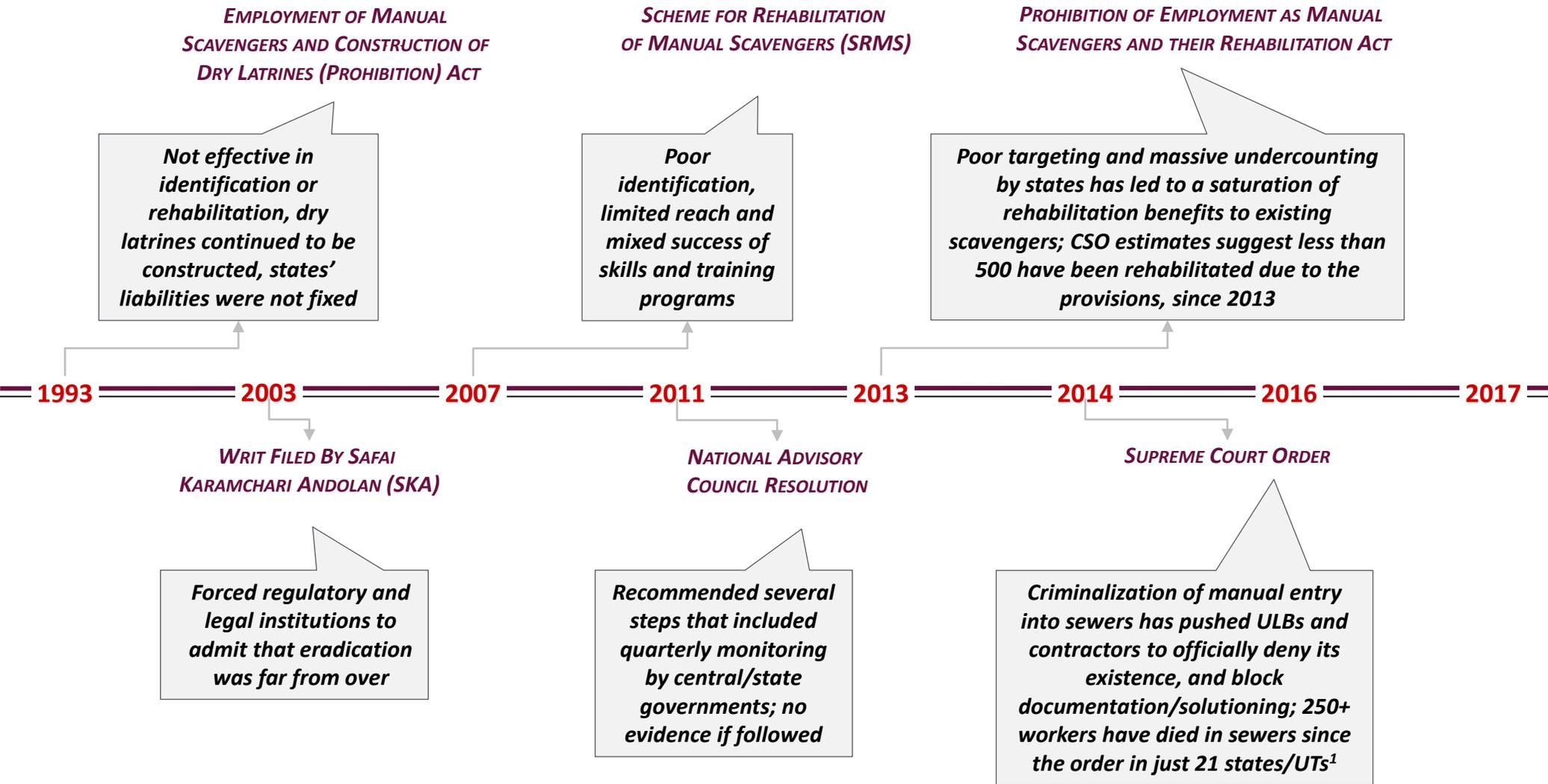


[Policy] Manual scavenging first prohibited in 1993, scope expanded in 2013; rehabilitation scheme for manual scavengers introduced in 2007



★ Key policies/schemes

[Policy] Unsafe sanitation work continues; there has been a lack of convictions and successful cases of rehabilitation



(1): Data from Safai Karamchhari Andolan, likely undercounted

[Policy] There are some other policies relevant to sanitation workers

Sanitation

Policy / scheme	Relevance for sanitation work	(Likely) impact on SWs
 <p>Swachh Bharat Mission (2014)</p>	<ul style="list-style-type: none">• SBM promotes solid and liquid waste management, community toilets in urban areas, household latrines in rural areas to end OD by 2019 and improve sanitation standards• Swachh Vidyalaya schemes sets benchmarks for toilet construction and cleaning in schools	 <ul style="list-style-type: none">• Focus on meeting toilet construction targets has led to an uptick in the number of insanitary dry latrines• Reports suggest that several sanitation departments have increased the employment of manual scavengers
 <p>New Municipal Solid Waste Rules (2016)</p>	<ul style="list-style-type: none">• Directs states towards organization and integration of waste collectors/municipal corporation employees and improve their safety standards	 <ul style="list-style-type: none">• Organization of workers within contractual systems to increase• Provision of basic gear to SWM workers will increase
 <p>Bio-toilets in trains (2017)</p>	<ul style="list-style-type: none">• 2017 Rail Budget includes funds for all coaches to have bio-toilets by 2019, thus eliminating the need for manual cleaning of tracks	 <ul style="list-style-type: none">• Have already fitted bio-toilets in 30,000 coaches• Targeting to finish the remaining 40,000 by 2019¹• Workers' exposure to fecal matter will reduce

(1): Expert interview with Executive Director, Ministry of Railways; Dalberg analysis

[Policy] There are some other policies relevant to sanitation workers

Rehabilitation

Policy / scheme	Features and relevance for SWs
 <p data-bbox="410 436 638 539">NSKFDC Schemes for Sanitation Workers</p>	<ul style="list-style-type: none">• 8 kinds of loan-based schemes for sanitation workers, up to Rs. 10-25 lakh<ul style="list-style-type: none">○ Annually give loans worth Rs. 150-170 Cr to 10k - 20k sanitation workers, average loan value Rs. 1.5 lakh○ Rely on ULBs and local govt. bodies for the certification of workers○ Loans are routed through RRBs, nationalized banks and state channelizing agencies (SCAs)• Training programs via Sector Skills Councils and govt.-affiliated institutions<ul style="list-style-type: none">○ 5k - 7k trainees annually
 <p data-bbox="426 765 623 829">SC schemes for rehabilitation</p>	<ul style="list-style-type: none">• Several central and state government schemes for the benefit of SCs, like:<ul style="list-style-type: none">○ Scholarships and hostels for students (high school and higher education)○ Low-interest loans for self-employment from National SC Corporation○ Skills-based training in various occupations (construction, apparel manufacturing, electronics, etc.)
 <p data-bbox="385 979 665 1082">The SC and ST (Prevention of Atrocities) Act (1989)</p>	<ul style="list-style-type: none">• Provides legal provisions protecting against caste-based discrimination and employment in activities that engender the practice of untouchability• SWs who are members of scheduled castes can register cases of discrimination and atrocities with National Commission for Scheduled Castes
 <p data-bbox="399 1182 648 1289">National Urban Livelihood Mission (2013)</p>	<ul style="list-style-type: none">• Focus on urban skilling and employment programs that pertain towards people with unreliable sources of income• Provides financial assistance to individuals/groups for self employment ventures• Relevant for SWs and their children to seek alternate employment

[Policy] Safety norms have been prescribed at the national level for the riskiest types of work



Sewer Cleaners



Septic Tank Cleaners



Treatment Plant Workers



Railway Cleaners

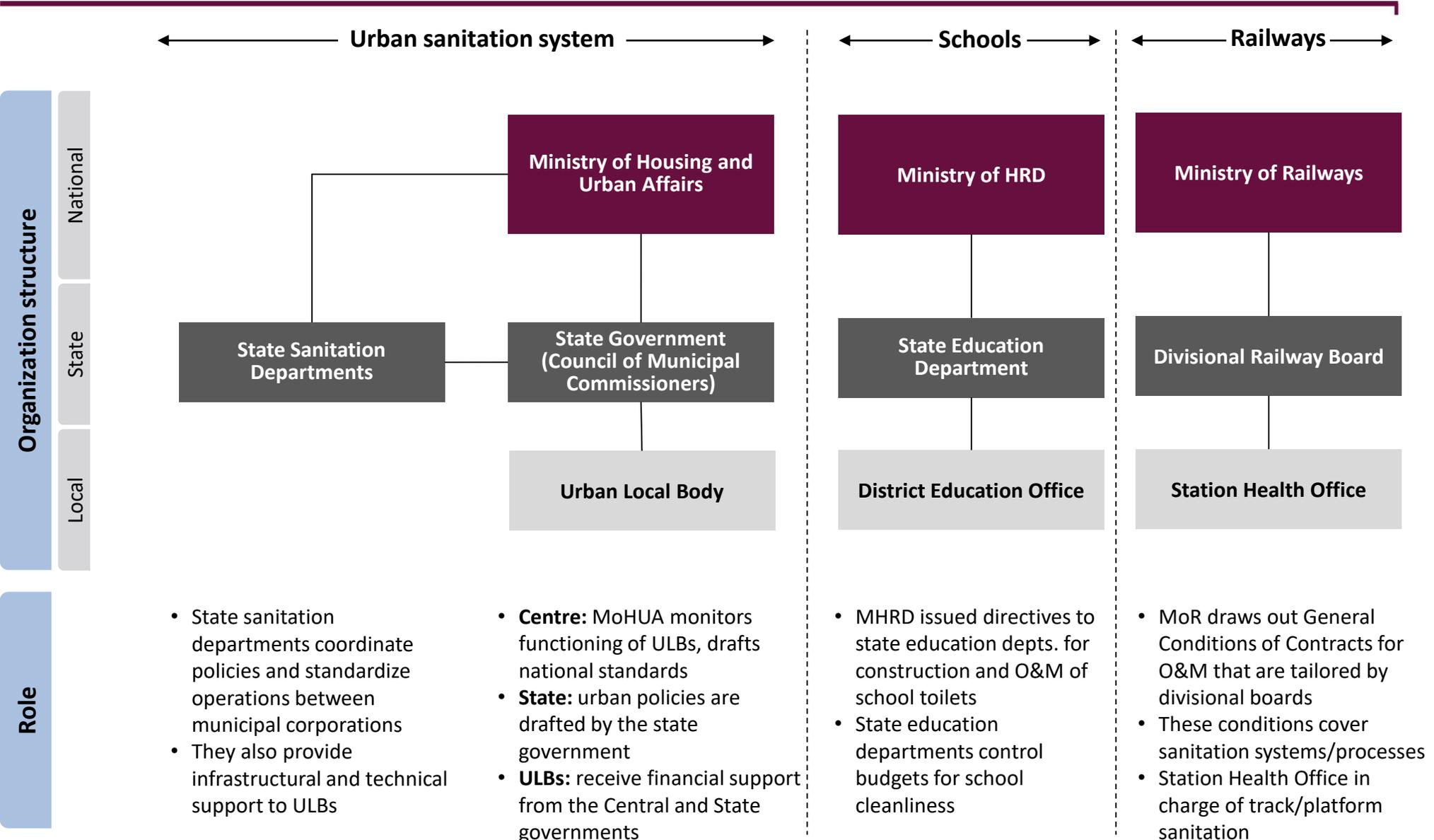


Road Sweepers/
Drain Cleaners

- **The Manual Scavenging Act 2013 specifies:**
 - **Conditions under which manual intervention is allowed:** damaged manholes, emergency, machine's inability to carry out task etc.
 - **Safety gear** to be provided to workers in these cases: 44 types, incl. air purifier gas masks and nylon safety belts
 - **Cleaning equipment** to be provided by ULBs: 14 including suction, jetting, etc.
 - Following the Act, states ratified it and released operative guidelines for private desludging operators, on:
 - **Specifications of tanks**
 - **Licensing of operators** if they meet mechanization requirements
 - **Provision of Personal Protective Equipment (PPE)**
 - For contractual operations (e.g. STPs), the **terms include provision of safety gear and tools**, in line with the MS Act
- Annual **General Conditions of Contract** drawn up by the Ministry of Railways mandate the use of **mechanized cleaning equipment**
 - Contractors also **mandated to provide gear** and ensure that they are used
 - Workers **entitled to periodical medical check-ups** and **treatment** when required
- **Solid Waste Management Guidelines 2016** by the Ministry of Environment and Forestry **require ULBs to ensure that SWM workers are provided with safety gear** (jacket, gloves, boots, etc.) by contractors, and that workers are using them

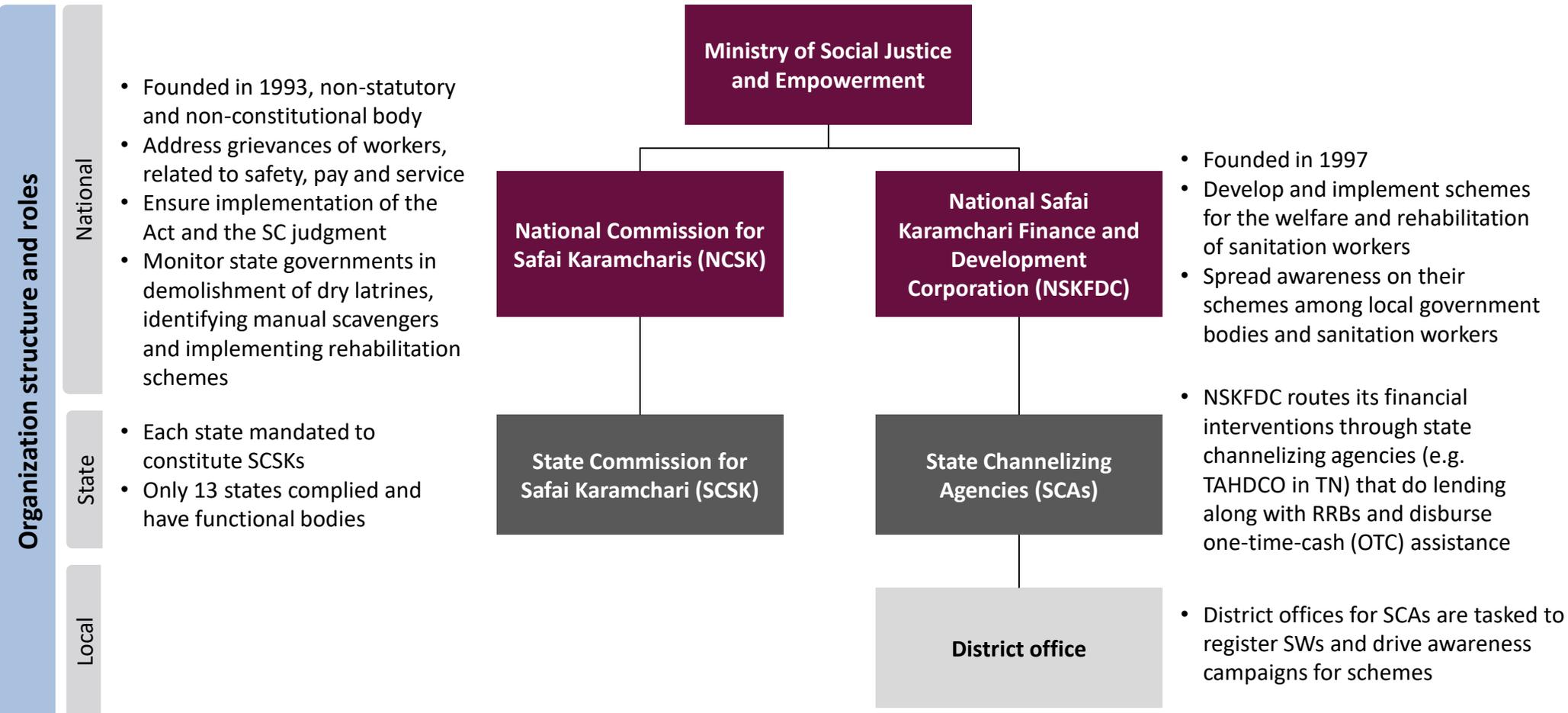
- **No national guidelines for community and public toilet cleaning (devised at ULB level)**
- **No mention of cleaning processes for school toilets in the Swachh Vidyalaya scheme**

[Governance] Various ministries are responsible for sanitation within their respective systems, and they operate in silos

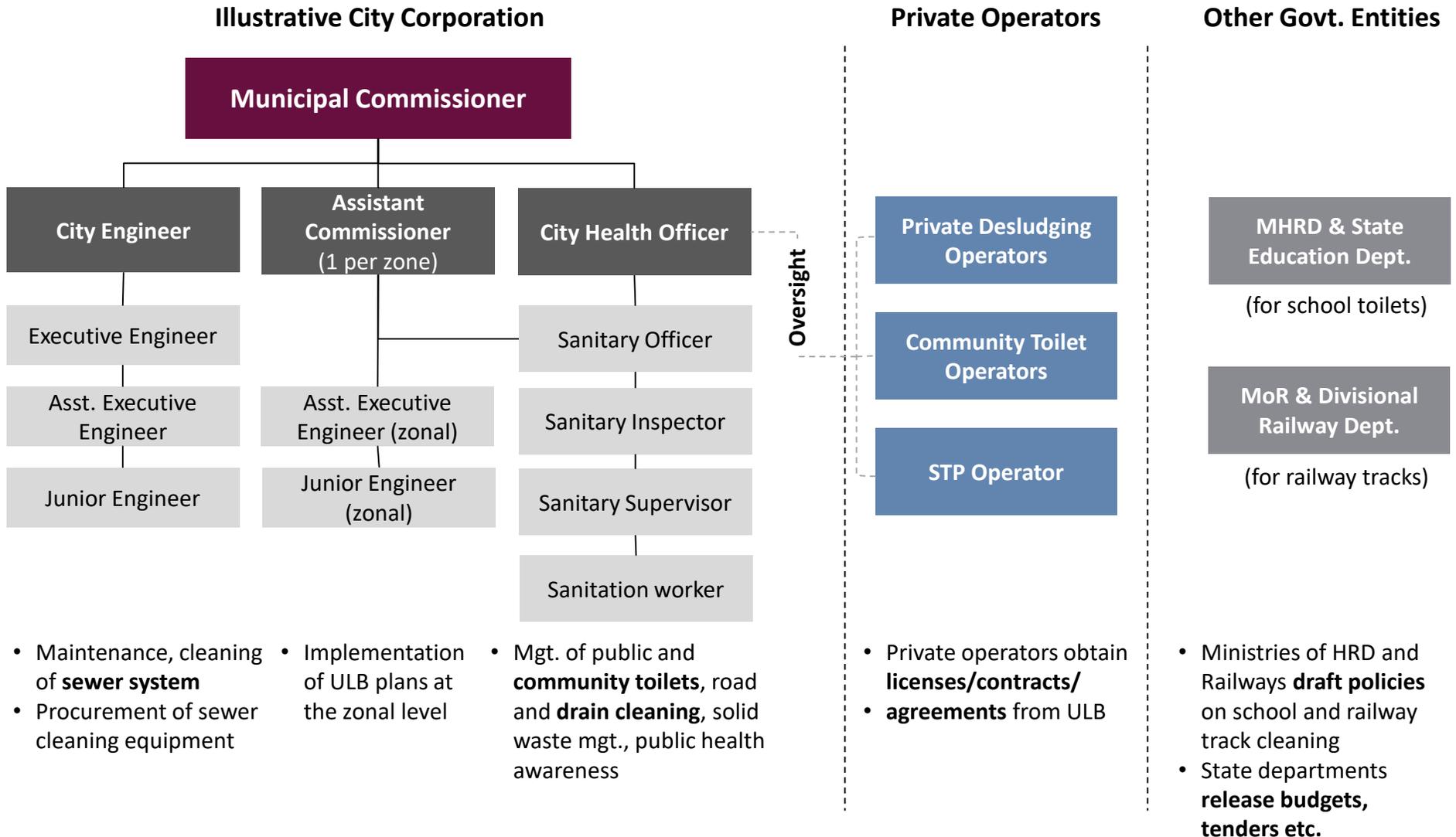


[Governance] The Ministry of Social Justice and Empowerment is tasked with the welfare and rehabilitation of sanitation workers

Welfare and rehabilitation support to sanitation workers



[Governance] Within ULBs, the Public Health and Engineering departments are responsible for sanitation work and infra respectively



[Funding] Funding sources for sanitation – while the Centre and State support spend major sanitation infra, ULBs incur bulk of the operating expenses

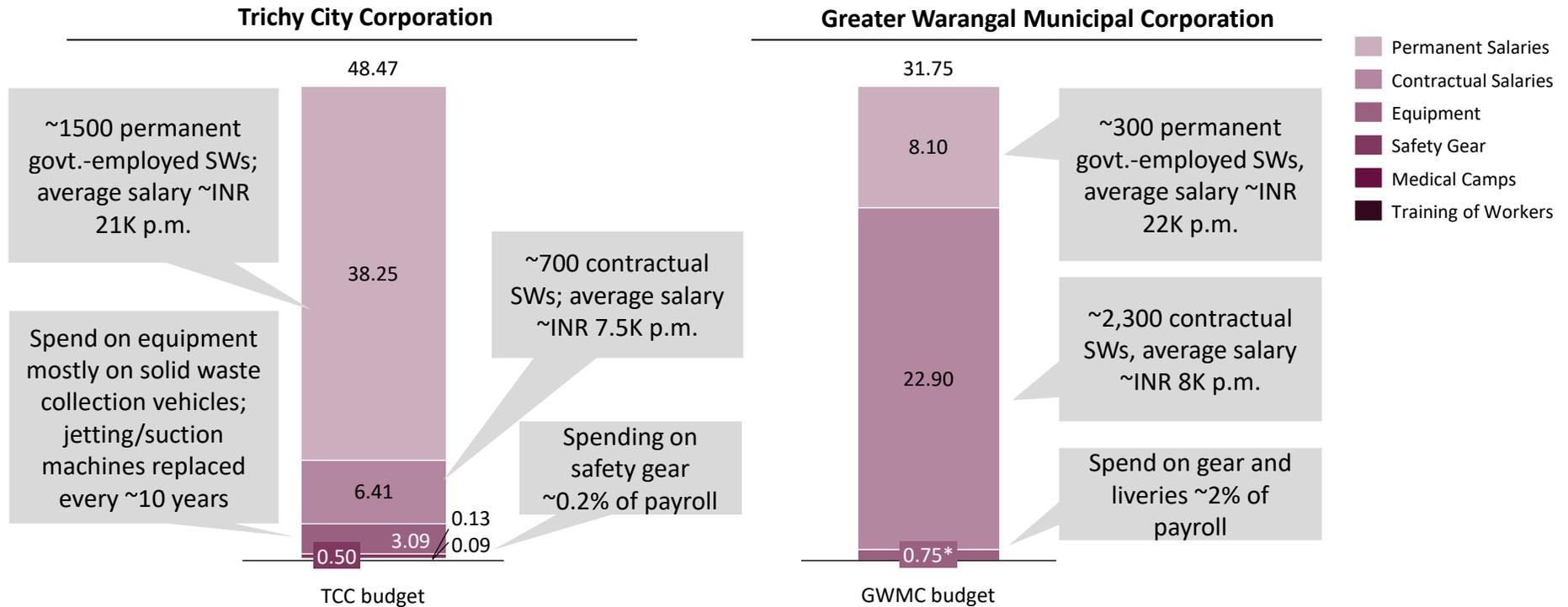
		Sewer Work	Drain Cleaning	Septic Tank Desludging	STP Work	PT/CT Cleaning	Railway Cleaning	School Toilet Cleaning
Expenses								
Capex	Sanitation Infra	Centre (via AMRUT, JNNURM, etc.); State; ULB		Households/ Institutions	Centre; State; ULB	ULB for PTs/ govt.-managed CTs; Private Operator for PPP	Centre + Railways divisions	Centre (Swachh Vidyalaya, etc.) + State
	Cleaning equipment	ULB; Contractor					Ministry; Private service contractor	
Opex	Worker salaries	ULB; Labor suppliers; Contractors		Private Operators	Private Contractor	ULB; Private Operator	Private service contractor	State (state government schools); ULBs (for corporation schools)
	Safety Gear							
	Training	Primarily ULB; Private Contractors in some cases						
	Medical							
Income of Private Operators		ULB channels salaries through labour supplier and pays contractor on a per-job basis		Households/ institutions pay 1,000 – 2,000 per job	ULB pays the contractor as per terms	Users pay Rs. 1-5 per use	Railways pays contractor as per terms	N/A

Legend: Central and State Governments Private Operators/ Contractors Households and Institutions Multiple Entities

[Funding] ULBs spending large majority of their sanitation budgets on worker salaries; low spends on mechanization, worker safety, training, and health

Illustrated for Trichy and Warangal

ULB budgets relevant to Sanitation Workers (2016-17), INR Cr



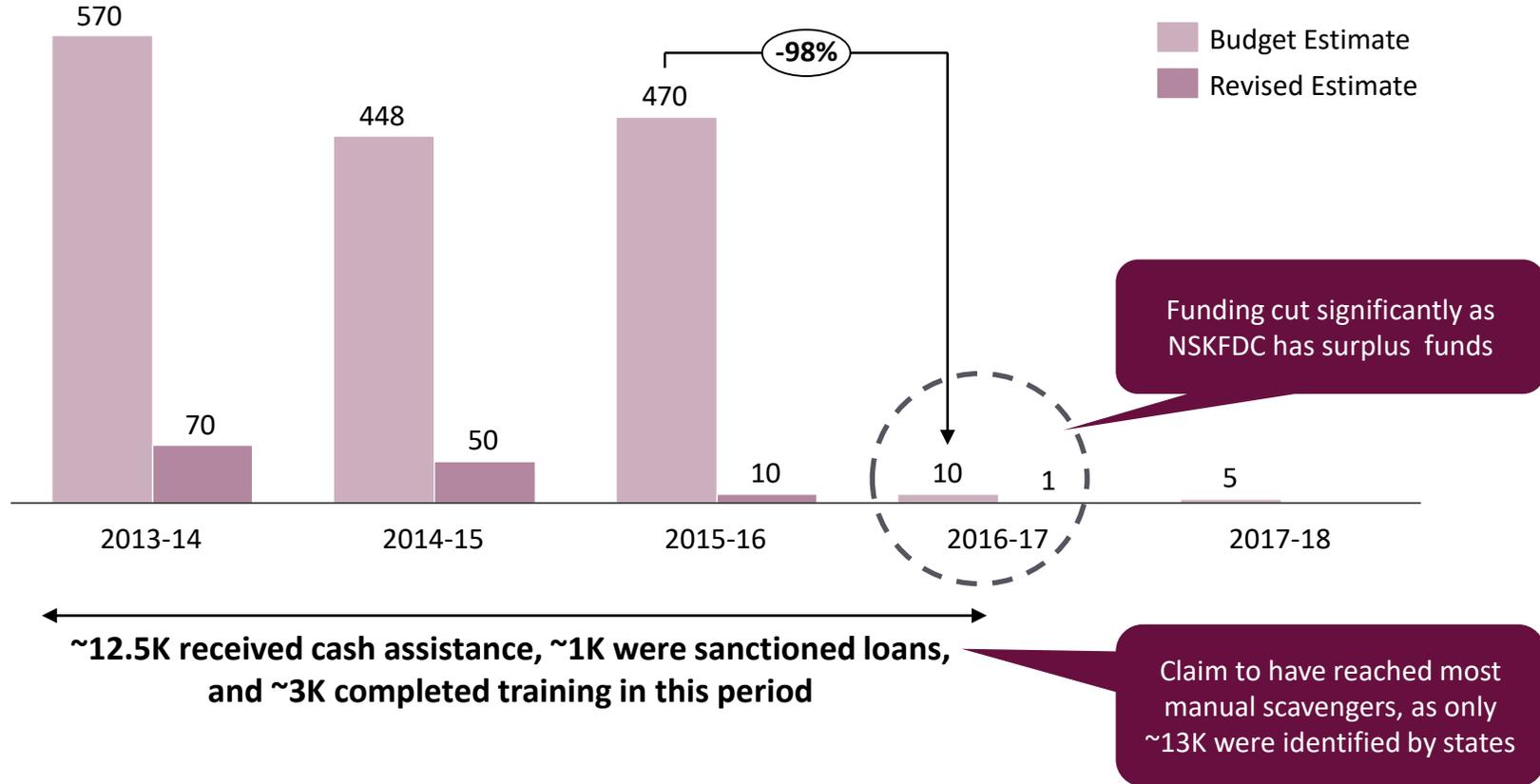
Sanitation infra: TCC has been allotted INR 344 Cr under AMRUT for Phase-II of its UGD extension, to be completed by 2019

Sanitation infra: As per Warangal's smart city plan (SCP), INR 126 Cr is required to reach 100% UGD coverage by mid-2019

*: GWMC equipment/gear budget doesn't give further demarcation on spending categories. Source: TCC Budget 2016-17, GWMC Budget 2016-17, Field Research Interviews with government officials, Dalberg analysis

[Funding] Budgets for rehabilitation of manual scavengers slashed in 2016-17 as they claim to have rehabilitated bulk of scavengers identified by states

Budgets for Scheme for Rehabilitation of Manual Scavengers (2013-18), INR Cr



Employment – stakeholders involved



[Employment] There are six models of employment, with the government playing roles of varying importance in different types of sanitation work

		←—————●—————●—————●—————●—————●—————→				
		Government	Labor Suppliers	PPP/Service Contracts	Private Operators	Households
Type of work	Employer	Managed completely by the government, with no outsourcing	Contractors only for labor supply; employ SWs via informal contracts	Multi-year service contracts	Operations run directly by private operators for profit; informal agreements with SWs	Households employ workers directly for short-term needs
	Sewer Work		Drain Cleaning	Railway Cleaning*	Septic Tank Desludging**	Septic Tank Desludging
	Govt. School Toilet Cleaning		Sewer Work	Treatment Plant Work*		Latrine Cleaning
		Govt. managed CT/PT Cleaning		Community/Public Toilet Cleaning		
Stakeholder roles	Government	<ul style="list-style-type: none"> Construct, manage and maintain the facilities 	<ul style="list-style-type: none"> Supervise labor Provide equipment, gear, benefits Monitor cleanliness and operations 	<ul style="list-style-type: none"> Provide land Contract out management/maintenance Monitor performance, adherence to terms 	<ul style="list-style-type: none"> Develop guidelines for operation License desludging operators Monitor operations 	<ul style="list-style-type: none"> Develop specification and monitor adherence (for septic tanks)
	Non-Govt.	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Payment channel to workers Source replacement workers when required 	<ul style="list-style-type: none"> Execute contracts Provide gear/cleaning agents Construct and maintain the facilities according to SLAs (in PPP model) 	<ul style="list-style-type: none"> Generate own business Hire workers Buy gear and equipment for workers 	<ul style="list-style-type: none"> Fulfil household demand

*: Contractor changes every 2-3 years, while workers remain the same (as per findings from Trichy and Warangal), **: some limited government-owned trucks for PTs (in Trichy)

[Employment] There are three kinds of contractors in the sanitation system; labor suppliers are individuals, service contractors are much larger

	Government	Labor Suppliers	PPP/Service Contracts	Private Operators	Households
Employer	Managed completely by the government, with no outsourcing	Contractors only for labor supply; employ SWs via informal contracts	Multi-year service contracts	Operations run directly by private operators for profit; informal agreements with SWs	Households employ workers directly for short-term needs
Type of work	Sewer Work Govt. School Toilet Cleaning Govt. managed CT/PT cleaning	Drain Cleaning Sewer Work	Railway Cleaning Treatment Plant Work Community/Public Toilet Cleaning	Septic Tank Desludging	Septic Tank Desludging Latrine Cleaning
Profile	<ul style="list-style-type: none"> Construct, manage and maintain the facilities 	<ul style="list-style-type: none"> Individuals with little or no links to the work Receive fixed salary or % of worker salaries (e.g. Warangal: 8K pm) 	<ul style="list-style-type: none"> Orgs with considerable experience in sanitation Min. turnover (Railways – 1 Cr; CTs – Rs. 5 lakh) 	<ul style="list-style-type: none"> Own 1-3 desludging trucks Charge Rs. 1,000 – 2,000 per operation Earn 20-30K p.m. (net income) 	<ul style="list-style-type: none"> Monitor adherence to specifications
Stakeholder Examples	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Railways – Eureka Forbes; SR; Munarewa CTs – Sulabh, Gramalaya, local NGOs STP – Thermal Physical, Trichy 	<ul style="list-style-type: none"> Individuals who see business opportunity in de-sludging 	<ul style="list-style-type: none"> Fulfil household demand

[Employment] Worker remuneration and benefits are primarily a function of who their employer is

Type of work	Risk to Health (Low – High)	Monthly Income (Rs.)		Benefits PF, ESI ¹ , etc.	Working days/month ²
		Contractual	Government		
 Sewer Cleaners		5 – 7.5k	10 – 30k		30
 Septic Tank Cleaners		4 – 8k	N/A		30
 Railway Track Cleaners		4 – 10k*	N/A		26
 CT/PT Cleaners		5 – 7k	10 – 30k		30
 Treatment Plant Workers		8 – 10k*	N/A		26
 School Toilet Cleaners		2.5 – 5k*	2.5 – 5k*		24
 Drain Cleaners		7 – 8k*	10 – 30k		26

Low correlation between riskiness and salaries, or other factors like age and experience; income systematically higher for permanent government employees

*: Set by state labor departments, they are often lower than state minimum wages (average ~Rs. 12k); (1): Employee State Insurance; (2): Adjusting for sick days/leaves available; Source: Estimates of incomes based on interviews in Delhi, Trichy and Warangal, Dalberg analysis

Manufacturing – stakeholders involved



[Manufacturers] Various equipment and machines are used for different types of work



Suction



Description:

- Used to empty septic tanks, occasionally used to clear sewer network blockages by removing the accumulated sludge from the septic tank/sewer

Lifetime: 10 years **Cost:** INR 25 lakhs

Issues:

- Machines are sold in big cities/industrial towns making repair and maintenance difficult



Jetting¹



Description:

- Used to desilt/unclog drains and pipes in the sewer/storm water network

Lifetime: 10 years **Cost:** INR 20 -23 lakhs

Issues:

- Hose pipes are typically difficult to maneuver and still involve significant manual component; operated without any training and gear; difficult for machine to enter narrow lanes; incremental innovations such as pumps mounted on three-wheelers (autos) have been tried but not successful due to limited water capacity of the tank and requires constant refilling



Suction-cum-jetting¹



Description:

- Single combined machine for both, jetting (clearing blockages) from sewer lines and storm water drains and suction (sucking up the cleared debris), from sewer manholes

Lifetime: 10 years **Cost:** INR 36-40 lakhs

Issues:

- Similar issues faced by jetting and suction machines
- Capacity to store fresh water for jetting and sludge from suction gets reduced due to split of tanker into two partition-no flexibility in storage based on need of worksite

No recent improvements in technology; most firms are selling customized tankers with pumps and hoses

[Manufacturers] There has been limited innovation over the last decade; incremental improvements being done

Desilting¹



Description:

- Compact tractor towed / trailer mounted open drain de-silting equipment which uses a hydraulically operated bucket and boom arrangement

Lifetime: 10 years **Cost:** ~INR 15 lakhs (~6 lakhs for the machine)

Issues:

- Limited manoeuvrability, can only be used in wide lanes which have bigger drains

Incremental improvements

Mini-Jetting

Adopted in 2017 by HMWSSB¹



Description:

- Smaller trailer to access the sewer lines / drains on **narrow lanes** where cleaning with large sized vehicle is not possible

Lifetime: 10 years **Cost:** INR 26 lakhs (9 lakhs-vehicle, 17 lakhs-machine)

Verdict:

- **Allows for preventive maintenance which reduces blockages**-In Hyderabad, complaints have reduced ~60%, from 1,000 per day to 400, due to preventive maintenance- earlier impossible due to less approachability of narrow lanes/streets

Recycler²

Limited uptake by Corporations



Description:

- Combination of high vacuum - high flow suction - cum jetting combination recycler machines which recycles water from sludge collected so it can be used for jetting
- Can suck up objects like wet and dry silt, garbage and construction materials

Lifetime: 10 years **Cost:** INR 6 crores³

Verdict:

- Solves the problem of limited water in suction-cum-jetting machines by recycling water, can only be used roads with big lanes and is extremely expensive

Newer machines still focused on brute-force operations of suction or jetting, and fail to innovate on other dextrous tasks of cleaning such as scooping sludge at an angle, tying knots on pipes, etc.

[Manufacturers] Few manufacturers account for bulk of market and provide equipment for all kinds of sanitation work

1 # OF MANUFACTURERS

50-60*

2 TYPES OF WORK



Drain cleaning



Sewer cleaning



Septic tank cleaning

Specialise in related fields as well such as street sweeping

3 MAJOR CUSTOMERS

Mainly Corporations, Municipalities, Water Supply and Sewage Boards, some big contractors

Individual contractors

Delivery time of ~10 days, production based on orders

4 MAJOR PLAYERS



- 5526 machines sold¹
- Head-office and factory in Pune
- 80,000 sq.ft.



- Head-office and factory in Ahmedabad
- ~30,000 sq. ft.



- Head-office in Delhi, with presence in 6 other locations



- Head-office and factory in Mumbai
- ~1,38,000 sq. ft.

(*) Based on India Mart listings; (1): As of 31st Oct, 2017, includes machines despatched for work beyond unsafe sanitation work considered-Kam-avida website; Source: Expert interviews, websites of manufacturers, Dalberg analysis

[Manufacturers] Safety gear is typically procured by ULBs “off the shelf” given lower spends (1%) and limited product differentiation among suppliers



Types of gear provided (basic)



Reusable rubber gloves
INR 50/unit



Surgical masks
INR 1/unit



Reflector vests
INR 80/unit

Cost per kit: ~INR 135

Annual cost: ~INR 270-510¹



Manufacturers



Spend on gear

- **Concentrated market:** very few (3-5) large scale manufacturers and various local suppliers; little scope for product differentiation and development
- **Trichy:** Budget for gear (2016-17) was INR 50 lakhs (~1% of payroll)
- **Warangal:** Budget for gear (2016-17) was INR 30 lakhs (<1% of payroll) with **no increase** in allocated amount for next year

There is little indication of user-centric development in this space

[Innovators] HAL is engaging with Hyderabad govt. to innovate on safety gear and equipment; Indian railways is piloting track cleaning machines

Innovations

Description



2017



2014

HAL is working with PMO and Hyderabad Municipal Water Supply and Sewerage Board (HMWSSB) to reduce manual cleaning. Teams from IITs are also involved. Innovations include:-

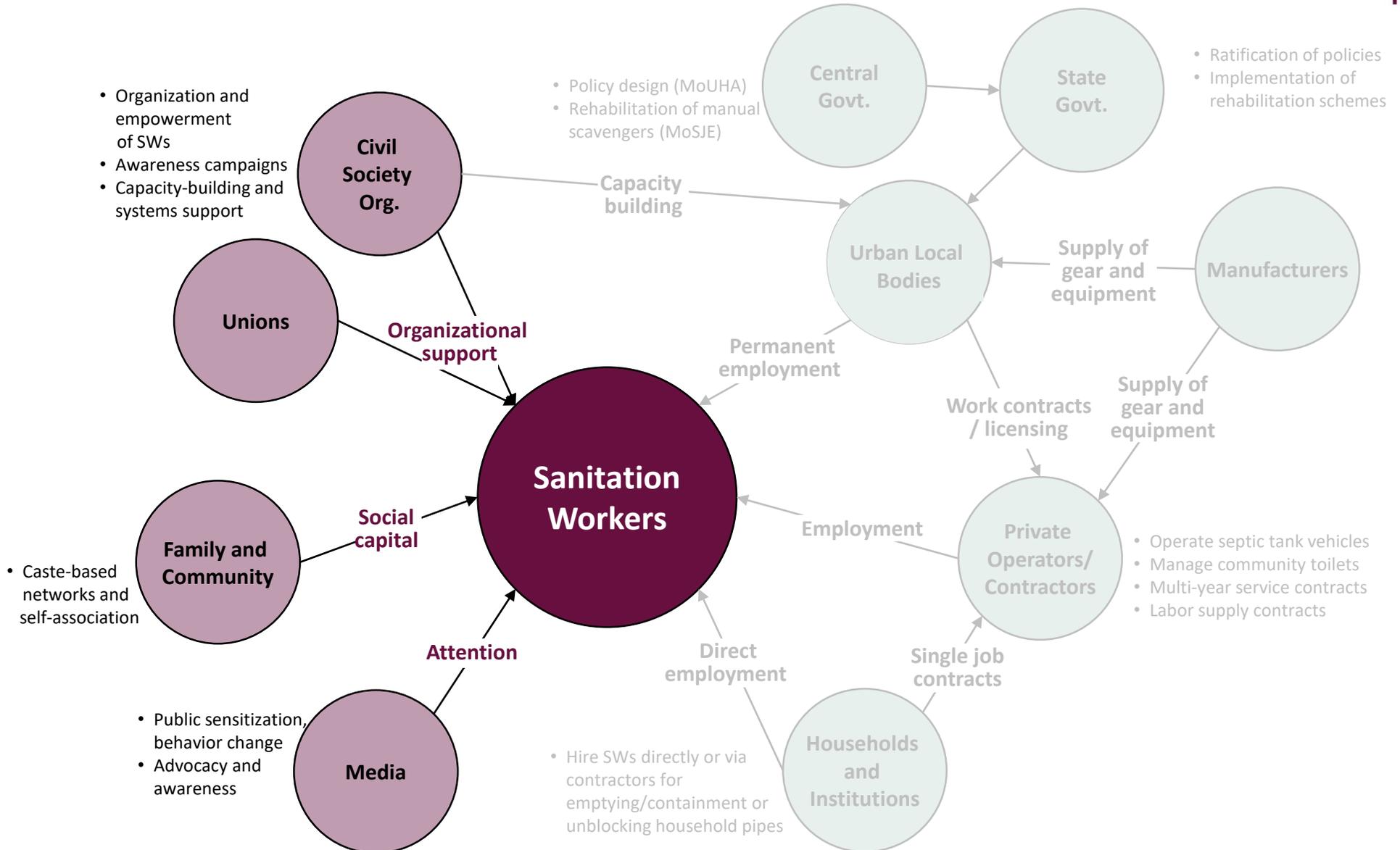
- **Processes and infra**
 - Signal system to identify open manholes, geotag them and check for breakage
 - Small sewage cleaning machines that can enter narrow lanes and by-lanes and allow for preventive maintenance
- **Safety gear**
 - New sewerage safety suit since the existing suits were not suitable for narrow manholes while undertaking repairs

Railways piloted a customised track cleaning machine –rail wagon with a vacuum cleaning machine mounted on it; locally made with both the wagon, the vacuum and the exhaust machine being manufactured in-house

- **Not very useful for cleaning human excreta** on the tracks as it can mainly suck up dry objects
- Has not received uptake due to issues with operation and maintenance

Other innovations in the pipeline include: robotic CCTV/ video inspection system for small sewer/pipelines

Sanitation worker support – stakeholders involved



[Unions] Workers have some degree of unionization, with govt. ones having the strongest ties; demands mostly focus on compensation

Type of union support

	1	2
		
	Safai Karamchari Unions	Political/Caste based unions
Description	<ul style="list-style-type: none">• Consisting of municipality workers on govt. payroll• Includes permanent sewer workers, drain cleaners• Railway workers may have similar unions in respective junctions	<ul style="list-style-type: none">• Consisting of all workers- linked by political support/caste• Not specific to sanitation workers• Includes contractual workers
Example	<ul style="list-style-type: none">• Delhi Safai Karamchari Union• Delhi Jal Board Karamchari Union (~3,500¹)• Government School Scavenger Union, Warangal (>3,000²)	<ul style="list-style-type: none">• Madiga Reservation Porata Samithi (Warangal-Madiga Community)• Centre of Indian Trade Unions (CITU)- affiliated to Communist Party of India (~3 M)
Demands/ support	<ul style="list-style-type: none">• Increase in income, disbursement of salaries on time, jobs for dependents, benefits (health)	<ul style="list-style-type: none">• Increase in income, regularization of job• Broader asks such as categorization of SCs, etc.

Workers demands remain restricted to increase in income, regularization of jobs and regular payment, with safety gear/conditions being a low priority

(1): [Sewer Deaths: Don't Engage Untrained Workers, DJB Union Urges Arvind Kejriwal, 2017](#); (2): [Government's move to sack scavengers fires stir](#);

[CSOs] There are few CSOs focused on SWs, are mostly operating at small scale and adopt a rights-based approach to the problem



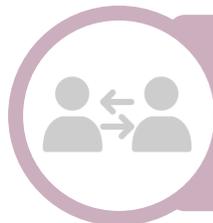
There are few CSOs focused on the issue of unsafe sanitation work

- CSOs have a broader mission-focused on lower-caste communities, bonded labour, etc. and lack an explicit focus on sanitation workers



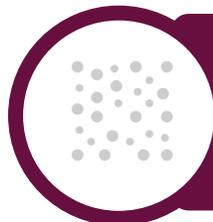
Most are working at the local level at small scale

- Barring SKA and Jan Sahas, CSOs are working at a small scale focusing on cities/wards/blocks, etc
- CSOs not engaging with city governments, private donors, etc. to enable systemic, large-scale change (exception being Mission Garima launched by Tata Trusts)



CSOs are not addressing the problem comprehensively

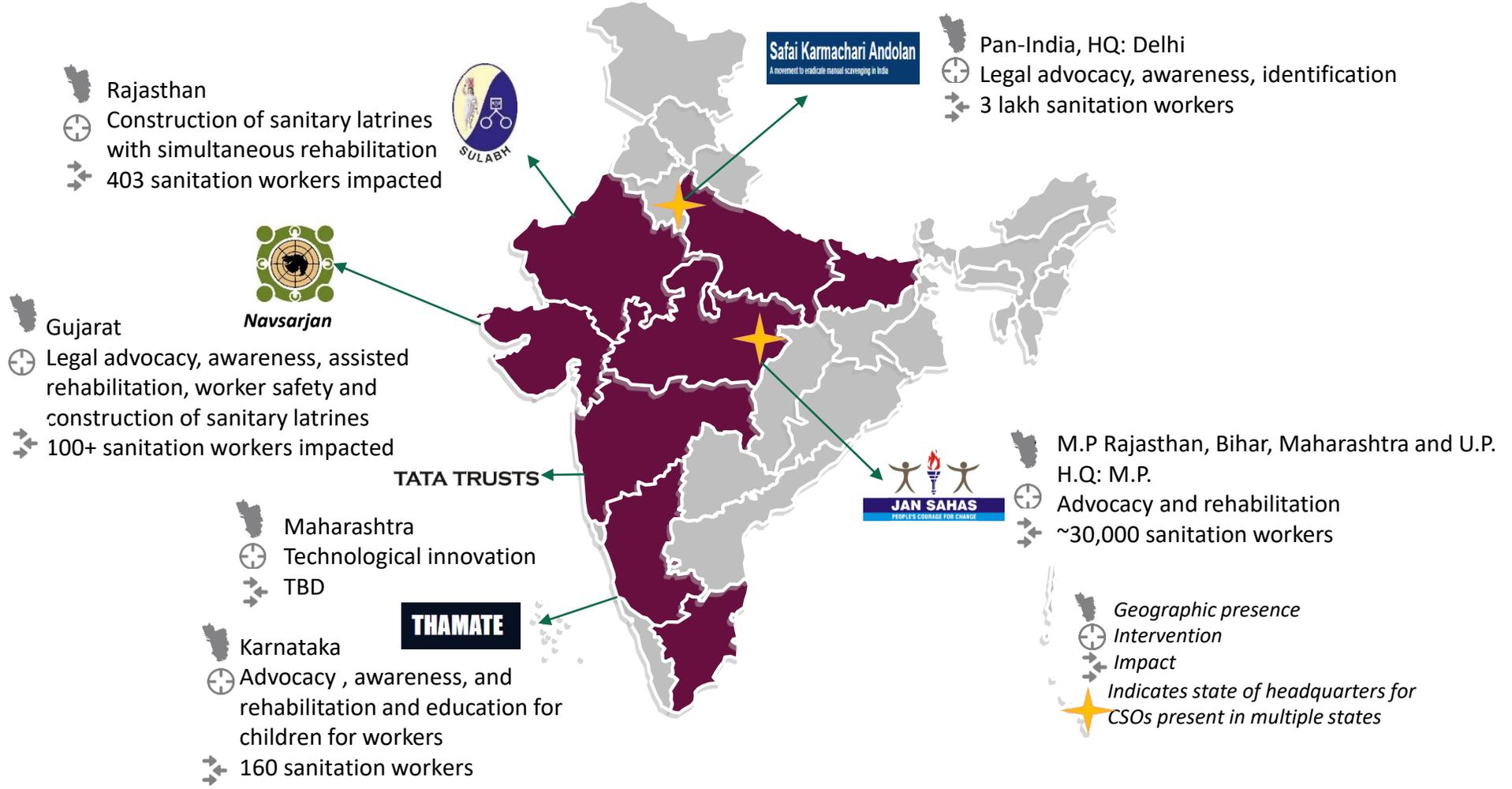
- Primarily focused on advocacy to encourage workers to leave the profession, or rehabilitation through vocational training, efforts don't address root causes, which may lead to new workers entering the profession or workers relapsing into the profession



Efforts have had limited impact

- Most interventions have been active for >5 years but number of sanitation workers impacted limited to 100-400 per CSO
- There is little information on sustainability and success of these initiatives

[CSOs] Most CSOs are working at the state or local-level, focusing on advocacy and rehabilitation of sanitation workers



Impact refers to number of workers rehabilitated

[CSOs] CSOs are working across various interventions, with rehabilitation and advocacy being most common (1/3)



1

Safai Karmachari Andolan

A movement to eradicate manual scavenging in India

1993

Footprint: Pan-India
Impact: ~3 lakh sanitation workers¹ directly

- **Legal advocacy:** Instrumental in getting the 2013 Act passed, with SKA heading the Committee for drafting the report; convincing district administrations to abolish dry latrines and helping rehabilitate workers under eligible government schemes
- **Awareness:** Conducting awareness drives to make workers aware of their rights and convincing workers to leave the practice (Bhima Yatra)
- **Monitoring:** Conducting surveys in states to collect data on workers and dry latrine owners and also tracking number of deaths of sewer workers

2



Sulabh-Nai Disha (2003-2011)

Footprint: Two cities in Rajasthan
Impact: 403 women² (288 in Tonk, 115 in Alwar)

- **Focuses on five steps for eradication:** liberation, vocational training and rehabilitation, education of children and social elevation
- **Conversion of dry latrines:** Replacing dry latrines with two-pit latrines
- **Training:** Providing vocational skills like food processing, tailoring, designing and embroidery, beauty care along with teaching functional literacy.
 - Women provided training at Sulabh's centres: Nai Disha
 - Training period lasts for two years, with one year of rehabilitation (transition to new job) to ensure women are able to sustain themselves
- **Rehabilitation:** Women are organized into SHGs/cooperatives, and entrusted with leadership, procurement and marketing responsibilities.

[CSOs] CSOs are working across various interventions, with rehabilitation and advocacy being most common (2/3)



CSO



Interventions

3

TATA TRUSTS



**Mission Garima
(Launched: 2015)**

Footprint: Two wards in Mumbai

Impact: To be determined

- **Technological innovation:** Reducing manual intervention by introducing technological solutions such as jetting machines for cleaning manholes;
- **Identification:** Identified 36,000 workers in two wards in Bombay – workers who go inside manholes, septic tanks etc.

4



**Pioneered by Jan Sahas
(Launched in 2000)**

Footprint: 13 Indian states

Impact: ~30,000

- **Awareness:** Campaigning to encourage manual scavengers to voluntarily leave the practice-used ambassadors to convince other people through role models that people should start leaving this job
- **Rehabilitation:** Providing training for cell phone repair, driving, computer training, furniture construction, fisheries and shoe making

5



**Navsarjan Trust
(1996)**

Footprint: Gujarat

Impact: 100+

- **Legal advocacy and awareness:** Lodging court cases, conducting meetings with members of the Valmiki sub-caste to educate them concerning their rights, and organizing unions
- **On-the-job:** Ensuring life insurance programmes are implemented for those engaged in dangerous unclean occupations
- **Rehabilitation:** Encouraging youth from this caste to gain skills to support themselves, working to gain arable land for Valmikis through government programmes
- **Sanitation systems:** Developing and implementing Ecosan (ecological sanitation) facilities

[CSOs] CSOs are working across various interventions, with rehabilitation and advocacy being most common (3/3)



6

THAMATE

(2006)

Footprint: 4 blocks (Tumkur, Pavagada, Madugiri and Sira) in Karnataka

Impact:

- 160 sanitation workers rehabilitated
- 217 children educated at centres, 185 educated at govt. schools and colleges

- **Advocacy:** Advocating with local governments and legal advocacy through filing of PILs
- **Awareness** campaigns with the community
- **Alternate employment for scavenging community:** Creating linkages with other organizations and institutions for vocational training of youth
- **Education for children of scavenging community:** Setting up education support centres (5) for children and monitoring of RTE Act and checking discriminatory practices at schools
- **Health entitlement:** Supporting families to access Rashtriya Swasthya Bima Yojana and ensuring sweepers receive safety equipment
- **Accessing government schemes and programs:** Supporting to access government schemes for pensions, ration cards, maternity benefit, self employment, provident fund, NREGA, etc.

[Media] Increasing media attention, mostly on the riskiest jobs, has helped create public awareness and spur government action

	Major players	Coverage	Impact
 TV	 Only news channel covering sanitation workers as a “special feature”; declared Manual Scavenging its focus theme within sanitation	<ul style="list-style-type: none"> Focus primarily on sewer and railway workers, potentially due to the riskiness and institutionalized nature of the problem 	<ul style="list-style-type: none"> NTDV has significant reach: reach of 1.56M viewers¹ Topic is yet to be integrated into mainstream news reporting
 Print (incl. online)	 Several publications: Indian Express, Outlook, The Hindu, Wire, Scroll, etc.	<ul style="list-style-type: none"> Broader coverage than TV, incl. septic tank cleaners, STP workers, SWM workers Coverage seems to be primarily reactive/ incident-driven (e.g., deaths of sewer workers in Delhi) / specific sanitation-themed days 	<ul style="list-style-type: none"> Significant reach → public awareness After the reportage of >10 deaths in a month in Delhi, the L.G. announced full mechanisation of sewer cleaning with violators being deemed “guilty of culpable homicide” The National Commission of Safai Karamcharis (NCSK) relies extensively on news reports to track workers in absence of a systematic identification system
 Film	Few documentaries on the topic: Kakkoos (2017), Mugamoodi (2017), Fecal Attraction (2011), Manhole (2016)	<ul style="list-style-type: none"> Comprehensive understanding of sanitation workers, ranging from sewer workers to toilets cleaners Individual-driven; low budget films 	<ul style="list-style-type: none"> Lack of national focus: Of the three documentaries, 2 focus on Tamil Nadu and 1 on Delhi Kakkoos has ~0.5 mn¹ YouTube views Manhole has ~13,000 YouTube views

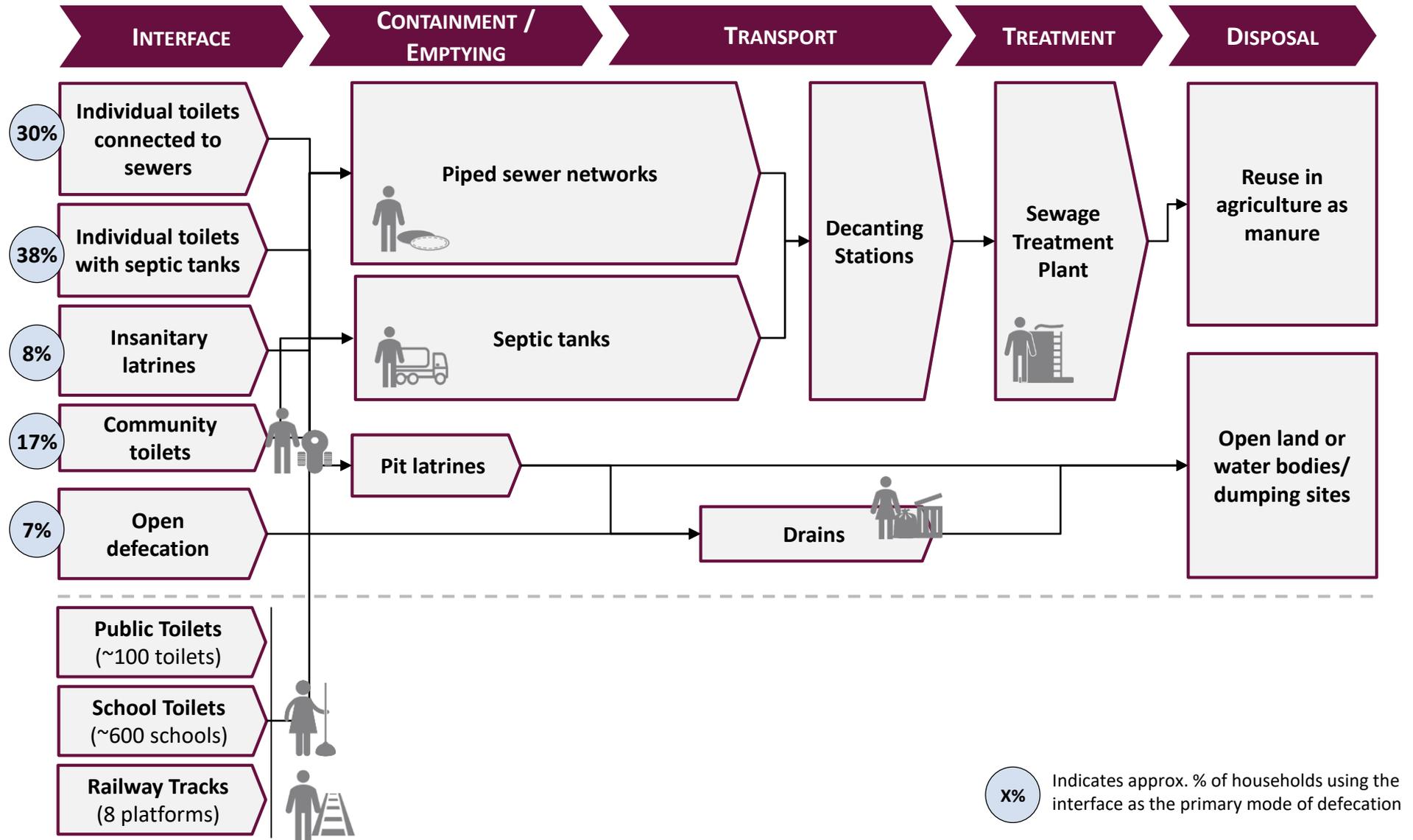
- Media portrays sanitation workers with a broad brush; not nuanced**
- Social media coverage on the topic is infrequent and driven by news**

(1): [TV viewership on 16 May: Who won the battle?](#); Source: Dalberg analysis

Trichy sanitation system

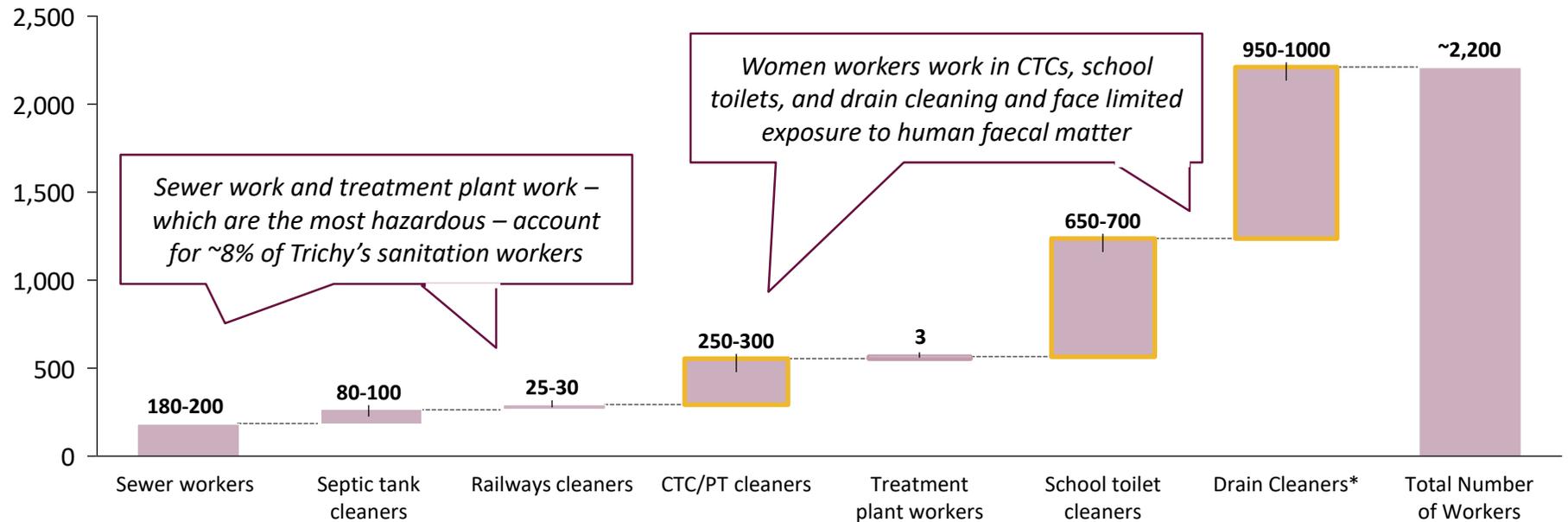


Given Trichy's sanitation system, there are seven types of sanitation work that are relevant for our study

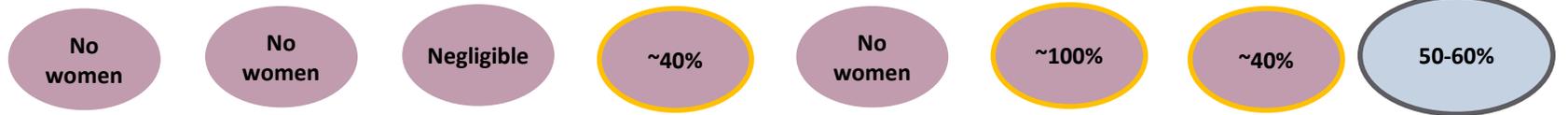


There are ~2,200 sanitation workers, more than half of whom are women

Number of sanitation workers in Trichy (Dalberg estimate)



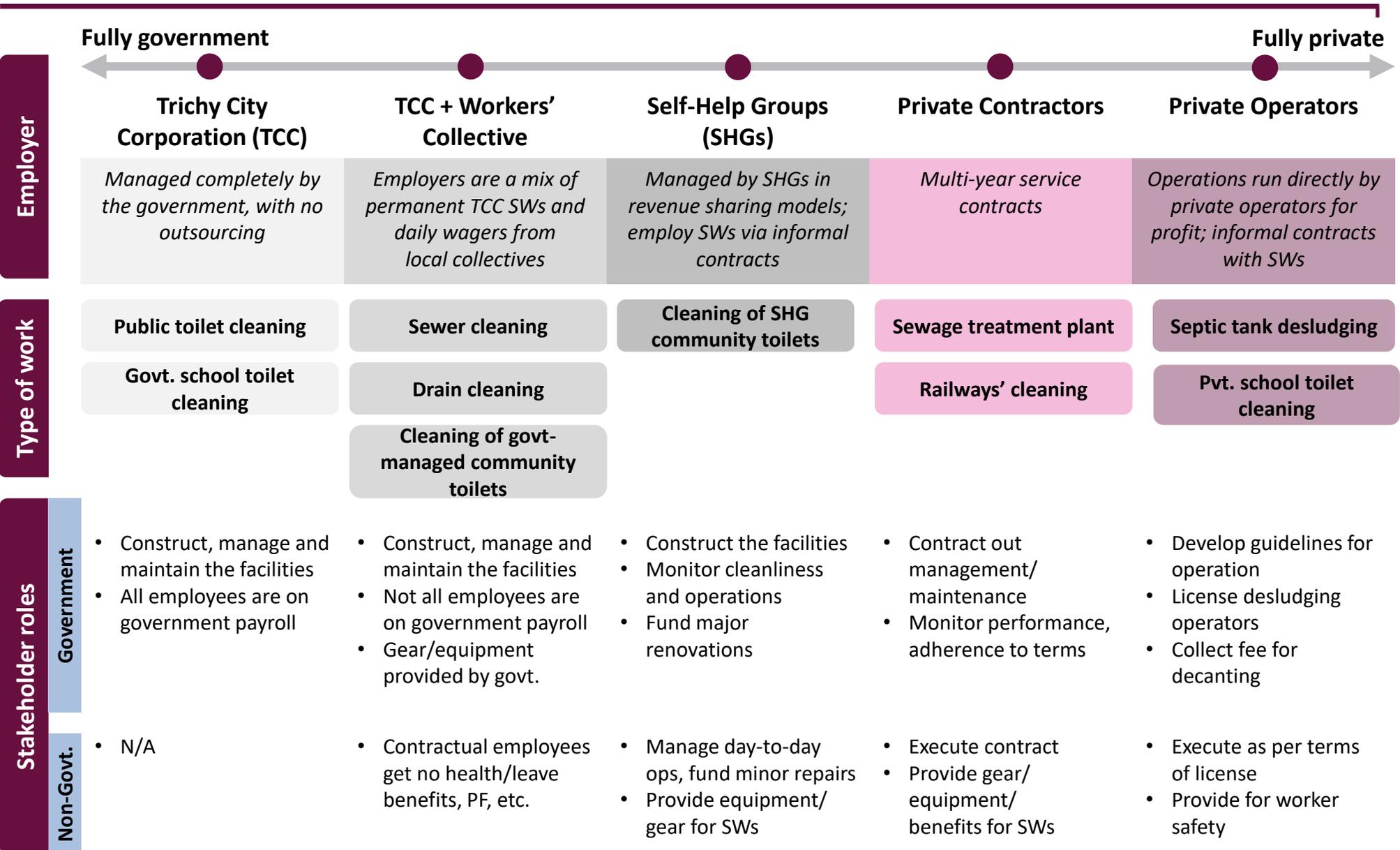
Percentage of women (est.)



* Drain Cleaning involves sweeping roads and then unblocking roadside drains

Source: Data from Trichy field visits and Dalberg analysis

There are five models of employment, with the local government playing roles of varying importance in different types of sanitation work



~30% of workers are outsourced or private, with their salaries being significantly lower than that of government employees

Type of worker	Type of employer					Riskiness of work and income levels		
	TCC	Workers Collective	SHGs	Contractors	Private operators	 Risk	₹ Monthly income (INR)	₹ Daily wage (INR)
 Sewer cleaners	80-100	100-120					25-30k (TCC); ~7.5k (non-govt.)	500 (non-govt.)
 Septic tank cleaners	4				80-100		25-30k (TCC); 4k (non-govt.)	NA
 Railway track cleaners				25-30			~10k	450
 CTC/PT cleaners	100-150	40-60	80-100				~7k	NA
 Treatment plant workers				3			~7k	300
 School toilet cleaners	650-700						~5k	230
 Drain cleaners	600-650	375-400					25-30k (TCC); ~7k (non-govt.)	294 (non-govt.)

Total:
(~2,200)

~1500

~500

~100

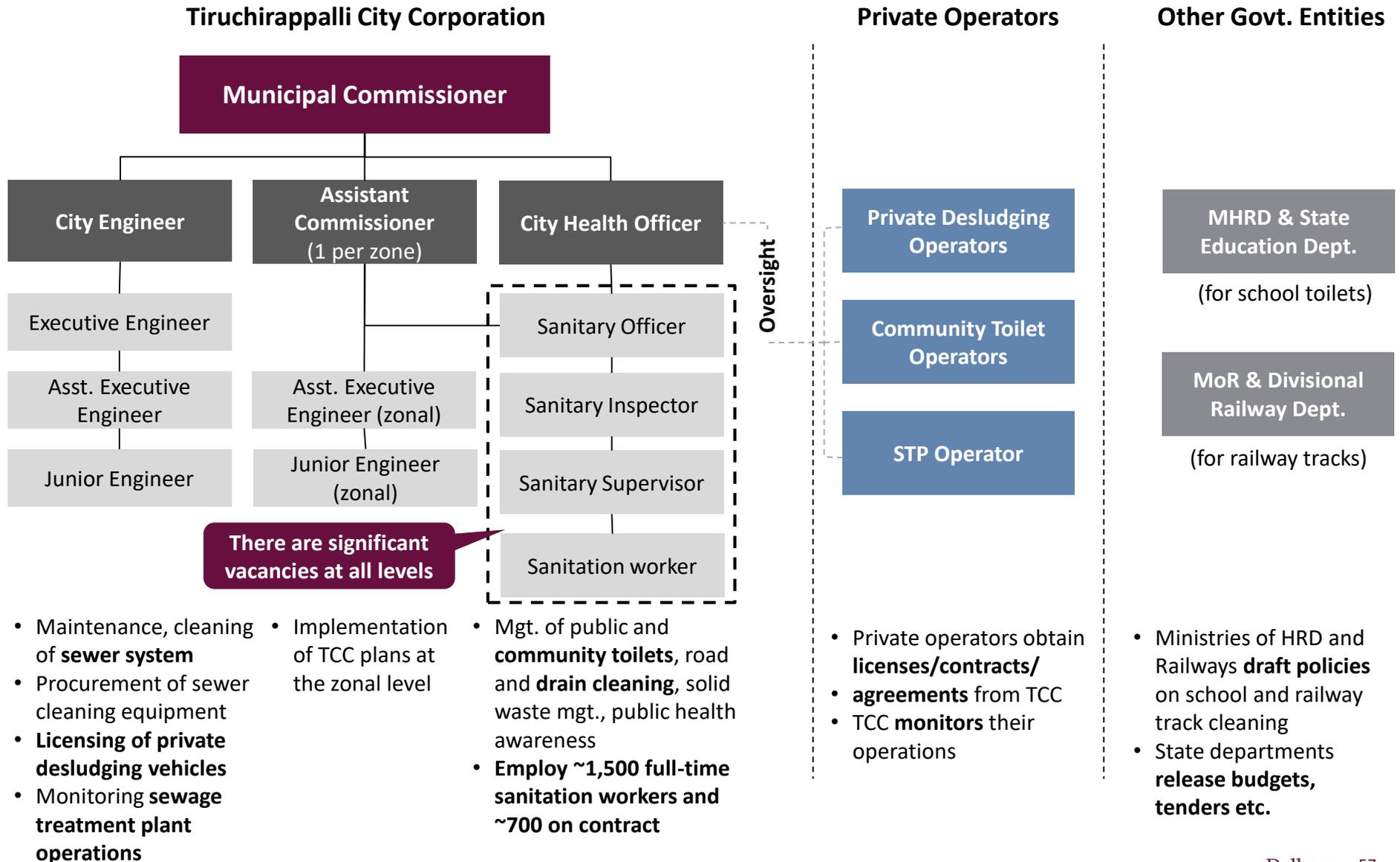
~30

~100

Govt. is increasingly outsourcing work/ engaging contract employees given budget constraints

Govt. employees are paid significantly higher than non-govt. Salaries do not reflect riskiness of job, but purely depend on type of employer

Within the TCC, the engineering and health departments are responsible for various aspects of sanitation work



* TAHDCO – Tamil Nadu Adi Dravidar Housing and Development Corporation

In Trichy, O&M guidelines have been specified for the most risky types of sanitation work; however, adherence to norms is suspect



Sewer cleaning

- **Follow the Manual Scavenging Act 2013, which specifies:**
 - **Conditions under which manual intervention is allowed:** damaged manholes, emergency, machine inability etc.
 - **Safety gear** to be provided to workers in these cases: 44 types, incl. air purifier gas masks and nylon safety belts
 - **Cleaning equipment** to be provided by ULBs: 14 including suction, jetting, etc.



Septic tank cleaning

- In line with the Manual Scavenging Act, Tamil Nadu rolled out **operative guidelines for septage management** in 2014. This includes:
 - **Specifications for building septic tanks;** frequency of desludging
 - **Licensing of desludging vehicles** if they meet a minimum requirement of mechanization
 - **Cleaning equipment and safety gear** for workers if they are required to enter tanks



Sewage treatment plant work

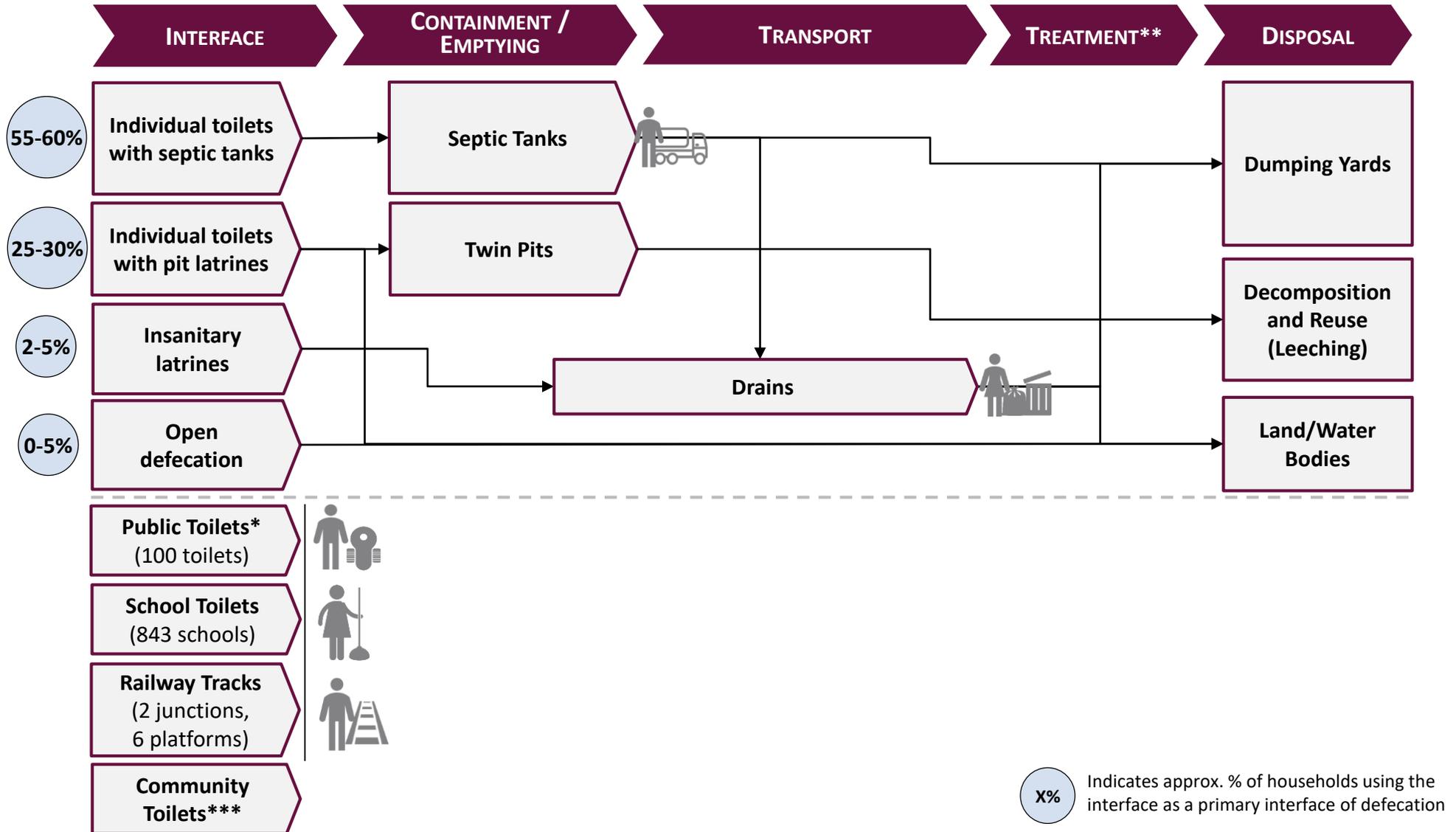
- Terms of contract with the private contractor specify the provision of:
 - **Safety gear:** masks, gum boots, gloves, safety belts, etc.
 - **Tools to aid unblocking**
- The contract also specifies **penalties for contravention**
 - e.g., Rs. 500 p.m. for no safety belt; Rs. 500 p.m. for no gas mask

- **No guidelines for other types of work (e.g. drain and toilet cleaning)**
- **Even where specified, there is only partial compliance**

Warangal sanitation system



Warangal has a decentralized sanitation system; there are five types of sanitation work that are relevant for our study

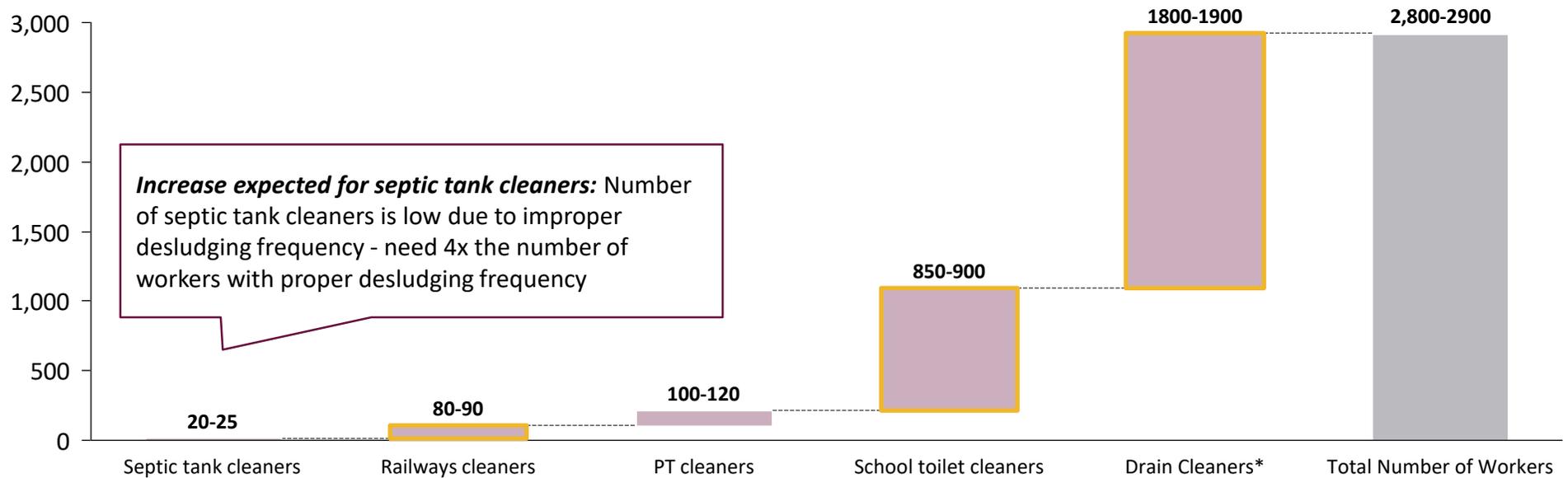


*: Public Toilets include 44 toilets in fuel stations, **: FSTP coming up shortly, ***: 8 under construction

Source: Data on interfaces is from Census 2011 estimates, ASCI reports and local interviews; Dalberg analysis

There are ~2,900 sanitation workers, 60-70% of whom are women

Number of sanitation workers in Warangal (Dalberg estimate)



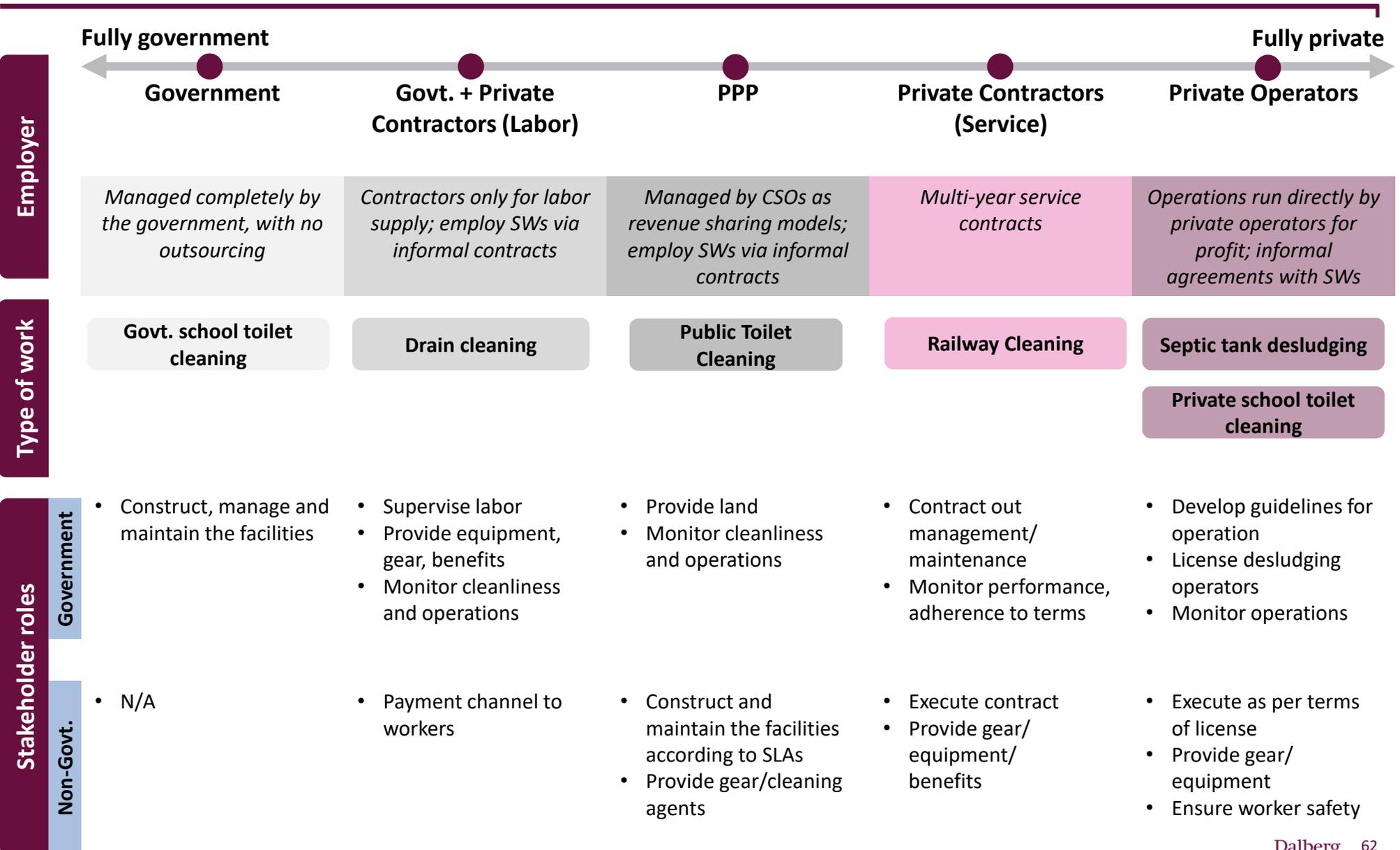
Women (%)



* Drain Cleaning involves sweeping roads and unblocking roadside drains

Source: Data from Warangal field visits, DISE district level data for schools and Dalberg analysis

There are five models of employment, with the local government playing roles of varying importance in different types of sanitation work



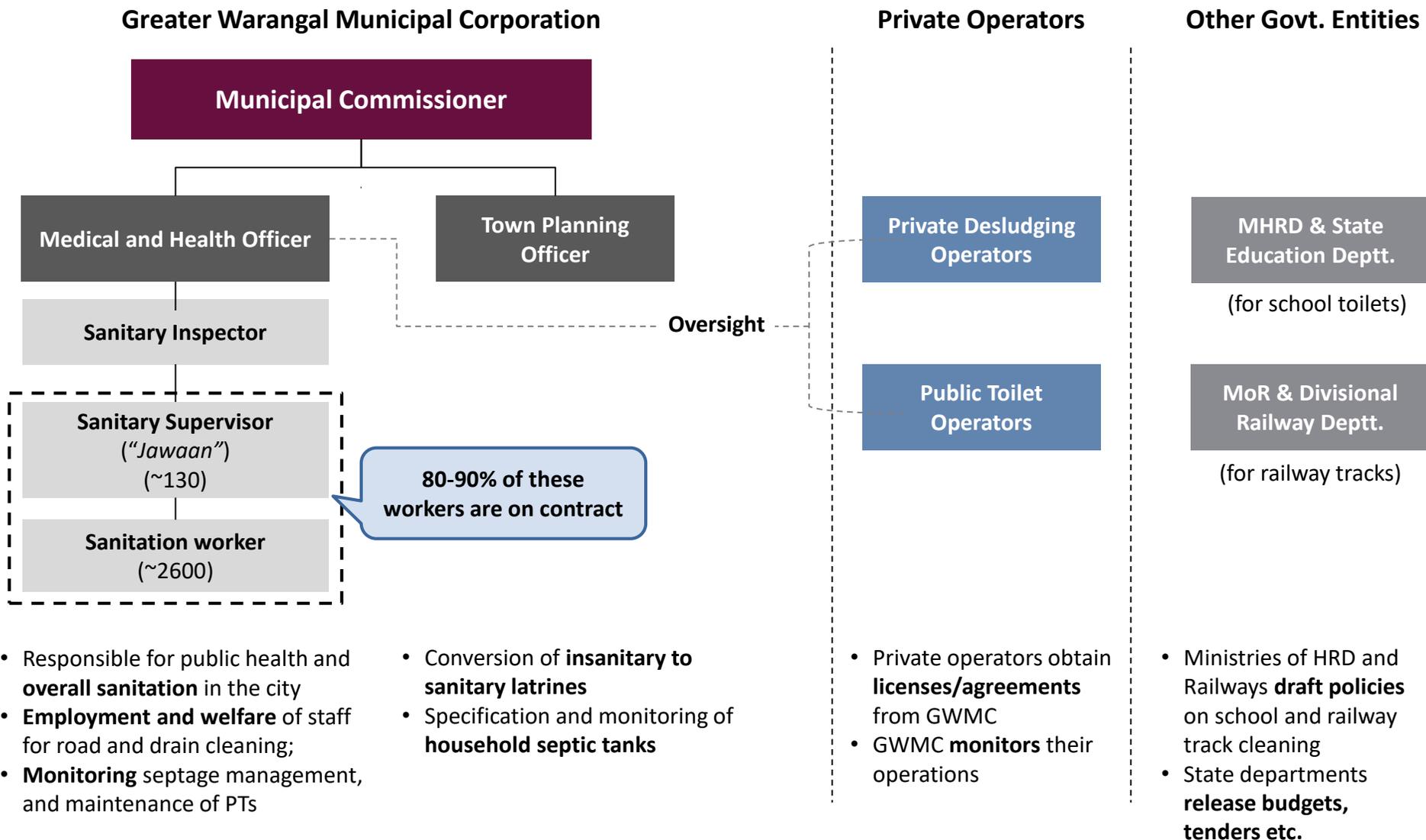
~75% of workers are outsourced or private, and only railways and drain cleaners receive some form of employment benefits

Type of worker	Type of employer					Riskiness of work and income levels		
	Govt.	Govt + Contractors (labor)	PPP	Private Contractors	Private Operators	 Risk	 Monthly income (INR)	 Access to PF/ESI
 Septic tank cleaners					20-25		10k	
 Railway track cleaners				80-90			4.5-7k	
 CTC/PT cleaners			100-120				~5k	
 School toilet cleaners	300-320				500-520		~2.5k	
 Drain cleaners	350-400	~1500					~8k (non-govt) 25k (GWMC)	
Total: (~2,900)	650-720	1,500	100-120	80-90	520-550			

~75% workers are on contract basis, given budget constraints

Salaries seem to be somewhat risk-adjusted, even if not intentional; benefits determined by association with government (railway track cleaners, drain cleaners)

The Medical and Health Officer is responsible for sanitation outcomes and processes in Warangal



There are guidelines for septic tank desludging and public toilet cleaning, but monitoring and compliance is unclear



Septic Tank Desludging



Public Toilet Cleaning

Licensing Criteria	<ul style="list-style-type: none">• Meeting a minimum level of mechanization, vehicles in working condition	<ul style="list-style-type: none">• Companies with turnover greater than Rs. 5 lakh• Experience of building 5 PTs in the last 3 years, 3 years of operational experience
Safety Guidelines	<ul style="list-style-type: none">• Adoption of “CPHEEO approved standards and procedures for desludging”• Employ trained workers and provide PPE (e.g., gas detectors, oxygen masks, etc.)• Accident insurance, annual health checkups for workers	<ul style="list-style-type: none">• Provision of brooms, brushes, baskets, cleaning material, etc., but no PPE specified• Identity cards and aprons for cleaners
Penalties	<ul style="list-style-type: none">• Fines for contravention, higher for repeat offenders• License could be canceled for non-compliance	<ul style="list-style-type: none">• Penalties of Rs. 50-200/day if cleaning standards are not met• No explicit penalties if worker safety standards not met

No stated guidelines for drain cleaning

Agenda

Project context

Sanitation worker ecosystem

Worker profiles, challenges and personas

Underlying insights

Focus areas

Next steps

We engaged with 53 workers of different types to understand their work and the challenges they face



1. Sewer Cleaners



2. Septic Tank Cleaners



3. Railway Track Cleaners



4. CT/PT Cleaners



5. Sewage Treatment Plant Workers



6. School Toilet Cleaners



7. Drain Cleaners

What we have understood about these workers



1. How is the work done? How is it likely to change going forward?



2. What's the profile of the workers?



3. What are the financial, health and social implications of their job?¹

(1): We have assessed on various financial, social and health metrics-the next slide contains details of these metrics

We have assessed the financial, social, health implications of the job on SWs



Livelihoods implications

Current job

- **Absolute income and predictability**- How do the workers fare on income earned compared to other jobs (requiring similar skill and education level)? How predictable is the income?
- **Job security**-Do workers have a secured job?
- **Access to benefits**-Do workers have access to benefits such as P.F.?

Progression

- **In current job**- Are there opportunities for career progression?
- **Access to other lucrative livelihood options**- Do workers have access to other livelihoods?



Social implications

Caste lens

- **Market acceptance**-How easy it is for workers to move to other jobs/businesses?
- **Treatment on the job**- Do workers face discrimination by employers?

Gender lens

- **Gender effect**-
 - *Direct*: Does the job have a more pronounced effect on women workers (entry into job, health, etc.)?
 - *Indirect*: How are spouses of male workers impacted?

Social capital

- **Social network**-Do workers have a diverse social network, beyond sanitation workers?



Health implications

Occupational safety

- **Occupational safety (injury/death)**- How safe are workers from injury/death?

Prolonged effects

- **Physical safety (illness)**- How is workers' health?
- **Mental health/substance abuse**- How is workers' mental health? Are workers prone to substance abuse due to the job?

Access to benefits and services

- **Healthcare benefits**-Do the employers provide healthcare benefits, insurance and disability/sick leave?



Sewer cleaning: work process

Step 1

Step 2

Step 3

Step 4

Step 5



Machines and workers arrive at the location of the blockage. Diagnose issue, plan action, check for safety using rudimentary mechanisms.

Attempt to use machines (suction, in this case), but have to guide the hose manually.

Machines are ineffective, have design constraints. Workers have to resort to emptying the chamber manually. Enter the septage material with no PPE.

Workers perform the unblocking (and other) tasks with rudimentary tools like hammers, sickles, rods and spades.

Workers clean themselves with water at the same premises.



How is it likely to change? With news of sewer deaths and govt.'s push towards mechanisation, manual intervention is likely to decrease but will depend on city-specific initiatives

Sewer Cleaners – involved in the riskiest form of unsafe sanitation work, with adverse social effects – substance abuse and burden on women



Who are the workers?

- **Gender:** Exclusively male
- **Age:** 16-50 years
- **Education:** Limited
- **Caste:** From the SC community, ancestrally tied to sanitation work
- **Nature of employment:** Increasingly contracted out with most municipalities/water board
- **Trichy:** ~45% of the workers are Govt. employees and the rest contractors

What are the implications of this job on workers?

Livelihoods

Current job

- *Absolute income and predictability-* Contractual employees paid around 6-8k per month (similar to other workers doing less risky jobs), not a predictable source of income-based on days of work
- *Benefits-* Govt. employees get some benefits (P.F., medical allowance) but not sufficient given riskiness of job

Progression

- *In current job-* No progression in terms of income; in terms of job role-experienced workers don't enter the manhole, unless younger workers need assistance

Social

Caste lens

- *Market acceptance-* Once identity is revealed, they are locked out of jobs
- *Treatment on the job-* Treated as “untouchables”- households give water only from a distance

Gender lens

- *Gender effect (indirect)-* Women have to work (often as sanitation workers) to supplement household income; reduced life expectancy of sewer workers often puts the sole economic burden on women

Health

Occupational safety

- *Occupational safety (death)-* High fatality risk due to asphyxiation in manholes; increased risk due to lack of training and safety gear

Prolonged effects

- *Physical health safety (illness)-* Infections due to presence of glass, snakes, etc. and absence of any safety gear; prolonged fatigue, loss of appetite, skin irritation; reduced immunity
- *Mental health/substance abuse-* Habitual drinkers to be able to do the job





Septic tank desludging: work process

Step 1



Desludging operators arrive at the household that has called them.

Step 2



Use rods to open the covers of septic tank. These covers often break inside the tank and workers have to pick them up with their hands.

Step 3



Guide hose inside septic tank, usually without any PPE. Workers occasionally have to enter the tanks when suction doesn't work and/or sludge is solidified.

Step 4



Workers add water to the pipes and the solidified sludge to make the suction process easier. If this doesn't work, they have to enter manually.

Step 5



The lid of the tank is reconstructed by the workers.



How is it likely to change? Bound to increase, given the private operator mode of employment with limited oversight; as demand increases, the “unsafe” aspect of the job will also increase

Septic Tank Cleaners – understanding of safety is limited, based on hearsay and experience of older workers



Who are the workers?

- **Gender:** Men
- **Age:** 16-50 years
- **Education:** Limited education (up to 9th-10th grade)
- **Caste:** Workers belong to SC community, parents/relatives work as agricultural labourers/sanitation workers
- **Nature of employment:** Private operators; negligible percentage with govt. cleaning septic tanks at PTs

What are the implications of this job on workers?

Livelihoods

Unfavourable Neutral Favourable

Current job

- *Absolute income and predictability*- Receive a regular monthly salary (5-10k) which varies based on the lucrativeness of business operations in the area
- *Job security*- Unsecured job (private competitive market, changing sanitation systems such as from septic to sewer may lead to displacement)
- *Benefits*- Given privately employed, benefits are employer dependant; most don't receive health benefits, insurance, etc.

Potential

- *Progression*- Limited, can become supervisors but there exist no role models of workers becoming operators

Social

Unfavourable Neutral Favourable

Caste lens

- *Access to other schemes*- Face major discrimination in accessing public resources such as financing- "need to prove a good background"

Health

Unfavourable Neutral Favourable

Occupational safety

- *Occupational safety (death)*- High fatality risk due to asphyxiation in septic tank; increased risk due to lack of training and safety gear

Prolonged effects

- *Physical health safety (illness)*-Infections due to presence of glass, snakes, etc. and absence of any safety gear; experience skin irritation due to direct exposure to faecal matter on a regular basis

Railway track cleaning: work process

Gravel Platforms (like Warangal)



Spray limestone on fecal matter once train passes.



Pick up solid waste from tracks by hand and put it in a bin; wear gloves and mask (sometimes incomplete).

Concrete Apron Platforms (like Trichy)



Pick up solid waste from tracks using scooper and put it in a bin; wear gloves and mask. Push excreta into drains using hose pipe (fitted along the tracks).



How is it likely to change? If bio-digestors are introduced then amount of faecal matter on tracks will reduce, limiting workers' exposure to faecal matter

Railway Track Cleaners – regularly exposed to faecal matter on tracks, and are equipped with only rudimentary tools and gear



Who are the workers?

- **Gender:** Men and women
- **Age:** 20-60 years
- **Education:** Limited, only till 8th grade
- **Caste:** Workers belong to SC community, some were doing sanitation related jobs earlier and some were agricultural labourers/masons
- **Nature of employment:** Contractors

What are the implications of this job on workers?

Livelihoods

Unfavourable Neutral Favourable

Current job

- *Absolute income and predictability-* Salaries receive ~4.5-7.5k per month (few workers receive their salaries irregularly resulting in a liquidity crunch)
- *Benefits-* Workers may receive P.F. benefit
- *Job security-* Relatively secure job, but contractor dependant- where some contractors threaten to fire workers

Progression

- *Access to other lucrative livelihood options-* Prefer this job to other jobs (e.g., mason), even though it has a lower monthly pay-out, because it provides assured income

Social

Unfavourable Neutral Favourable

Gender lens

- *Gender effect-Women face a hostile work-environment-:*
 - Contractors/supervisors harass women, chide them for taking longer breaks during their periods
 - Multiple incidents of eve-teasing on the platform at night and women have to resort to moving in groups to stay safe

Health

Unfavourable Neutral Favourable

Prolonged effects

- *Physical health safety (illness)-*No major health issues but feel nauseous because of the stench, prone to fevers

Access to benefits

- *Access to benefits-* Have access to ESI, but have used it sparingly because of limited use of the scheme

Public/Community Toilet Cleaning



Cleaners' day starts at ~5 am and they clean in 6-8 cycles till ~10 pm; cleaning schedule prescribed by CT/PT operator. Use mops, brooms, disinfectants supplied by operator; un-branded, strong; typically don't use gloves, masks.

Workers encounter clogged fecal matter in the bathrooms. Drains often also get clogged due to bidis, plastics, sanitary pads, etc.

School Toilet Cleaning



Workers clean before, after and during school hours (total 3-4 times). Some are given masks and gloves, most clean with hands, mops and brooms. Some toilets, particularly for younger kids, often used poorly and have clogged faecal matter.



How is it likely to change?

As contractually operated CT/PTs and access to school toilets grow, unsafe work will increase

Community/Public Toilet Cleaners—not restricted to sub-caste of the SC community, some even view the job as a viable livelihood option

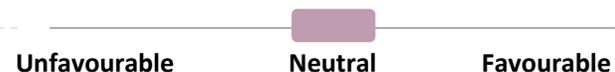


Who are the workers?

- **Gender:** Mostly men in Warangal, fair distribution in Trichy
- **Age:** 20 – 60 years
- **Education:** Limited (< 6th grade)
- **Caste:** SC community in Trichy, typically have backgrounds in sanitation
- **Nature of employment:** via Contractors/Operators; some cleaners work as operators-cum-cleaners

What are the implications of this job on workers?

Livelihoods



Current job

- *Absolute income and predictability-* Regular but meagre salaries (INR 3.5 – 5.5 k/month) and no additional benefits

Progression

- *In current job-* Incomes are stagnant, no hope of increase since CTs/PTs running at steady state; caste ceiling-contractor and operator are from different community; few women CT cleaners believe they can become operators of the CTs

Social



Caste Lens

- *Market acceptance-* fear association with sanitation and cleaning will hamper opportunities in other jobs, particularly customer-facing ones

Social Capital

- *Social Network-* No strong unions for collective bargaining; fragmented workers (1-2 per toilet)

Gender lens:

- *Gender effect:* Women cleaners often feel unsafe due to drunk men visiting the CTs at early hours in the morning, they have limited security at the job site

Health



Prolonged effects

- *Physical health safety (illness)-* No major health problems, suffer from suffocation with the use of acid and bleach (once in 3-4 days)

Access to benefits

- *Healthcare benefits-* No health benefits from operator, no regular medical check-ups

School Toilet Cleaners – paid significantly lesser than other sanitation workers but hesitate to leave due to an emotional attachment to the job



Who are the workers?

- **Gender:** Mostly women
- **Age:** 20 – 60 years
- **Education:** Limited (< 8th grade)
- **Caste:** SC community, with ancestral background in sanitation work
- **Nature of employment:** via corporation/government/private owner of school

What are the implications of this job on workers?

Livelihoods



Current job

- *Absolute income and predictability*- Regular but meagre salaries (INR 2.5 – 4 k/month)
- *Job security*- Have job security
- *Benefits*- Varies according to region but some workers receive P.F. benefit

Progression

- *In current job*-No progression pathway in current job, stagnant income
- *Outside the job*-Lack access to other options due to limited education and skills

Social



Caste Lens

- *Treatment on the job*- Limited discrimination; like working there due to friendly environment and emotional attachment to teachers and students

Social Capital

- *Social Network*- Limited networks for collective bargaining (1-2 workers per school), in some places unions may be present (e.g., Warangal Scavengers School Union)

Health



Prolonged effects

- *Physical health safety (illness)*- No or limited health challenges, some workers use basic gear (gloves and mask)

Access to benefits

- *Healthcare benefits*- No health benefits and medical check-ups from school

Treatment plant: work process

Step 1



Workers use long tools to pick out non-septage material that blocks filtering chambers.

Step 2



They have to enter these chambers manually at least once a week when the tools are insufficient.

Step 3



They also open valves without protective gear to release septage material on open grounds, where it 'bakes' for days as it is converted to manure.



How is it likely to change? As STPs become more prevalent, unsafe work will increase if unchecked



Sewage Treatment Plant Workers – often overlooked given negligible number, but fare poorly on financial, health and social metrics



Who are the workers?

- **Gender:** Only men
- **Age:** 20-50 years
- **Education:** Limited (< 8th grade)
- **Caste:** SC community, some transitioned from other non-sanitation jobs such as welder, agricultural labourer
- **Nature of employment:** via Contractors

What are the implications of this job on workers?

Livelihoods

Unfavourable Neutral Favourable

Current job

- *Absolute income and predictability-* Low salaries (INR 300/day/INR 7800 p.m.) and no other benefits, timely payments of wages is an issue

Progression

- *In current job-* Lack of growth in income opportunities (some workers have not received an income increase in the last 10 years)

Job security

- *Job security-* Relatively secure, provided workers do not raise demands/ask for benefits

Social

Unfavourable Neutral Favourable

Social Capital

- *Social Network*
 - Lack of relationships outside of their families/communities, limited interaction with other groups

Health

Unfavourable Neutral Favourable

Prolonged effects

- *Physical health safety (illness)-* Suffocation when they have to dive inside tanks (on a weekly basis); stomach aches, regular fever and rashes
- *Healthcare benefits-* No health benefits from contractor, no regular medical check-ups



Drain cleaning: work process

Step 1



Workers (typically men) unclog drains using shovels with long handles; no other protective gear. This material often contains fecal matter.

Step 2



Female workers follow later, scoop material onto plastic bags without any equipment or protective gear.

Step 3



They carry the material with the bags to nearby push carts.

Step 4



Workers empty the collected material into push cart.

Step 5



They then take these push carts to designated collection spots.



How is it likely to change? As open defecation/insanitary latrines reduce, presence of faecal matter in drains will also reduce, limiting workers' exposure to faecal matter



Drain cleaners – face untouchability, given visibility of their job process



Who are the workers?

- **Gender:** Majority/at least half the workers are women
- **Age:** 21-60 years
- **Education:** Limited, maximum education till 5th grade
- **Caste:** Most workers belong to SC community; others in the community work as daily wage labourers
- **Nature of employment:** Through contractors and govt. but increasingly becoming contracted

What are the implications of this job on workers?

Livelihoods



Current job

- *Absolute income and predictability-* Salaries (INR 7-8K for contractual workers) to be paid on a monthly basis but workers receive their salaries irregularly, workers are entitled to P.F.
- *Job security-* No sense of job security, only hope to become permanent in current job

Progression

- *On the job-* Can potentially become supervisors but only after several years of service, with an insignificant increase in salary (~10%)

Social



Caste lens

- *Treatment on the job:-*Face discrimination-"households refuse to give us water because we do dirty work"

Gender lens

- *Gender effect-* Women have no access to restroom facilities, lack support of any union (compared to male workers who are part of some union)

Health



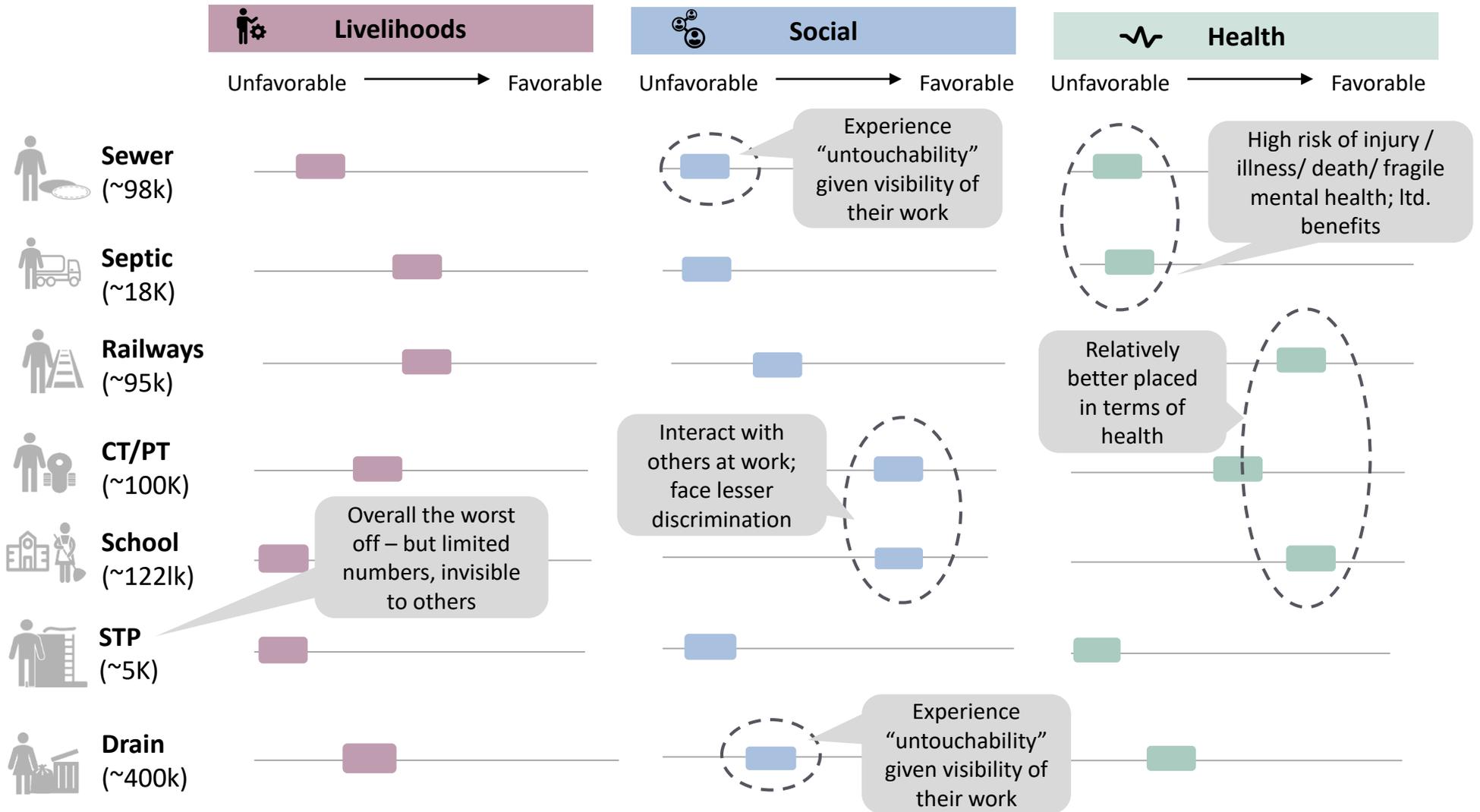
Prolonged effects

- *Physical health safety (illness)-* Get fever at least once a month, stench makes them nauseous; regularly get cuts and bruises on their body from glass and other materials in the drains

Benefits

- *Healthcare benefits:-*ESI not effective, incur INR 200-1000 on medical expenses per month

All workers lack job progression opportunities, with workers in the riskiest jobs facing the most discrimination and worst health outcomes



Note: The scales are "relative", i.e. the different types of work have been evaluated relative to each other

We believe there are six personas of sanitation workers basis their motivations, opportunities and ability



Reluctant inheritor

Relatively new workers, both women and young men, who are forced into the profession due to the death of the primary income earner who used to be in this profession



Complacent part-timer

Workers, both women and men, who face less hazardous environments and are comfortable in the current job, and have no desire to move out



Caged bird

Workers (men) who have just entered this job and are keen to move on to jobs beyond sanitation but foresee no opportunities for doing that



Trapped traditionalist

Sewer workers and drain cleaners, typically male, who have been working for several decades and expect to continue doing so



Transient hustler

Workers who are looking for jobs that provide the best economic pay-out and currently a job in sanitation provides them that



First among equals

Permanent sewer workers and drain cleaners who have been doing this job for years, and earn significantly more than other workers

These personas differ in terms of backgrounds, motivations, aspirations, and personalities, and will therefore require customized solutions and pathways

Reluctant inheritor – forced into the profession due to the death of the primary income earner in the family

Reluctant inheritor



“My husband is an alcoholic and is not earning anything. I have been supporting the family for many years now.”

Key identifiers

- **Gender:** Female/Male
- **Age:** 25 years and above
- **Education:** Limited
- **Types of work:** Railways cleaning, drain cleaning, sewer cleaning
- **Employer:** Contractor/government

~10%

Livelihood pathway



Background

- Worker who is doing this job due to primary earner's demise/immobility

Work environment

- Camaraderie with co-workers; works in large groups, with people from the same community
- Aware of the issues that come with the job but conscious of family responsibilities

Motivations/outlook

- Needs assured income to provide for the family
- Risk-averse

Aspirations

- Not thought about moving to other jobs because values a stable income
- Wants to educate children to higher levels to break out of the sanitation trap

Complacent part-timer – content in current work environment and does not want to move out of the current job

Complacent part-timer



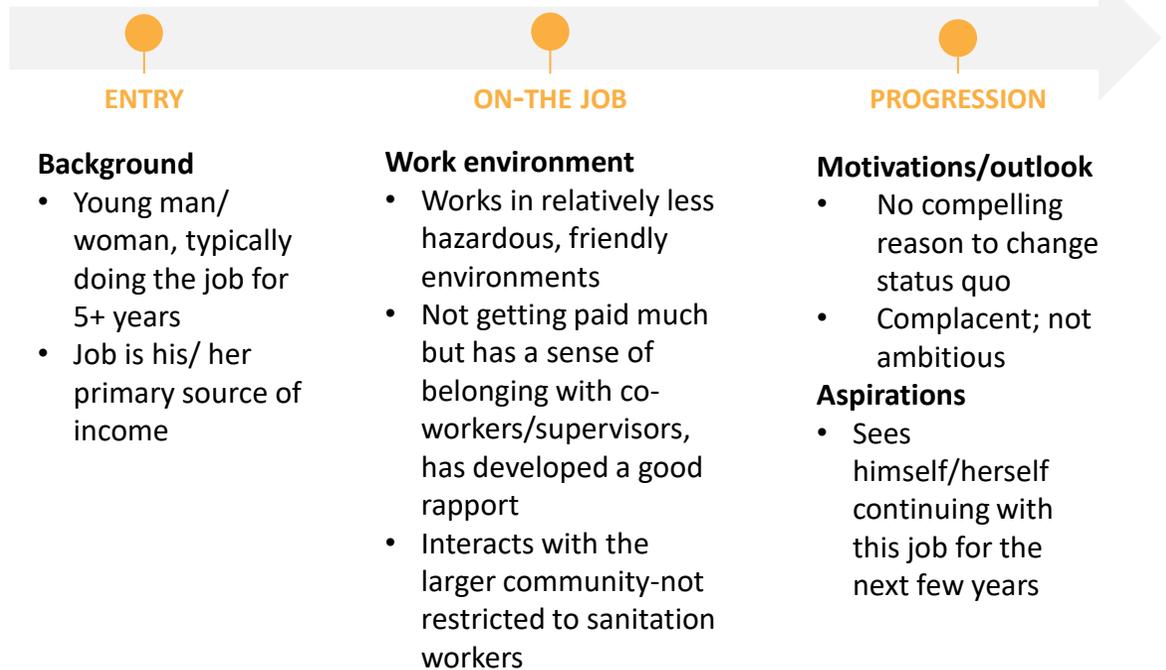
“I like working here, I feel attached to the children. Even the teachers are very friendly towards me”

Key identifiers

- **Gender:** Female and male
- **Age:** 20 – 35 years
- **Education:** Limited (up to class 8)
- **Types of work:** School toilet cleaning, CT cleaning
- **Employer:** School authorities, community toilet operators

~30%

Livelihood pathway



Caged bird – started sanitation work because of “family legacy”, but is inclined to move out of sanitation

Caged bird



“I want to do a white-collar job. Few people in my community have moved to other jobs such as that of a railways engineer. I want to do that.”

Key identifiers

- **Gender:** Male
- **Age:** 18-21 years
- **Education:** Class 8 and above (might be simultaneously pursuing higher education)
- **Types of work:** Sewer, septic tank, PT cleaning
- **Employer:** Private business/Contractor

~5%

Livelihood pathway

ENTRY

Background

- Young male, recently entered the occupation through informal networks; apprentice to experienced workers

ON-THE JOB

Work environment

- Dissatisfied with the current job and understands that it is hazardous – but compelled to supplement his family’s income and has easy access to the job because of relatives/family members working in sanitation

PROGRESSION

Motivations/outlook

- Wants to be respected in the society; believes a white-collar job will help him achieve that
- Optimistic about his future

Aspirations

- Sees himself doing a white collar job (e.g., BPO) in 2-3 years, but unaware of opportunities and pathway to pursue any opportunity

Trapped traditionalist – has been doing the job for many years and living in the false hope of the job becoming permanent

Trapped traditionalist



“I do this job daily thinking my job will become permanent one day. I only want a govt. job and/or increase in my income”

Key identifiers

- **Gender:** Female and male
- **Age:** 35 years+
- **Education:** Limited (up to class 8)
- **Types of work:** Sewer cleaning, STP cleaning, railways cleaning and drain cleaning
- **Employer:** Private contractors/operators

~30%

Livelihood pathway



Background

- Experienced worker, been doing this for 10-15+ years
- Entered the profession because either got displaced from agriculture or followed parents' sanitation jobs

Work environment

- Works in extremely hazardous environments
- Benchmark of safety is very low-considers missing work due to fever and body aches (on a monthly basis) to be normal
- Incurs significant medical expenses
- Feel helpless as can't raise issues to anyone

Motivations/outlook

- Is not open to other jobs because of the **switching cost** (unlearning the existing job and going to an unknown environment)
- Lives in false hope that the job will become permanent one day; optimistic that it will happen

Aspirations

- Wants children to move out of sanitation and is ensuring they at least complete their education

Transient hustler – looking for the “next best thing”, sanitation work is just one of the many jobs for him

Transient hustler



“I was a mechanic earlier, then I went to the railways. Now I clean the CT during the day and at night I hold the lights in a wedding procession. Wherever I can get a decent earning, I’ll go there”

Key identifiers

- **Gender:** Typically male
- **Age:** 21-30 years
- **Education:** Limited (up to class 8)
- **Types of work:** CT cleaning (typically)
- **Employer:** Private operators

~10%

Livelihood pathway



Background

- Been doing this job for maximum 2-3 years
- Came into sanitation looking for the best livelihood option, given limited skills and education
- Sanitation jobs might be one of the many jobs he is currently pursuing

Work environment

- Works in relatively a less hazardous environment
- Keeps to himself, does not interact with others

Motivations/outlook

- Has no particular attachment/sense of belonging to the job
- Always looking out for the “next best thing”
- Risk-taking, ready to move out of this job
- Leverages informal networks to source jobs

Aspirations

- Wants to do a job that pays well-indifferent to the type of work

First among equals – sanitation worker on government payroll, whose job is coveted by other workers for its higher and assured income

First among equals



“I have been watching my mother do this job since I was a child. That’s how I got into it but my sons are not going to do this job. I am sure of that.”

Key identifiers

- **Gender:** Male and female
- **Age:** 40+ years
- **Education:** Limited (up to class 8)
- **Types of work:** Sewer work, drain cleaning
- **Employer:** Government

~15%

Livelihood pathway

ENTRY

Background

- Been doing this job for several years, perhaps a decade or more
- Permanent govt. employee
- Parents were likely sanitation workers

ON-THE JOB

Work environment

- Sense of attachment to the workplace, working with supervisors and other workers for many years; part of the worker union
- Heuristics driven mental model of safety
- Earns ~3x of what temporary workers earn and has job security

PROGRESSION

Motivations/outlook

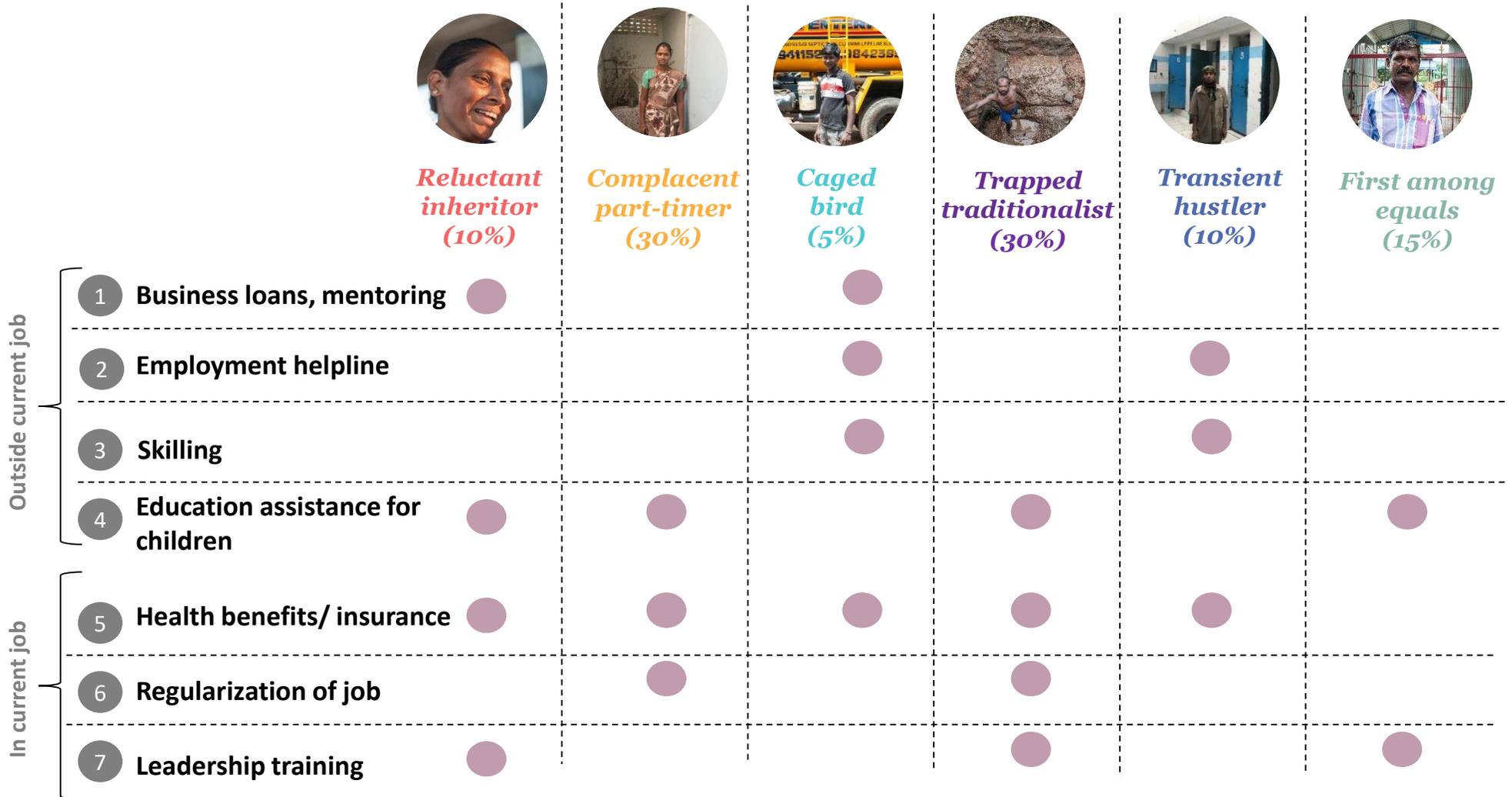
- Understands the unsafe/undignified aspect of the job but values the higher and assured income

Aspirations

- Does not have aspirations to exit the job
- Wants children to break out of the family’s sanitation legacy

Potential solutions will need to be targeted to these personas

Mapping of potential solutions to personas (illustrative)



Note: Figures in brackets based on % of SWs falling into each category based on our interactions—purely an indicative estimate

Agenda

Project context

Sanitation worker ecosystem

Worker profiles, challenges and personas

Underlying insights

Focus areas

Next steps

We have uncovered 29 insights across four dimensions: behavioural, social, infra, and governance

Dimension	What we have looked at
1 Behavioural	<ul style="list-style-type: none">• Entry into profession: Worker mental models• On-the-job: Worker perceptions and behaviors• Pathways for progression: Worker motivations and aspirations
2 Social	<ul style="list-style-type: none">• Caste lens: Role of caste in perpetuating unsafe conditions for workers• Gender lens: Women's choices and constraints
3 Infra/tech	<ul style="list-style-type: none">• Toilet/sanitation system interface and corresponding public behavior• Sanitation infra for containment and transport: sewers, drains, septic tanks, etc.• Cleaning equipment: availability, suitability, etc.• Safety gear: availability, suitability, etc.
4 Governance	<ul style="list-style-type: none">• Focus/ priorities of government on sanitation workers• Policy design• Financing• Organization• Systems and processes• Capacity

[Entry] Family and spousal history are the key drivers of entry

— Behavioural —●—

Social —●—

Infra —●—

Governance —●—

- **Majority of the workers enter this profession because their parents were sanitation workers, often replacing their parents:** even though workers understand the riskiness attached to the job, it is almost a rite of passage to continue with the job; permanent jobs even come with a promise of replacement for the children if something happens to the father/mother
- **Family aspect further gets sustained as both husband and wife are often in sanitation jobs**
 - A study of sewerage workers found that most of working wives either work as road sweepers or as domestic helps in and around Delhi¹
 - In some communities, women inherit the keys to the jewellery locker, in the Valmiki community they inherit the work of cleaning excrement from toilets²

Applicability

- All types of unsafe sanitation work

Voices from the field/expert interviews



*“My husband is a sewer cleaner, my parents were sanitation workers as well”-
School toilet cleaner, Trichy*

*“My mother was working here earlier, she became sick, so now I am doing her job”-
Drain cleaner, Warangal*



Implication: Need to provide alternative livelihood pathways for young sanitation workers and children of sanitation workers

[On the job] Workers feel invisible, often operate without formal contracts, and are not aware of terms of employment

Behavioural

Social

Infra

Governance

- **Lack proof of work:** Have no proof of work, even though they have been doing this job for several years, leading to “invisibilisation” of workers
 - “The workers do not have any identity card. This means they cannot access any entitlement or medical facility. This directly affects their identity as an individual...It means they cannot form associations or join any workers union¹”
- **Unaware of their exact payments:** Have a limited view of the exact payment due since they don’t receive salary slips, and are even unaware of their P.F. account details; if they ask for their salaries, they are threatened to be laid-off
 - This is also evidenced in the documentary, Kakkoos, where sanitation workers highlight that they are unaware of their exact salary and suspect the P.F. amount is being taken by the contractor

Applicability

- Public toilet cleaning
- Railways cleaning
- Drain and sewer cleaning-non govt.
- STP cleaning, septic tank cleaning

Voices from the field/expert interviews



“A drain cleaner was hit by a lorry and died without anyone even acknowledging his death, and providing grievance compensation. If something were to happen to us, we should be acknowledged at least”- Drain cleaner, Warangal

“I am unsure of my salary, it could be 7.5k or 7k, depending on the PF. Deduction. I don’t even have my account details. I get 6k in hand.”-Railways track cleaner, Warangal



Implication: Provide workers with a sense of identity through identity cards, salary slips, job IDs; make them aware of their rights

[On the job] Workers are fragmented and lack a unified voice for collective bargaining

Behavioural

Social

Infra

Governance

- **Workers are fragmented and often might be displaced:** Workers are fragmented (2-3 per site/operation) to be able to unionise together, further some public toilet cleaners are displaced often and unable to establish a stronghold
- **Even where workers exist in large numbers they still don't have any collective bargaining power:** Drain cleaning, sewer cleaning involves multiple workers but the risk to unionise is too high-workers feel they are disposable and if they start protesting, they are bound to lose their jobs
- **Workers also lack external support to help initiate collectivisation:**
 - **Workers are "invisible"**- difficult to track workers without any proof of work and official records of these workers
 - **Bandwidth of Dalit national politics focused on a different narrative:** 30% of SC community are casual labourers, 30-40% in agriculture and caste-based unions¹ tend to focus on issues of these workers; further this sub-caste of SWs is only 12-13%¹ of all SCs pushing their issues further to the fringe

Applicability

- CT/ PT and school toilets cleaning
- Railways cleaning
- Drain and sewer cleaning-non govt.
- STP cleaning

Voices from the field/expert interviews



"No I am not part of any safai karamchari union, if I have any demands I try to raise through the union for Madiga community"- Drain cleaner, Warangal

"There are no unions/opportunities for collective bargaining; labor supply for my current job is very high and I am very disposable"- PT cleaner, Warangal



Implication: Integrate SWs in existing unions or help collectivize various SWs under different types of work

[On the job] Mental model of safety is incomplete and heuristic driven

— Behavioural — ● —

Social — ● —

— Infra — ● —

— Governance — ● —

- **Most of these workers operate in environments where after years of practice, the baseline of what normal safety is, is very low:** It is considered normal to clean without gear, some practices have peaks in risk perception (like sewers where accidents/deaths are visible in the short-term), but those models are heuristic-driven
 - A study found that only 5% of the sewer workers were given information about the potential hazards by the supervisor or other officials and **more than 57% claimed that they learnt of the hazards of working in the sewers on the job**¹
 - Septic tank and sewer workers join at a young age (~16-18) and rely on experience of other workers
- **Conflicting relationship with safety gear:** Not fully aware of the value of gear; moreover, feel that gear hampers their work (e.g. difficult to hold the shovel in case of drain cleaning, gloves are often loose and keep sliding off)
- **Majority of workers perceive machines as substitutes rather than complements to their work:** most workers fear that new machines will replace them rather than aid their work and keep them safe
 - This was observed in our field visits and workers in similar fields (such as sweeping) have carried out protests against mechanisation²

Applicability

- All types of unsafe sanitation work

Voices from the field/expert interviews



Railways cleaner (Trichy) working only with a woollen glove- and considering that as “safety gear”

Implication: Increase awareness of safety gear and hazards of the job, incentivise innovation in safety gear

[On the job] Cost of workplace related injuries and illnesses is internalized and not perceived to be the liability of the employer

Behavioural

Social

Infra

Governance

- **Have normalised regular illnesses:** With years of exposure, workers have accepted health issues as a regular occurrence and unless probed further, don't even associate their health issues as issues directly arising from the job
- **Perceive work related injuries/illnesses as personal issues and bear the cost for the health burden:** Bear significant monthly expenses for medical treatment; most contractual workers don't have sick leaves as a part of their contracts
- **Limited expectation from govt./contractors and further get penalised for their illnesses:** Are not allowed to take sick leaves and lose out on payment for the day if they take a sick leave, have to work even with fever, body ache. In contrast govt. employees have health cards (for free surgeries) and insurance

Applicability

- CT/ PT cleaning
- Railways cleaning
- Drain and sewer cleaning-non govt.
- STP cleaning

Voices from the field/expert interviews



“Once a month we get fever, mosquito bites, even if we can't get up in the morning, we still have to come”- Drain cleaner, Warangal

“We face suffocation, regular stomach aches and skin rashes, even fever almost every other day. There are no health benefits from TCC or the contractor”- STP worker, Trichy



Implication: Improve working conditions and access to healthcare; incorporate health benefits into worker contracts

[Pathways] Sanitation workers are risk averse and value assured wages more than potentially higher entrepreneurial incomes or personal safety

— Behavioural —●—

Social —●—

Infra —●—

Governance —●—

- **SWs are risk averse, and tend to prioritise assured income over safety or potential higher income**
 - **Experienced SWs have a “stick with what you know” attitude-** After years of experience, workers are disinclined to unlearn their existing job (even though it was learnt with no training, skill) and feel there is an opportunity cost of a new job
 - **Contractual workers hope to become permanent one day-** Contractual workers are sticking to the job in expectation of regularization of their current job-there is complete information asymmetry since there is no guarantee or evidence in the past 5-10 years of conversion
 - **Not willing to take risks to start a business that could potentially pay much more-** Workers anticipate variability in earnings and potential dip in the short-term, if they were to start a business-and are unwilling to bear this switching cost

Applicability

- All types of unsafe sanitation work

Voices from the field/expert interviews



“I do this job everyday in the hope of becoming permanent. If I become permanent my salary will be comparable to someone working in a bank (INR 25K)”- Drain cleaner, Warangal (working on the job for 10+ years)

“I can take a loan to start my business but will not leave this job till that business becomes profitable and sustainable”- CT cleaner, Trichy



Implication: Provide on-the job/pathways solutions according to personas, keeping in mind their aspirations and risk appetite

[Pathways] Most sanitation workers are in dead-end jobs without any pathways for growth and this dampens ambition

— Behavioural — ● —

Social — ● —

Infra — ● —

— Governance — ●

- **Artificial caste ceiling:** Workers operate in informal environments, with lack of visible opportunities for progression (income and job role), contractor/supervisor often from a different caste-shaping workers' aspirations on the job and outside the job
 - This was evidenced in our field research where majority of the workers could not even think beyond their current job
- **With presence of female supervisors/ role models, women workers are relatively more ambitious:**
 - CT cleaners in Trichy wanted to become supervisors in the CTs, or start their own businesses such as tea shops, flour-shop business, elsewhere women only aspired for a permanent status/higher income in present job

Applicability

- All unsafe sanitation work

Voices from the field/expert interviews



"I don't want to do anything else. I am content with doing this job if I become permanent."- Drain cleaner, Warangal

"I would like to be an operator for the CT like the SHE team, provided I get their support"-CT cleaner, Trichy



Implication: Develop clear career trajectories for workers

[Caste] Due to under-employment, sanitation workers perceive themselves as disposable & guard even risky sanitation work from outsiders

— Behavioural — ● — Social - caste — ● — Infra — ● — Governance — ●

- **Protective of their jobs:** Sanitation workers are wary of entry of other communities into these jobs, access to these jobs is the only tangible 'asset' protected from dominant caste groups
 - In our interviews, workers expressed fears that **as jobs become more mechanized, other communities will express interest** to take their jobs, wanted **reservations and permanent status**
- **Underemployment even in sub-castes:** Workers are aware about a general paucity in employment opportunities across the board, and are aware that they are easily replaceable
 - Data indicates that there is **50-60% underemployment¹** within sanitation work for the lowest sub-caste groups, several others in line to do similar jobs

Applicability

- All unsafe sanitation work

Voices from the field/expert interviews



"If they bring machines to do our work, there shouldn't be other people who want to operate the machines; I should keep my job"
- Drain cleaner, Warangal

"It is difficult, but at least I have a job. There are so many of my relatives who are unemployed; so many people willing to take my job."
- PT cleaner, Warangal



Implication: Workers need to be shown job security and a baseline financial protection in livelihood alternatives

[Caste] Sanitation workers have limited exposure to other types of work and have an irrationally high risk-assessment of external opportunities

— Behavioural —●— Social - caste —●— Infra —●— Governance —●—

- **Artificially high risk perception of outside world:** SWs feel uncomfortable about jobs outside of their generational occupations because of an **inherent unfamiliarity with other jobs**
 - In our interviews, workers expressed a lack of references of people who do non-sanitation work; **perceived cost of movement is very high**
- **Strong associations at work:** Workers develop strong community relationships with other workers from similar sub-caste backgrounds, and thus find it even more difficult to leave these jobs

Applicability

- All unsafe sanitation work

Voices from the field/expert interviews



*"All of my relatives are in sanitation work. This is all I've ever known."
- PT cleaner, Warangal*

*"I have friends at work now, and like working with them. We all started working together."
- Drain cleaner, Delhi*



Implication: Workers preconditioned to working in groups shouldn't be offered individual self-employment opportunities; need community-based awareness programs and role models

[Caste] Caste labels prevent sanitation workers from finding employment in other informal urban labour markets

- **Highly regimented urban labour market:** Formal and semi-formal occupations (manufacturing, service sector, loading jobs, etc.) are **reliant on caste-based networks**¹
 - Workers find it difficult to break into **other casual labour markets, poor employer acceptance**; even in rural areas, there is **denial of opportunities as NREGA workers**² due to discrimination from dominant groups
- **Poor access to education and housing restricts access to opportunities:** Lower education/skills and denial of free access to housing **restrict employment opportunities** as workers are spatially tied to their jobs
 - The average worker we spoke to **dropped out of school in the 5th grade**, no alternate skills
 - Workers find it difficult to relocate to better jobs in different locations due to denial of housing opportunities from upper castes

Applicability

- All unsafe sanitation work

Voices from the field/expert interviews



"I tried to get a job as a load-man but there is a strong community of workers there from a different caste that discriminates against us. They asked for a Rs. 2 lakh security deposit."
- Drain cleaner, Trichy

"We can only get housing close to the industrial area if we lie about or hide our caste. If the landlord finds out, he'll ask us to vacate the house"
- PT Cleaner, Trichy



Implication: Education and skill for the younger SWs and the next generation is crucial to overcome the artificial barrier to entry; need incentives to employees for hiring these workers

(1): Interview with Prof. Thorat, JNU; (2): Human Rights Watch 2014; Field research interviews; Dalberg analysis

[Caste] Sanitation workers are risk averse and wary of self-employment opportunities due to low self-efficacy and access to markets

- **Risk averse:** Generational ties to occupations restrict their thought processes, businesses are associated with **unreliable income and they can't afford to sustain dips**
 - Only ~10% of urban SC community members are successfully in self-employment opportunities¹
- **Wary of customer facing businesses:** Workers are hesitant to pivot to businesses with **high customer interaction (e.g. tea and food stalls, etc.)** because they fear customers wouldn't buy from them
- **Access to finance and training:** Poor access to **financial instruments**, lack of business models and acumen
 - Loan-based schemes are failing because banks are **unwilling to guarantee sizeable loans**, and SWs are unable to **present viable business models, have a lack of training and experience**

Applicability

- All unsafe sanitation work

Voices from the field/expert interviews



"I don't think anyone would want to buy tea from me, given me caste and job background"
 - PT cleaner, Trichy

"We have realized that loans for self-employment alone are insufficient – workers need a lot of hand-holding through the process of owning and operating small businesses."
 - NSKFDC official



ISO 9001: 2008

Implication: Loans not sufficient for successful self employment, need for comprehensive support packages

(1): Interview with Prof. Thorat, JNU; Source: Field research interviews; Dalberg analysis

[Caste] Sanitation workers have low awareness of livelihood schemes and are systematically denied access

- **Poor awareness:** Workers are not made aware of rehabilitation schemes on the job; employers have misaligned incentives to promote pathways
 - **85% of the workers we interviewed were not aware of any government schemes** for their benefit
- **In-caste discrimination:** Because of their lower sub-caste backgrounds, workers are usually **excluded from SC oriented schemes** as well
 - Most of these schemes are soaked up by higher sub-castes within Dalits
 - Several workers reported difficulties in **obtaining caste certificates** due to discrimination, a necessary precondition to getting any benefits

Applicability

- All unsafe sanitation work

Voices from the field/expert interviews



"I don't have a caste certificate, I have been trying to get one for a while"
 - PT cleaner, Trichy

"I don't know of any schemes specifically for sanitation workers; I take small loans from my relatives when I need money"
 - Septic tank cleaner, Trichy



Implication: SWs need to be informed about schemes and their rights through alternate (potentially multimedia) platforms

[Gender] Women’s entry into these jobs is compelled by the need to supplement or replace spousal income



- **Supplement husband’s income:** Women’s entry into job is compelled by the need to supplement SW husband’s income, where husband is also a sanitation worker
 - In our interviews with women working as CT cleaners, school toilet cleaners, their husbands were involved in sewer work, septic tank cleaning and drain cleaning

- **Sole-earners of the family:** Many women workers have become sole earners of their family after having lost their husbands to traumatic incidents such as suicide or alcoholism
 - Health experts state that the **life expectancy of sewerage workers is ten years** less than the national average¹ due to health effects of the job and substance abuse (drinking) required to carry out the job

Applicability

- School toilet cleaning
- Railways tracks cleaning
- Drain cleaning
- Latrine cleaning

Voices from the field/expert interviews



“My husband is a UGD cleaner, in the afternoon he’s passed out drunk. Meanwhile I work here as a CT cleaner”- CT cleaner, Trichy

“I got married when I was 18, my husband committed suicide because he wasn’t able to find a job. My son was three years old at that time, now he’s 20 years old and I have been taking care of him since then.”-Drain cleaner, Warangal



Implication: Provide counselling (vocational and emotional) to women and access to collective employment groups; workplace policies to help women balance childcare and domestic work

(1): Down the Drain, Praxis, 2014; Source: Field research, interviews; Dalberg analysis

[Gender] In addition to faecal matter, women workers are also exposed to an unfriendly and unsafe work environment



- **Lack restroom facilities:** Women workers (drain cleaners) need to move around all day and have no access to restroom facilities, especially needed during the time of their menstrual periods
- **Face unsafe work environments:** Face harassment at work and often feel unsafe due to work during odd-hours, and have no mechanism to raise issues-:
 - Men come to drink in the community toilets early morning, threatening the safety of women cleaners, but women cannot do much about it
 - Railway track cleaners are eve-teased at the railway track platforms at night and move in groups to stay safe
 - In contrast, school toilet cleaners are content with the job even though they earn significantly lesser than other workers because they feel “a sense of comfort” in an environment consisting of female teachers and students

Applicability

- CT cleaning
- Drain cleaning
- Railways tracks cleaning

Voices from the field/expert interviews



“Only women are given night shifts, I try to stay with other women to keep safe.”- Railways cleaner, Warangal

“All these men come to drink in the morning, I feel scared....but what else can I do about the situation?”-CT cleaner, Trichy



Implication: Increase safety at the worksite by improving systems and supervision

(1): Down the Drain, Praxis, 2014; Source: Field research, interviews; Dalberg analysis

[Gender] Women workers lack “empathetic” supervision at the workplace

— Behavioural — ● —

Social-
Gender

— ● —

Infra

— ● —

Governance — ●

- **Only male supervisors exist in all types of work (except in few CTs and school toilets), often insensitive to women’s needs:** Supervisors are often unable to understand issues specific to women, and even women are hesitant to communicate them to male supervisors
- **Double burden:** Supervisors often fail to recognize the increased burden on women
 - Only women workers are assigned night shifts for a month at a stretch and continuous shifts lead to double responsibility of work and household chores, leading to sleep deprivation for almost a month¹
- **Frequent harassment by contractors/supervisors**
 - Some have reported being spoken to in an “awkward and vulgar” manner by supervisors
 - In a recent instance in Bangalore-women sanitation workers asked for their unpaid salaries- the supervisor abused them with casteist slurs, but also sexually harassed them by taking his pants off in their presence and threatening to rape them²

Applicability

- Drain cleaning
- Railways tracks cleaning

Voices from the field/expert interviews



*“I get scolded by my supervisor for taking longer toilet breaks during my periods”-
Railways cleaner,
Warangal*

*“Being a woman, it is difficult to do this work and house work. Especially difficult during periods- so tired that I can’t even stand”-
Drain cleaner, Trichy*



Implication: Improve working environment- appoint women supervisors; gender sensitise male supervisors

[Sanitation system interface] Poor use of sanitation systems by end-users and the lack of public resources exacerbates the problem for sanitation workers

— Behavioural — Social — Infra — Governance —

- **Low civic sense on how to use systems and lack of resources leads to break-down necessitating manual intervention**

Civic sense

- Throwing of bottles and cigarettes, sanitary pads into PTs leads to systems not working and cleaners have to clean excreta manually
- Institutional and hotel waste in drains/sewers, illegal dumping of waste in manholes leads to blockages which then need to be cleared manually
- Infrequent desludging (10 vs. 3 years) leads to accumulation of sludge necessitating entry into septic tanks

Lack of resources/systems

- Broken flushes in CTs, school toilets lead to accumulation of faecal matter which workers have to clean manually
- Insanitary latrines connected to open drains exposes drain cleaners to faecal matter

- **No disincentives for users given lack of traceability**

- Difficult to track users of toilets given the footfall, difficult to identify users illegally accessing the sewer/drainage system
- Septic tank design guidelines and desludging schedule are not binding; there is no tracking of desludging frequency and associated fines (e.g., septic tanks in Agra generally do not conform to the design and the effluent is allowed to flow into open drains¹)

Applicability

- All unsafe sanitation work

Voices from the field/expert interviews



Open drain in Warangal

“This is a never-ending behavioral problem: people don’t dispose solid and liquid waste properly, even after all the awareness programs undertaken”

-Chief Engineer, Trichy

Implication: Improve civic sense; upgrade infrastructure to incorporate for accountability

[Sanitation hardware] Legacy sanitation systems are unable to handle the increasing and changing nature of waste and break down frequently



- **Population growth, urbanization, unauthorized residences etc. putting increasing stress on legacy infrastructure**
 - Poor planning in cities that aren't ready for increasing load-In Delhi, sewerage facilities cover ~ 75% of the population, with resettlement colonies and illegal settlements linking their domestic waste outlets to drains/sewers illegally¹
- **Sewer systems unable to keep up with changing nature of waste**
 - **Misuse of the sewer facility and improper covering of manholes causes much of the blockages;** materials that cause blockage include construction material, solid sludge from industry, kitchen waste, sanitary pads,etc¹
 - **Systems have not been upgraded** (outdated construction materials of sewers leading to friction, narrow dia. which does not allow materials to pass through) to account for this unintended waste, given civic sense will always be an issue
- **Unintended linkages between sewer and drain networks**
 - Lack of planning and demarcation of responsibilities between public works and sanitation systems leads to linkages when maintenance is done; storm water finds its way to sewage system and unnecessarily increases its load¹
- **Sanitation systems presuppose availability of willing labour**
 - Frequency of manholes along the line, feasibility of entry into chambers indicate that systems assume manual intervention

Applicability

- Sewer cleaning

Voices from the field/expert interviews

“We are converting unsewered areas to sewer networks; mandate of the government is to connect unauthorized colonies to sewer networks-there are 1600 such colonies, for 200-300 conversion is under process. At this rate it will take at least 10 years to complete, and there will be more colonies by then.... “

-Zonal engineer, DJB (on condition of anonymity)

“There is poor civic sense, people dump trash in open drains. Even the drains are 40 years old, haven't been upgraded since then and the system can't handle the excess load

-Drain cleaning contractor Warangal

Implication: Need to upgrade existing infrastructure

(1): Hole to Hell, CEC, 2007; Source: Field research interviews; Dalberg analysis

[Machinery] Machines are not designed for the full range of use cases and procedural bottlenecks in India necessitating human intervention



- **Workers developing artificial relationships with machines; unable to use machines properly**
 - Machines designed with hybrid-human requirement, but failure to train workers on their usage leads to primitive use of the machines (e.g., workers need to guide hoses into manhole chambers by entering themselves)
- **Assignments require dexterity, but machines rely on high-pressure based brute-force methods like jetting and suction applicable only for select cases**
 - Jetting and suction operations can only be used in select cases but replacements do not exist for tactical tasks such as removing silts with sickles
- **Equipment not designed for Indian context**
 - Machines can't enter narrow lanes (3 ft. wide lanes in Bombay) which have internal lines, which account for ~80% of the blockages
 - Auto-mounted solutions have been tried but with limited success since constant refilling of tanks is required because of limited water capacity
- **Machines are outdated and there is little incentive or motivation to improve them**
 - Basic design of desludging trucks hasn't changed in 15+ years
 - Contracting process not designed to incentivise innovation- tenders are meted out on basis of lowest price and pre-determined specifications
- **Lack of real-world testing of machines:** Lack of third-party audits on design of machines and whether they can actually work without human intervention

Applicability

- Sewer cleaning

Voices from the field/expert interviews



Workers using a hammer for a sewer operation

“There is no holistic upgradation to mechanization because workers are not trained on how to use the machines.”- Kam-Avida

Implication: Incentivise innovation; build organic relationships between workers and machines

[Safety gear] Safety equipment is primitive and an impediment to workers. Well-designed, user-centred gear suitable for a range of use-cases is needed.



- **Failure to use gear seen purely as a behavioural problem but gear is not suited for the nature of work**

- **Not suited for Indian context:** difficult to work with gear in humid conditions
- **No adaptability:** most types of gear are borrowed from other occupations, not modified for their use in sanitation and even within sanitation, same gear provided for different types of work (e.g. sewer cleaning requiring gear that allows for dexterous work, not needed in other types of work)
- **Impede dexterity:** ill-fitting and poor quality gear does not allow workers to perform tasks, leads to loss of grip (e.g., gum boots make it difficult for workers to wade through sludge)

- **Lack of formal culture of safety**

- **Low benchmark:** Gear provided is limited and doesn't match guidelines, even presence of one item (such as a glove) is counted as gear
- **Lack of availability and accountability:** Available safety gear is not in good condition and most of it is non-functional; there is no accountability of supervisor/contractor to provide such gear- a report states that even in risky jobs such as sewerage cleaning, workers are hardly provided with any proper protective gear and they have no knowledge of whom to appeal to for a change in their situation¹

Applicability

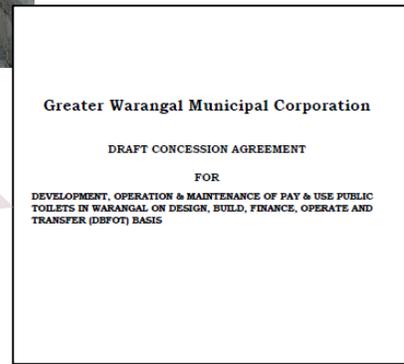
- All types of unsafe sanitation work

Voices from the field/expert interviews



"I use the gear for road sweeping but can't do drain cleaning with this gear, the gloves don't allow me to hold the stick properly."- Drain cleaner, Warangal

Draft agreement for PT workers does not refer to any safety gear/medical allowances/training for cleaners



Implication: Incentivise innovation in safety gear; create accountability around use of gear

(1): Down the Drain, Praxis; Source: Field research interviews; Dalberg analysis

[Focus] There are large incentives for authorities to not acknowledge and address the problem of unsafe sanitation work

- **Narrow, varied understanding of manual scavenging:** Authorities still believe manual scavenging is **restricted to latrine cleaning**; different ULBs have different ideas
 - ULBs unwilling to **expand their understanding**, even as 4 new types of workers added by law in 2013 Act
- **Perverse incentives to identify workers:** State bodies **tasked with identification also inclined to suppress the existence of unsafe SWs**, misaligned incentives
 - **There has been no third-party assessment of MS/SWs**
- **Lack of political agency:** SWs are not able to affect political change
 - Intractable problem, **out of the public eye**
 - Massively **underrepresented in elected offices**
 - **Left out of mainstream Dalit politics** because of in-caste discrimination/saturation of other Dalit issues

Applicability

- Drain and sewer work
- Railways tracks cleaning
- Latrine cleaning
- Septic tank desludging

Voices from the field/expert interviews



"We send 3-4 reminders to states to conduct identification drives for MS, but they never conduct them in earnest; all their estimates are massively underreported"
- NCSK official

"According to states' data, there are 13k total MS in the country. If they conducted sincere surveys adhering to the 2013 Act, the number would be over 20 lakh."
- Ashif Shaikh, Jan Sahas



Implication: A third-party needs to be contracted to carry out an unbiased and genuine assessment of sanitation workers in all states

[Policy design] The 2013 MS Act widens the scope of legal engagement with unsafe sanitation work but leaves several loopholes that get exploited

- **Room for interpretation:** Definitions of manual scavenging and qualifications in the 2013 Act and subsequent Rules allow variable interpretation
 - Manual cleaning of sewers illegal except when “absolutely necessary”, with officials’ approval
- **Lack of enforcement and monitoring:** NCSK tasked with implementation but it is a non-statutory body, has no power to enforce the provisions
 - Most states haven’t conducted surveys, are not implementing the proposals
 - Monitoring committees don’t meet regularly
 - State commissions not constituted in most states
- **Lack of feasible alternatives:** Plans and designs for mechanization are **not audited by third-party observers**, not clear if mechanization will solve all problems

- Applicability**
- Drain and sewer work
 - Railways tracks cleaning
 - Latrine cleaning
 - Septic tank desludging

Voices from the field/expert interviews

OBLIGATIONS OF EMPLOYER TOWARDS EMPLOYEES EN OR SEPTIC TANK

3. (1) No person shall be allowed to clean a sewer manually, with these rules except:-

- for the removal of concrete or FRP(Fibre Reinforced plastic) mechanical equipments cannot be put into operation.
- for inter-linking the newly laid sewer main with the existing sewer main more than 300 mm diameter.
- for removal of submersible pump sets fixed at the bottom of the sewer.
- for the reconstruction of the manhole or rectification of the sewer.
- Any circumstance, when it is absolutely necessary to do so after the approval of the local authority has permitted to do so after recording the reasons for allowing such cleaning.



“Several ULBs and state bodies don’t know about the act and its provisions, as well as the 2014 Supreme Court judgment.”
- NCSK official

Implication: States and ULBs need to be made liable to drafting strategies to mechanize after third-party audits; NCSK needs wider portfolio to enforce the provisions

[Policy design] Rehabilitation or livelihood schemes are not designed keeping in mind the unique needs of different kinds of sanitation workers

- **Broad-brushes in policy design:** Interventions **not specialized** by types of work, rural-urban or region
 - Self-employment schemes failing in urban areas as workers are looking to get stable salaried employment
- **Poor design of loan-based schemes:** Prescribed amounts (average **NSKFDC loan last year was ~Rs. 1.5 lakh**) are too high for banks to sanction, and for SWs to effectively use for smaller financial needs
 - Several loan-based schemes are being refused because of a high loan and low subsidy amount
- **Skilling schemes not supported with backend commitments with employers:** Stipend and training programs have **poor conversion rates to jobs**, and new jobs often pay even **lower wages** than sanitation work
 - There are no commitments from employers to accept rehabilitated and trained SWs

Applicability

- All unsafe sanitation work

Voices from the field/expert interviews



"I have no interest in taking a loan. I just want to be able to get a regular and stable salary."
 - Septic tank cleaner, Trichy

"By my estimate, SRMS wouldn't have successfully rehabilitated more than 500 people"
 - Ashif Shaikh, Jan Sahas



Implication: Schemes need to be redesigned with a user-centric lens; need different types of strategies for different kinds of workers (training and employment in urban areas, small-scale businesses in peri-urban/rural areas)

[Financing] Urban local bodies don't have adequate budgets for sanitation worker safety or comprehensive mechanization

- **Insufficient spending on gear and equipment:** ULBs are spending < 1% of their payroll budgets on safety gear for workers
- **Lower quality machines in use:** Manufacturers indicate that ULBs insist on buying cheaper machines, and that supply of better quality machines is restricted by their requirements
 - Machines haven't been upgraded or changed in 10-15 years

Applicability

- All unsafe sanitation work

Voices from the field/expert interviews



"The budget is enough – we have given gear to all workers but only 50% of them use it"
- Govt. official, Trichy

Disconnect in versions

"Only some of us have ever been given any gear. The gloves we get are very difficult to use, boots get stuck in drains while cleaning."
- Drain cleaner, Trichy



Implication: National guidelines should be published to mandate states to spend a minimum amount per person of salaries (including for contractual workers) on safety gear

[Organization] Ministries employing sanitation workers are operating in silos. Unclear responsibility for sanitation worker safety in urban local bodies

- **Lack of joint solutioning:** Sanitation and rehabilitation systems run by **parallel organizations** with little or no coordination between each other
 - MoSJE has tasked NCSK and NSKFDC for rehabilitation of workers, but they still rely on support from ULBs
 - Railways and MHRD are large employers of sanitation workers but don't have coordinated strategies
- **Lack of standardization in equipment and contracts:** ULBs don't have **standardized requirements for contracting conditions and equipment** that they must have; guidelines are open to interpretation
- **No standard benchmarks for duties in government bodies:** Different departments in ULBs responsible for different roles; lack of coordination and accountability

Applicability

- All unsafe sanitation work

Voices from the field/expert interviews



"We don't regularly coordinate with state bodies and ULBs."
- NCSK official

"Government is trying to standardize the purchasing of equipment by ULBs but it has taken almost one year, and will take more time"
- Govt. official, Warangal



Implication: Need establishment of standardized SOPs and guidelines from the point of view of sanitation workers'

[Organization] ULBs are increasing their use of sub-contractors exacerbating the problem for workers due to loopholes and the lack of oversight

- **Corporations are shifting towards contractual employment:** Most ULBs moving away from permanent workers to reduce payroll outflows in the long term, and ensure plausible deniability for themselves
 - Freeze on permanent hiring in Warangal
 - Labor supply contractors in Warangal have little or no responsibilities, exist as dummy figureheads
- **Vacancies at all levels:** Insufficient workers in cities due to underfunding
 - Deficit of ~600 SWs in Trichy
 - Vacancies also at senior levels (75% among SIs, 30% among JEs in Trichy, 40% in NCSK, etc.)
- **Contractors chosen based on relationships with officials:** Penalties against contractors are not enforced
 - NCSK receives ~500 workers' complaints annually, most on wage theft, etc. against contractors

Applicability

- Sewer work
- Drain cleaning
- STP & Railways tracks cleaning
- Septic tank desludging

Voices from the field/expert interviews



“There is no point complaining against the contractor; he is on good terms with the JE”
 - STP worker, Trichy

“The rate of contractual employment is only going to increase; permanent employment places a huge stress on the government”
 - Govt. official, Warangal



Implication: Terms of contract need to be made transparent to workers, and should include stricter regulatory enforcements for employee benefits and provisions for safety

[Systems and processes] Sanitation systems are reactive & complaint-based rather than proactive & maintenance-based. Data & monitoring are weak.

- **Sewage network maintenance is more reactive than proactive:** ULBs spend their limited resources on clearing backlogs of complaints, **cannot do preventive maintenance** because of a lack of equipment/personnel
 - 1-3 daily unattended complaints in DJB divisions on average
- **No data-based monitoring of systems and workers:**
 - No mapping of household/institutional demand; no predictive model of **where blockages are likely to occur**, or where on-site solutions are needed
 - **Equipment and assignments aren't tagged**, there are no job codes/logs to monitor assignments
 - **No databases or identification of all workers in the city's sanitation system;** several enrolled on a rolling basis by contractors

- Applicability**
- Sewer work
 - Drain cleaning
 - Septic tank desludging

Voices from the field/expert interviews



"We get 25-30 complaints everyday; it is difficult to match with high demand, particularly during monsoons"
 - Govt. official, Trichy

"We try to do preventive desilting and maintenance done but can't keep up with complaints to free up workers"
 - DJB official



Implication: Need data-based monitoring systems that predict repair/maintenance work, and log all assignments undertaken by workers

[Systems and processes] Processes to avail schemes are arduous and come at a significant cost to workers; they are dissuaded to claim their rights

- **Burden of proof on sanitation workers:** Most schemes require workers to **provide (often govt.) identification** that ties them to their work; **high rate of refusal**
 - TAHDCO turned away 200 self-identified manual scavengers last year due to lack of govt. ID
- **Schemes are mediated through entities that have perverse incentives:** Supervisors/officials at ULBs are required to certify status of SWs; have incentives to deny
 - There is also **evidence of rent-seeking** in the process
 - CSO estimates suggest that 68% of SRMS beneficiaries were not legitimate manual scavengers¹
- **Tedious, long-drawn process:** High **opportunity cost of time** for daily wage SWs to engage with bureaucrats
 - Takes longer than 1 year and several visits to get loans approved and disbursed

Applicability

- All unsafe sanitation work

Voices from the field/expert interviews



*"I know of families in Delhi who tried to get their cash assistance grant for 3 years, made 10-15 trips to these agencies, but to no avail."
- Bezwada Wilson, Safai Karamchari Andolan*

*"I went to the TAHDCO office 4-5 times in one year, and they kept delaying my grant. I gave up trying soon after."
- Drain cleaner, Trichy*



Implication: Process needs to be simplified; all types of workers need to be provided with identity cards to unlock access to schemes

(1): Jan Sahas interview; Source: Field research interviews; Dalberg analysis

[Systems and processes] Many workers relapse into sanitation work after having been part of an upskilling program due to lack of ongoing support

- **Constant outflows drain grants and loans:** Workers' sustenance expenses eat into their grants and loans, and they can't put it to long-term constructive use
- **Workers attempt to build portfolios of jobs:** Even after transitioning to different jobs, workers still allocate time and effort to sanitation jobs, look at it as a supplement
- **No data-based feedback and monitoring:** No database of beneficiaries maintained by implementing agencies, no mechanism to prevent relapse
 - Skills training partners of NSKFDC are supposed to track beneficiaries, but no data as of now

Applicability

- All unsafe sanitation work

Voices from the field/expert interviews



"I will try to get a loan to do something else on the side but don't want to leave this job completely"
 - CT cleaner, Trichy

"I took the grant from TAHDCO but it didn't last very long, so I had to go back to the old job soon after"
 - UGD cleaner, Trichy



Implication: Regular feedback, tracking and follow-up schemes for workers after they exit any of the interventions

[Capacity] There is a complete absence of any safety or operations training for sanitation workers and their immediate supervisors

- **Workers not made aware of occupational risks:** Workers develop risk perceptions through hearsay and experience, not through formal processes
 - Only 5% of DJB sewer workers have been given information about potential hazards
 - Almost **none know first aid procedures**¹
- **Workers never trained to use safety gear/equipment:** Gear/equipment often counter-intuitive to use
 - Respirators given to workers in one division in Delhi found **uncomfortable and unusable** because of no training
 - Jetting used disproportionately because **workers aren't aware of other available functionalities**
- **No training for officials:** There are no formal training procedures for supervisors, engineers and officials

Applicability

- All unsafe sanitation work

Voices from the field/expert interviews



"My uncle started taking me to his assignments when I was 14, that's how I learned how to do this job"
- Septic tank cleaner, Trichy

"There are provisions for training but it isn't practical to implement them – workers learn through experience"
- DJB official



Implication: Need to develop structured on-boarding training and orientation programs for SWs and officials

(1): Hole to Hell, CEC 2007; Source: Field research interviews; Dalberg analysis

Agenda

Project context

Sanitation worker ecosystem

Worker profiles, challenges and personas

Underlying insights

Focus areas

Next steps

Not all insights are equally critical or solvable; we will use a structured approach to prioritize which ones to address first

Approach for prioritization

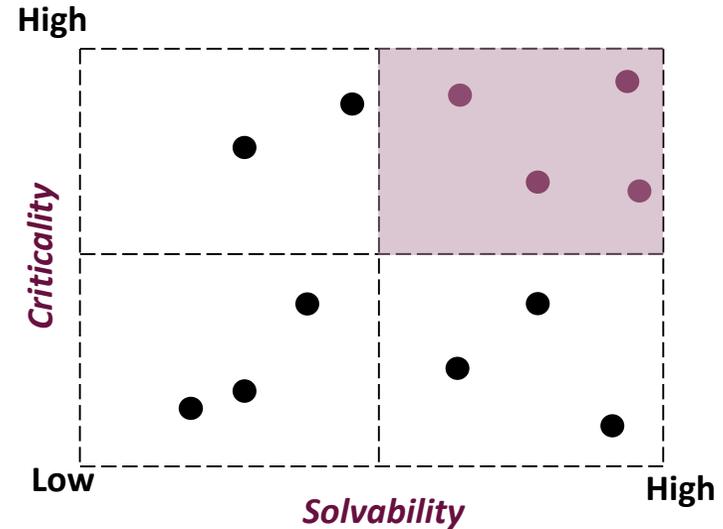
1 We will evaluate the insights in terms of their criticality and solvability

 **Criticality**

- **Quantum of impact:** number of types of sanitation work affected by the issue; risk-adjusted number of workers whose lives are impacted
- **Intensity of impact:** extent to which the issue impacts workers' lives

 **Solvability**

- **Stakeholder awareness:** Awareness of and alignment on issue by key stakeholders
- **Need to change rigid behaviours/ mindsets**
- **Likely cost of addressing the issue**



2 After the first level of prioritization, we will evaluate whether the issue has been/ is being tackled 'at scale' ("additionality")

- Our approach has been illustrated on the next two pages
- The solutioning workshop will be used to refine our prioritization

We have evaluated issues based on their criticality, solvability, and additionality (1/2)

Illustrative

Issue	Criticality	Solvability	Additionality
<p>2. Workers feel invisible, often operate without formal contracts, and are not aware of terms of employment</p>	<ul style="list-style-type: none"> • Most contractual workers don't have IDs and formal contracts, which is a pre-condition to avail government benefits/ schemes • Sanitation work becoming increasingly contractual 	<ul style="list-style-type: none"> • Can potentially be fixed quickly through Aadhar-based ID systems, enforcing contracts between contractors and workers, etc. 	
<p>3. Workers are fragmented and lack a unified voice for collective bargaining</p>	<ul style="list-style-type: none"> • Increasing number of contractual workers who are not part of safai karamchari unions • They feel deprived, helpless, unheard 	<ul style="list-style-type: none"> • Dominant contractors and govt. in opposition 	<p>Some CSOs (e.g. Navsarjan, Gujarat) have tried to organize workers in unions, faced resistance from private contractors</p>
<p>5. Cost of workplace related injuries and illnesses is internalized and not perceived to be the liability of the employer</p>	<ul style="list-style-type: none"> • While some workers receive health benefits like medical check-ups and employee state insurance, most contractual workers do not receive any employer benefits 	<ul style="list-style-type: none"> • With formalisation and recognition of SWs, employers can be made to mandatorily provide health benefits 	
<p>12. Sanitation workers have low awareness of livelihood schemes and are systematically denied access</p>	<ul style="list-style-type: none"> • While most workers are not aware of government rehabilitation schemes, this is a second-order issue, the first being scheme design 	<ul style="list-style-type: none"> • Awareness can be created relatively easily through ULBs, CSOs, and media 	<p>Some CSOs create awareness amongst SWs about livelihoods schemes</p>

We have evaluated issues based on their criticality, solvability, and additionality (2/2)

Illustrative

Issue	Criticality	Solvability	Additionality
<p>15. Women workers lack “empathetic” supervision at the workplace</p>	<ul style="list-style-type: none"> Issue across railways and drain cleaning, where women have men bosses who don’t understand their issues/ cannot empathize 	<ul style="list-style-type: none"> Gender sensitization is challenging but introducing female supervision can help 	<p>Gramalaya (an NGO) organizes female-run SHGs to operate CTCs in Trichy; women supervisors seen as role models</p>
<p>17. Legacy sanitation systems are unable to handle the increasing and changing nature of waste and break down frequently</p>	<ul style="list-style-type: none"> Legacy hardware / poor public engineering is a key reason for blockages 	<ul style="list-style-type: none"> Capital and resource intensive to change infrastructure; need buy-in multiple stakeholders; might also be technically infeasible in dense locations 	<p>New designs for underground drainage being floated in Trichy; DJB considering moving to frictionless pipes for sewer network</p>
<p>18. Machines are not designed for the full range of use cases and procedural bottlenecks in India necessitating human intervention</p>	<ul style="list-style-type: none"> The riskiest jobs becoming more mechanized, but not used adequately and optimally 	<ul style="list-style-type: none"> Can solve through innovation in design and training of workers 	<p>Kam-Avida and HAL are developing machines for the Indian context</p>
<p>22. Rehabilitation or livelihood schemes are not designed keeping in mind the unique needs of different kinds of sanitation workers</p>	<ul style="list-style-type: none"> Fundamental issue with rehabilitation of workers – till design is not corrected, uptake will remain low and relapse will likely be high 	<ul style="list-style-type: none"> Schemes can be improved with better design and stronger linkages with market 	<p>NSKFDC piloting different types of rehabilitation schemes, looking to partner with local NGOs</p>

Agenda

Project context

Sanitation worker ecosystem

Worker profiles, challenges and personas

Underlying insights

Focus areas

Next steps

Next steps

- 1 Submission of phase 2 deliverable (best practices) by 22 Nov**
- 2 Submission of phase 3 deliverable (solutions) by 24 Nov**

Annexure

MS 2013 Act – key features



Scope of the act

- **Bans manual cleaning of insanitary latrines**; asks for demolition of existing latrines
- **Disallows manual deployment in sewers, septic tanks, etc.** except:
 - Where machines cannot be used, when new sewers/septic tanks are laid
 - Any other circumstance, when it is “absolutely necessary” to have manual sewage cleaning, done with the permission of ULB officers
- Bans manual cleaning of **drains connected to toilets, single pit toilets and railway tracks**



Safety requirements

- In the cases where manual deployment is carried out, the act mandates the **provision of ~50 kinds of safety gear and equipment**, including wader suits, supply trolley systems, nylon rope ladders etc.



Rehabilitation

- Asks **ULBs/DMs to carry out identification** of all existing/past MS'
- Mandates the **provision of one-time cash assistance** (Rs. 40K), educational scholarships for children, housing allotment, **concessional loans for businesses, skilling and monthly stipends**
- Directs provisions to be included within existing state/central govt. schemes



Monitoring

- **State and district-wise vigilance commissions to be established** with representatives from ULBs and DM offices, as well as CSO members
- Required to meet every 3 months to ensure implementation of the act



Budgets

- Doesn't make explicit budgetary allocations for the purpose of identification, protection or rehabilitation of workers
- Estimates¹ at the time of the release of the act suggested a **requirement of Rs. 4,825 Cr** to replace all insanitary latrines and implement mechanization

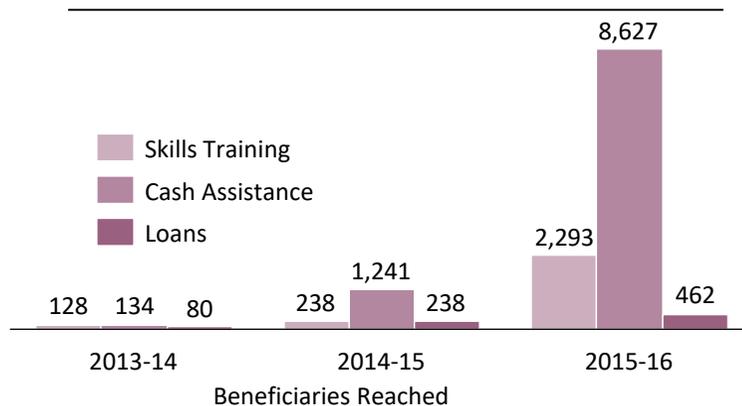
(1): Govt. [estimates](#) from 2013, at the time of the framing of the act

Scheme for Rehabilitation of Manual Scavengers (SRMS) – key features

Provisions of the Scheme

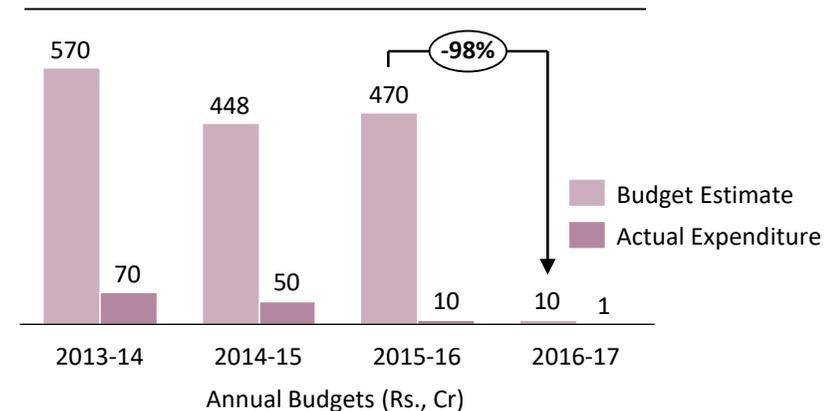
- **One-time cash assistance** of Rs. 40,000 to one member of MS household
- **Low interest loans** up to Rs. 10 lakh, can be up to Rs. 15 lakh for sanitation-related projects
- **Credit linked capital subsidy** of up to Rs. 15 lakh available
- **Skilling programs** in 22 institutions, including sector skills councils and some government institutions like CIPET and NSIC

Impact



- 78,941 manual scavengers given loans for rehabilitation till June 2010
- Scheme revamped under the 2013 MS Act; **11,598 have received cash assistance**
- Poor take-up rates for loans and skills training

Budget Allocations



- NSKFDC receives grants from MoSJE to fund cash assistance/loans/training projects
- SRMS funding has dropped drastically; **state agency's have not required additional funding due to poor targeting and saturation**

States have been able to identify just 13,000 existing manual scavengers, leading to a saturation in the uptake of SRMS provisions