Governance for Inclusive and Climate-Resilient WASH: A Study of Uttar Pradesh

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Global South Academic Conclave on WASH and Climate 2025

21st - 23rd February 2025, Ahmedabad

Introduction

Climate change, urban risks, and vulnerabilities significantly impact the delivery of municipal services and the quality of life in urban areas. Uttar Pradesh, situated centrally in northern India, faces unique challenges in balancing urban development with sustainability. In response, the state government has initiated a range of state-sponsored development schemes aimed at establishing green and sustainable infrastructure, inclusive civic amenities, and institutional reforms for the effective delivery of municipal services.

These initiatives complement **centrally sponsored urban missions**, including the Smart Cities Mission, AMRUT 2.0, Swachh Bharat Mission 2.0 (SBM 2.0), Pradhan Mantri Awas Yojana (PMAY), DAY-NULM, and the Prime Minister SVANidhi Scheme.

This Study to **analyse governance challenges in fostering inclusive and climate-resilient WASH infrastructure** in selected cities of Uttar Pradesh. It also aims to evaluate the current state of WASH infrastructure and services while proposing strategies to ensure water security and promote sustainable and resilient urban amenities

Inclusive Growth

- The concept of Inclusive growth encompasses **economic, social, and cultural aspects of development** (Dev, Mahendra S 2008)
- Inclusive growth may conceptualize as “the process and the outcome **where all groups of people** have participated in the organization of growth and have been benefited equitably from it” (UNDP, 2008)
- It is often used interchangeably with various other terms, including **‘broad-based growth’, ‘shared growth’ and ‘pro-poor growth’;** a growth, which is broad-based across sectors and inclusive of the large part of the country’s poor, disadvantaged, deprived and excluded communities(UNDP, 2008)

Inclusivity with reference to Sustainable Development Goals,2030

Sustainable Development goals

Goal 11: Make cities and human settlements **inclusive**, safe, **resilient** and sustainable.

“Leaving no one behind”

"Empowering people and ensuring inclusiveness and equality"

To Achieve Inclusiveness the following objectives have to be achieved

Addressing Exclusion and poverty → guaranteeing food and nutrition security ensuring access to quality and equitable education and lifelong learning → universal health coverage → fighting climate change by protecting the environment, its goods and resources, → empowering people

Gender Issues related with Access to WASH Services in India

- Women and girls lose time and experience stress when negotiating access to inadequate potable water and toilets.
- They face harassment and sexual assault when there are no toilets and they have to use the outdoors in the dark.
- Unsafe water increases women's care responsibilities, raises health costs and limits their income-generating possibilities as they spend most of their time caring for sick family members.
- Access to safe, frequent, and affordable transportation is often missing.
- Limited or non-existent health, school, and recreation services increase women's caregiving responsibilities

(UN-Habitat, 2012)

Urban Governance of Uttar Pradesh

Through Swachh Bharat Mission 1.0 and 2.0

KEY ACHIEVEMENTS

Financial Outlay
SBM 1.0: ₹ 3,989 Cr.
SBM 2.0: ₹ 9,342 Cr.
Total: ₹ 13,331 Cr.

70,000+
Community/ Public toilets Constructed

5% (2016) → 100% (2023)
D2D Collection

9 Lakh
Individual toilets Constructed

0% (2016) → 70% (2023)
Segregation @ Source

4(2018) Cities → 543* (2023)
Open Defecation Free++

7% (2016) → 69% (2023)
Waste Processing
551 Operational MRF
16 CBG Plants Under Construction

3 (2019) Cities → 652* (2023)
Garbage Free Cities

Through AMRUT 1.0 and 2.0

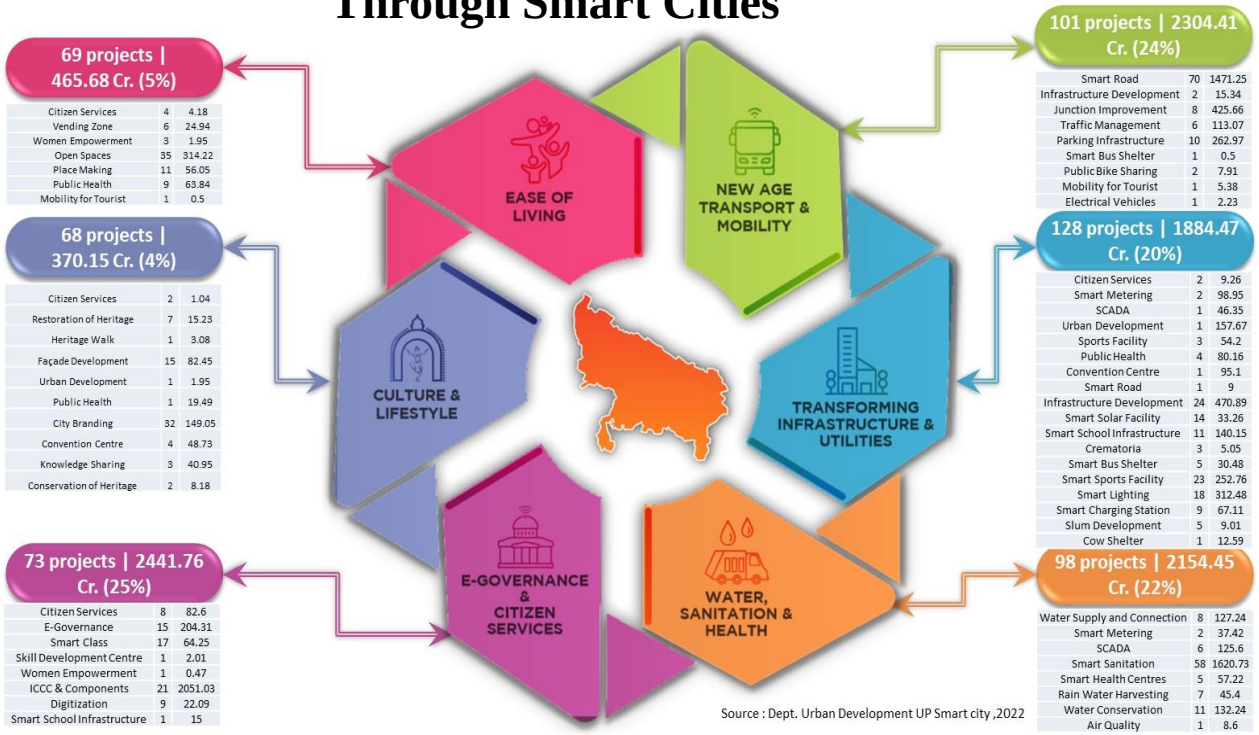
AMRUT

- Outlay- ₹ 10,855 Cr.
- Taps Conn.- 8.9 Lakh+
- Sewer Connection 7.8 Lakh+
- Beneficiaries
  Tap: 44.52 Lakh+
  Sewer: 38.98 Lakh+
- GIS Mapping- 59 Towns
- Green Space- 423 Acre

AMRUT 2.0

- Outlay- ₹ 24,000 Cr.
- Proposed Projects-341
- Tap Connection- 32 Lakh+
- Sewer Connection 4.9 Lakh+
- AMRUT Sarovar-194
- Green Space- 11 Project

Through Smart Cities



Source : Dept. Urban Development UP Smart city ,2022

Sanitation Infrastructure in Uttar Pradesh

Particulars	Number
ULBs	777
Wards	13779
Door to Door Waste Collection	12979
IHT(SBM)	8.97 Lakh
CT/PT	**70370**
Bulk Wastes Generator	2174
C&D Wastes	417
MRF	798
SLRL	82
Waste to Energy Plant	888
Landfills	40
Dumpsites	145
Waste Water Treatment at STPs (MLD)	6406.25
Treatment of Waste Water at FSTPs (MLD)	7135.00
Waste Collection (TDP)	15449.33
Waste Processing (TDP)	14486.19

Source; Swachch Survekshan , 2023

Municipal Corporation	Community Toilets		Public Toilets		Pink Toilet	
	CT Block	CT Seats	PT Blocks	PT Seats	Pink Blocks	Pink Seats
Agra	154	2409	39	362	1	5
Aligarh	10	190	32	282	3	15
Ayodhya	62	172	109	595	1	5
Bareilly	13	39	43	126	1	5
Firozabad	18	309	7	95	2	10
Ghaziabad	17	92	95	520	3	9
Gorakhpur	59	999	68	919	1	20
Jhansi	55	478	32	272	1	5
Kanpur Nagar	339	1240	99	1200	3	14
Lucknow	180	1800	160	1600	74	222
Mathura	60	504	72	114	2	15
Meerut	9	95	38	421	1	5
Moradabad	5	31	53	256	1	5
Prayagraj	35	250	165	1250	2	15
Saharanpur	30	150	52	156	3	9
Sahjahanpur	9	78	8	98	3	15
Varanasi	62	560	152	903	5	18
Total	1117	9396	1224	9169	107	392

Source: Department of Urban Development, Government of Uttar Pradesh

Research Problem

Unequal access to WASH services exacerbates social and economic inequalities, disproportionately **affecting marginalized communities, women, and children**. Furthermore, the vulnerability of water ecosystems is heightened by rapid urbanization and the unsustainable use of water resources. With freshwater supplies dwindling due to climate change, effective water resource management and equitable WASH infrastructure are crucial. Infrastructure must not only meet current needs but also address resilience to climate change and disasters while ensuring inclusivity and sustainability.

Research Questions

1. To what extent is WASH infrastructure in the selected cities inclusive, sustainable, and resilient to climate and disaster risks?
2. Are WASH infrastructure and services in the selected cities adequate and effectively delivered to urban residents?
3. How have urban development initiatives such as the Smart Cities Mission, AMRUT, SBM, and the Namami Gange Project impacted WASH infrastructure and services in the selected cities?

The study focuses on two cities in Uttar Pradesh: Varanasi and Mirzapur, both located along the River Ganges. Varanasi is part of the Smart Cities Mission, AMRUT, SBM, and the Namami Gange Project, while Mirzapur is included under AMRUT, SBM, and the Namami Gange Project.

AREA SELECTION

Assessment on 61 AMRUT cities of Uttar Pradesh on performance in WASH SECTOR

1. **Coverage of water supply;**
2. **Per capita water supply;**
3. **Quality of water supply;**
4. **Coverage of sewerage network ;**
5. **Efficiency of collection of sewage ;**
6. **Treatment of waste water;**

Cities with over all performance High in WASH sector
Varanasi (Big city) Polulation:11,98491 2011
Mirzapur-Vindhyachal (Small city) Population:2,34871,2011

Category of performance based on index value	2016		2017		2018		2019		2020		Overall	
	F	%	F	%	F	%	F	%	F	%	F	%
Low	3	4.9	3	4.9	10	16.4	10	16.4	12	19.7	7	11.5
Medium	48	78.7	47	77.0	39	63.9	39	63.9	41	67.2	45	73.8
High	10	16.4	11	18.0	12	19.7	12	19.7	8	13.1	9	14.8
Total	61	100.0	61	100.0	61	100.0	61	100.0	61	100.0	61	100.0

F-Frequency, %-Percent
Source: SAAP, Uttar Pradesh, 2017-2020

Categories based on indicators	Cities
High	1.Agra 2.Allahabad 3.Ghaziabad 4.Kanpur 5.Lucknow 6.**Varanasi** 7.Firozabad 8.Ayodhya 9.**Mirzapur-Vindhyachal**

Project: Projects under WASH sector (SGD:6)

Cities	PROJECTS SHORTLISTED :SGD6		Beneficiaries	Scheme	Project Start	Project completed	Project Cost (in Cr)	LOCATION	Sustainable Development GOAL
Varanasi	Water	Water ATMs (5 nos.)		CSR	17-05-2019	11-09-2019	14		6
		Augmentation of existing Water Supply system	2277	AMRUT	06-12-2017	28-06-2019	39.4	varuna water supply	6
	Replacement of Sewerage Line Replacement of water supply line Restoration of Sewerage and Water Supply connection at household level	Re-development of wards of Old Kashi - "Kaal Bhairav Ward" 85	1914	SCM	12-03-2020	20-12-2021	16.24	ward 85	6
		Redevelopment of wards of Old Kashi - "Raj Mandir Ward 53	2525	SCM	26-02-2020	10-12-2021	14.05	ward 53	6
		Redevelopment of Wards of Old Kashi - Kameshwar Mahadev Ward,44	2135	SCM	03-03-2020	31-03-2022	17.09	ward 44	6
		Redevelopment of Wards of Old Kashi - Jangambadi Ward 69	1768	SCM	28-05-2020	20-12-2021	12.65	ward 69	6
		Redevelopment of Wards of Old Kashi - Dashashwamedh Ward 81	1960	SCM	12-03-2020	20-12-2021	16.22	ward 81	6
		Redevelopment of Wards of Old Kashi - Gadhwasi Tola Ward 84	2060	SCM	23-09-2020	22-12-2021	9.61	ward 84	6
		Total	14639						
Mirzapur	Water supply	24*7 water supply scheme at Pucca Pokra:ward no 5	1250	AMRUT	25-10-2022	30-10-2023	11.76	Ward-5	6

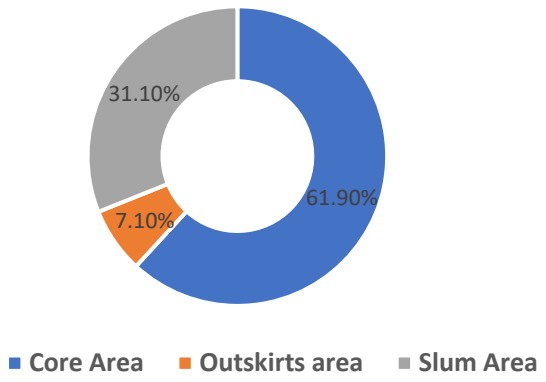
Source : UP JAL Nigam Government of Uttar Pradesh ,Varanasi Smart city, Varanasi Municipal corporation and Mirzapur Nagar Palika

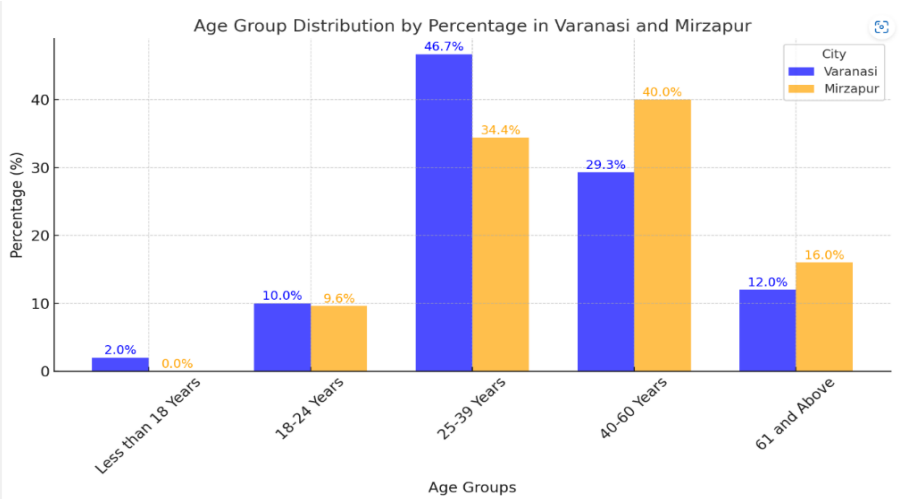
Insights from Field Survey Study

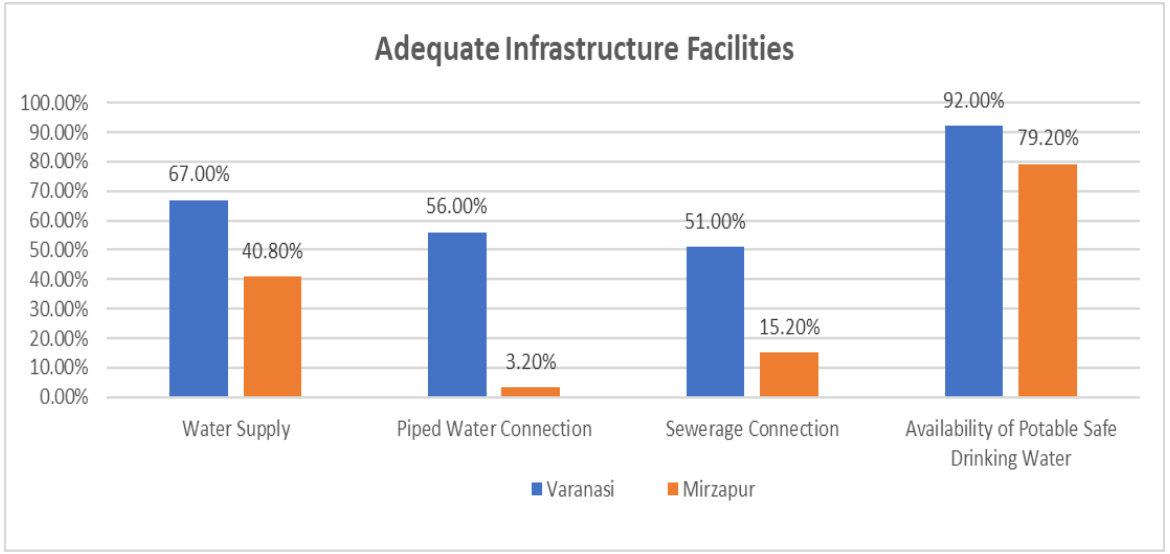
Uttar Pradesh: Varanasi and Mirzapur

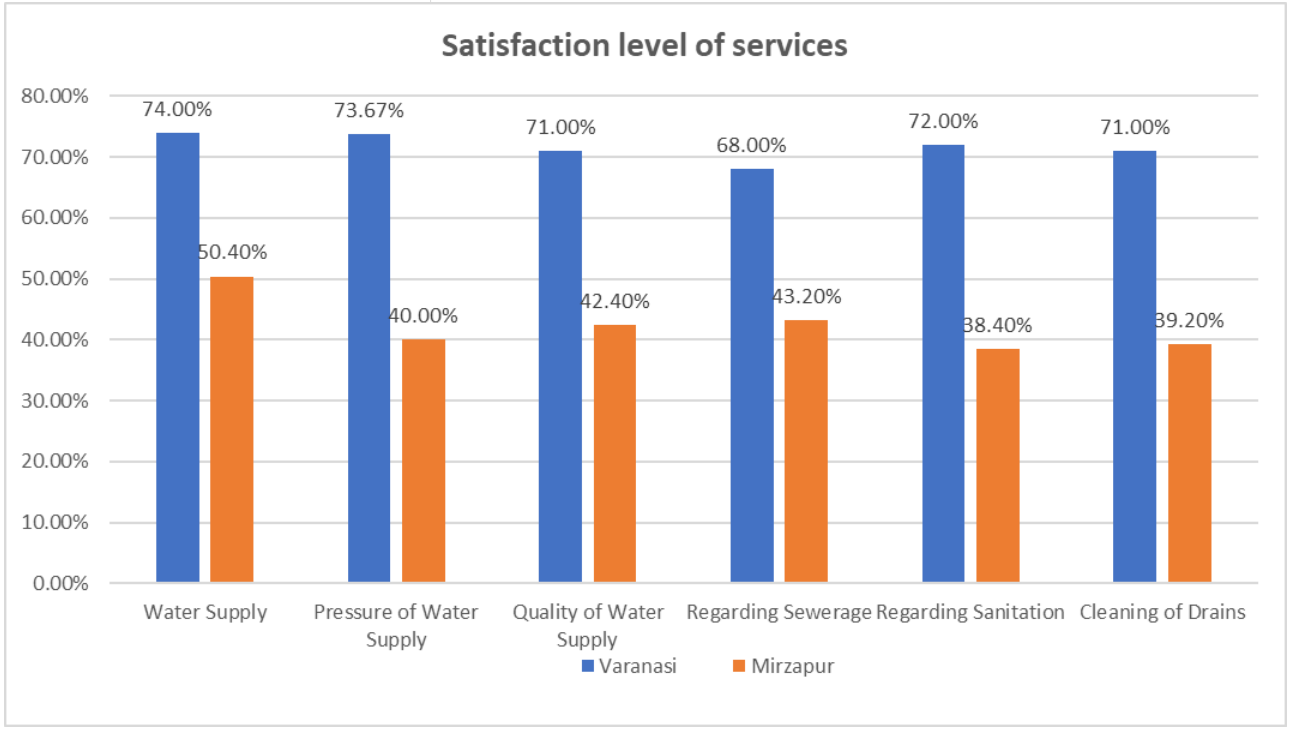
2024

House Hold Analysis :
Community Access and Utilization of WASH Services

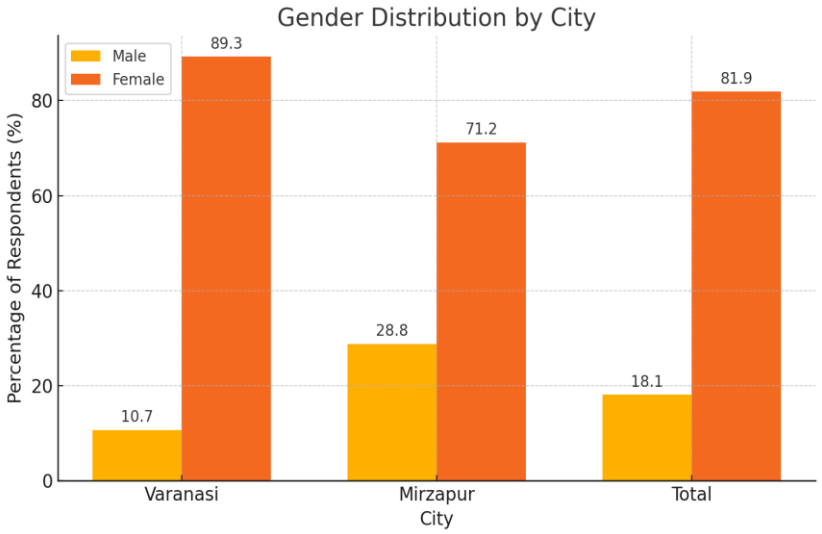


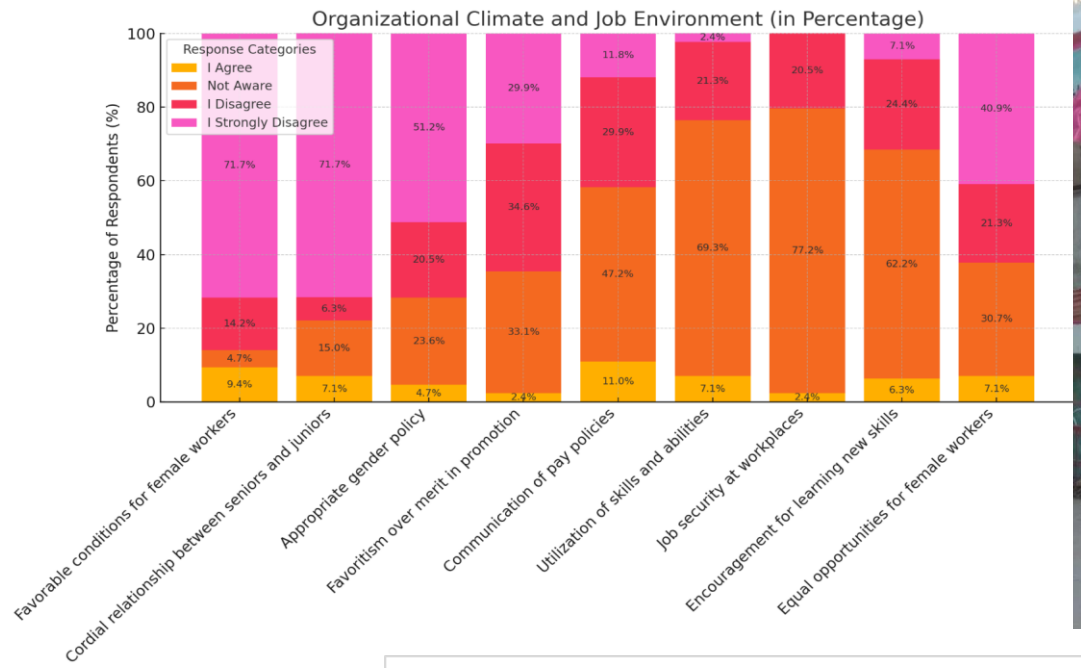


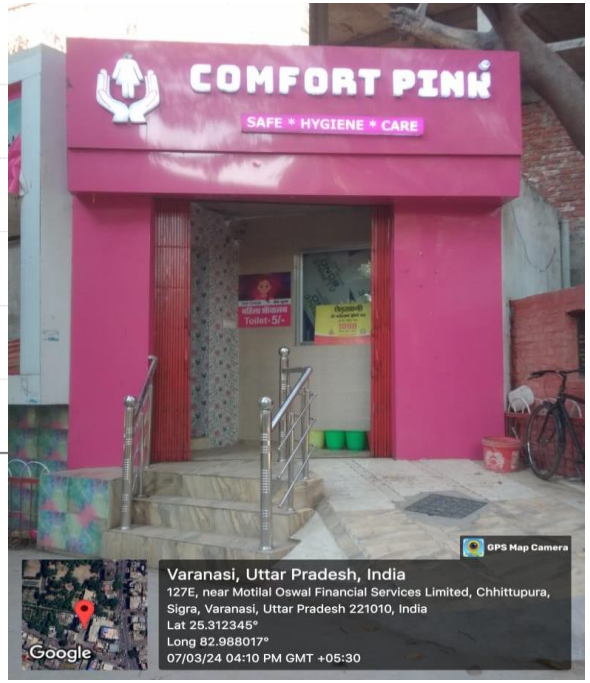


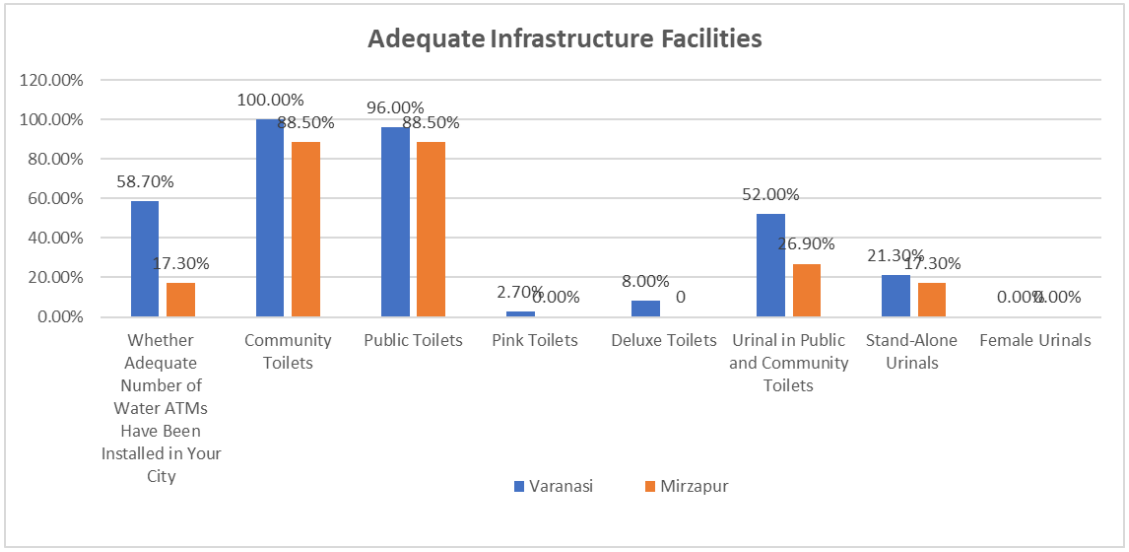


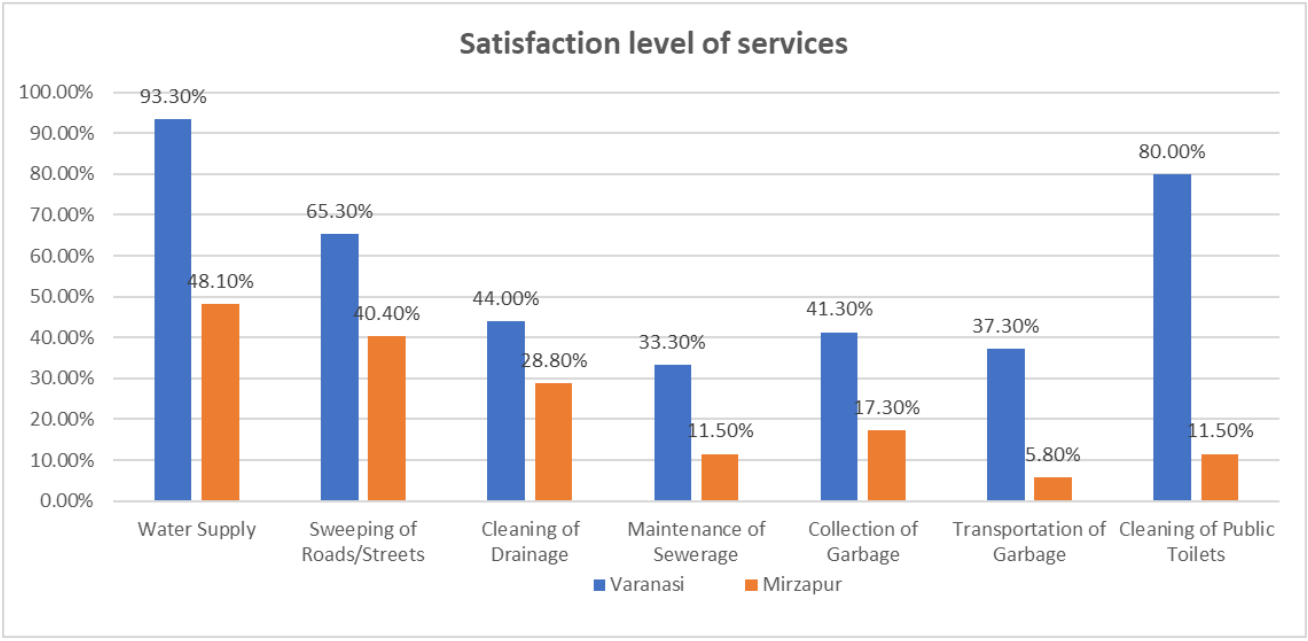
Sanitation Workers

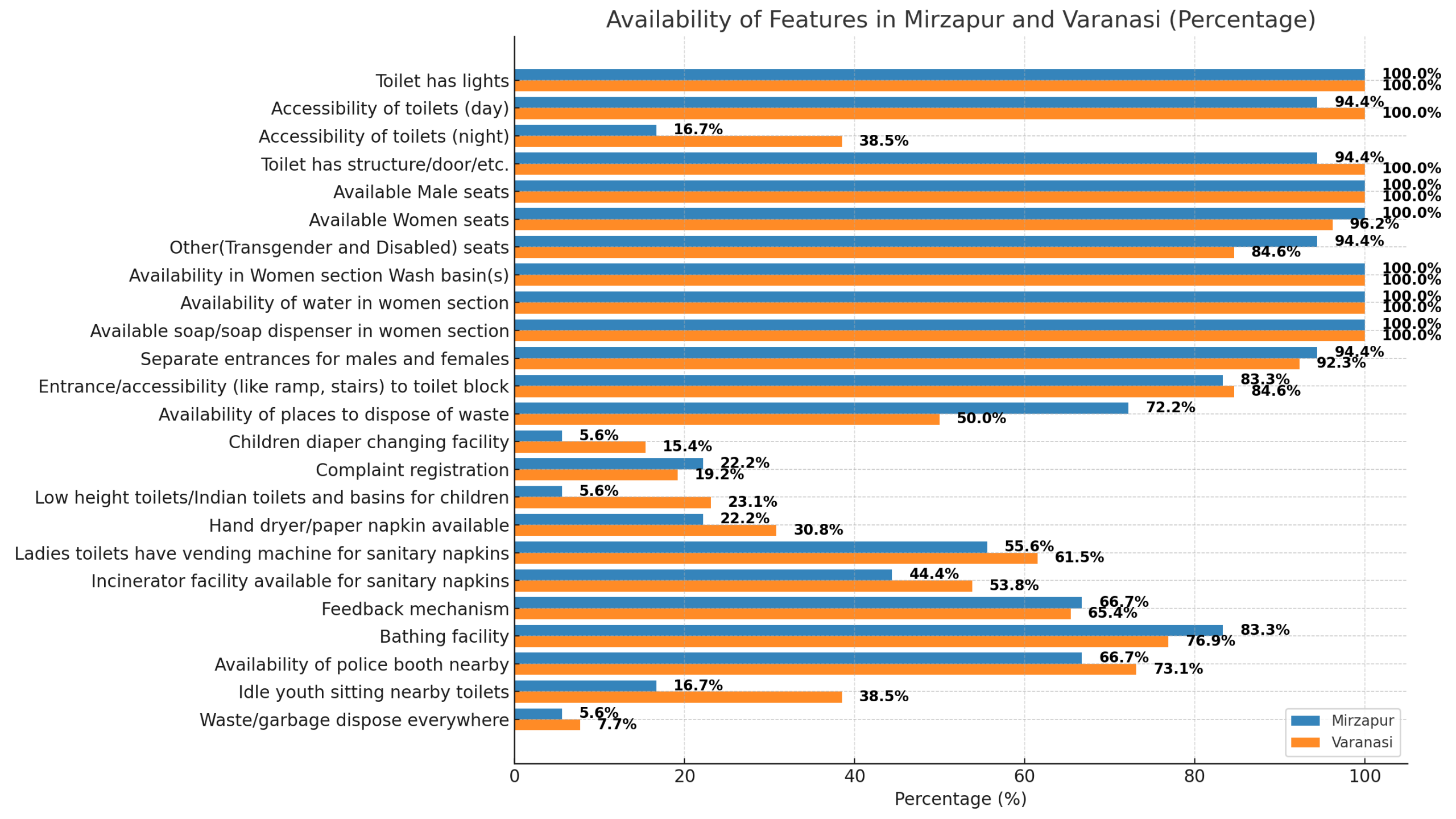




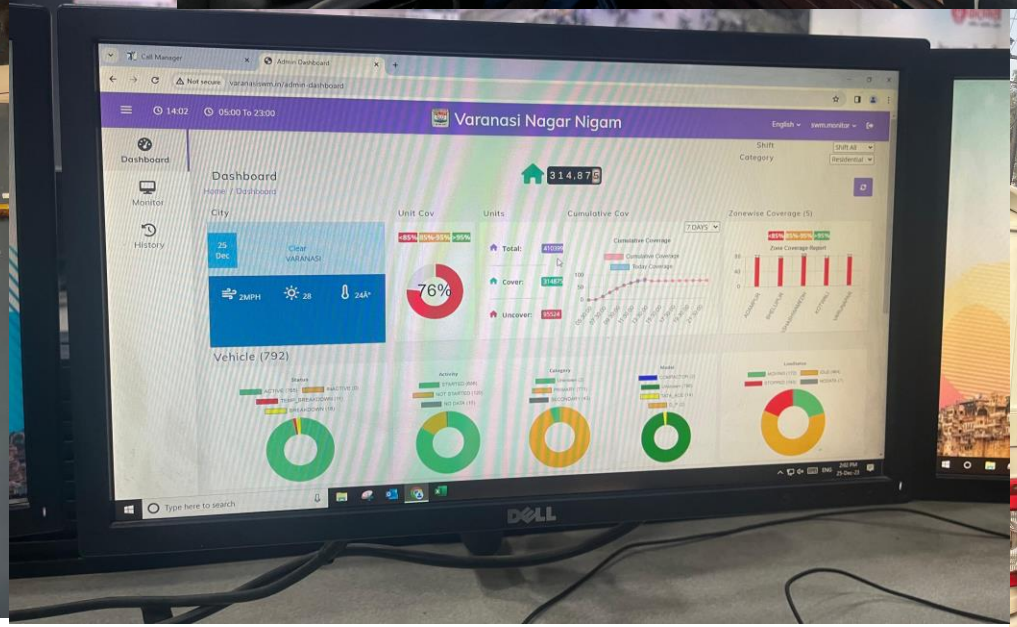







Availability of Features in Mirzapur and Varanasi (Percentage)
Toilet has lights
Accessibility of toilets (day)
Accessibility of toilets (night)
Toilet has structure/door/etc.
Available Male seats
Available Women seats
Other(Transgender and Disabled) seats
Availability in Women section Wash basin(s)
Availability of water in women section
Available soap/soap dispenser in women section
Separate entrances for males and females
Entrance/accessibility (like ramp, stairs) to toilet block
Availability of places to dispose of waste
Children diaper changing facility
Complaint registration
Low height toilets/Indian toilets and basins for children
Hand dryer/paper napkin available
Ladies toilets have vending machine for sanitary napkins
Incinerator facility available for sanitary napkins
Feedback mechanism
Bathing facility
Availability of police booth nearby
Idle youth sitting nearby toilets
Waste/garbage dispose everywhere
100.0%
100.0%
94.4%
100.0%
16.7%
38.5%
94.4%
100.0%
100.0%
100.0%
100.0%
96.2%
94.4%
84.6%
100.0%
100.0%
100.0%
100.0%
100.0%
100.0%
94.4%
92.3%
83.3%
84.6%
72.2%
50.0%
5.6%
15.4%
22.2%
19.2%
5.6%
23.1%
22.2%
30.8%
55.6%
61.5%
44.4%
53.8%
66.7%
65.4%
83.3%
76.9%
66.7%
73.1%
16.7%
38.5%
5.6%
7.7%
Mirzapur
Varanasi
0
20
40
60
80
100
Percentage (%)

UNSTRUCTURED INTERVIEWS AND INTERACTION WITH Stakeholders



Key Research Findings

- **Water Supply:** Piped water networks managed by local governments are the primary source of potable water. However, supply is limited to specific hours, and the availability of safe drinking water remains a challenge in slums and underserved areas. Despite initiatives such as Water ATMs and augmented supply systems under AMRUT and the Smart Cities Mission, residents often resort to purchasing drinking water in Varanasi.
- **Sanitation Infrastructure:** Varanasi boasts a robust network of community, public, pink, and aspirational toilets constructed under SBM, the Namami Gange Project, and CSR initiatives. In contrast, operational issues hinder the effectiveness of public and community toilets in Mirzapur.
- **Sewage Management:** While centralized sewerage systems exist in both cities, many residents rely on septic tanks due to the absence of comprehensive sewer lines. Wastewater management systems have been significantly enhanced under AMRUT and the Smart Cities Mission.
- **Faecal Sludge Management:** There is no scientific system for desludging, collection, transportation, treatment, and disposal of faecal sludge. Sanitation workers face numerous challenges, including accessibility issues, insufficient community awareness, and inadequate funding.
- **Gender and Social Inclusion:** Despite gender-neutral planning in WASH service design and construction, significant gaps persist in addressing gender and social disparities in service provision

Thank You

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