

Working and Living Conditions of Sewerage Workers in Vijayawada Municipal Corporation

**Srinivasa Reddy Mandala
Hanumantha Rao Kavalipurapu**



CENTRE FOR ECONOMIC AND SOCIAL STUDIES

(Planning Dept, Govt. of Telangana & ICSSR – Ministry of Education, Govt. of India)

BEGUMPET, HYDERABAD

June, 2022

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Foreword

The Centre for Economic and Social Studies (CESS) was established in 1980 to undertake research in the field of economic and social development in India. The Centre recognizes that a comprehensive study of economic and social development issues requires an inter disciplinary approach; it tries to involve researchers from various disciplines. The Centre's focus has been on policy relevant research through empirical investigation with sound methodology. As a think tank, it has focused, among other things, on several distinctive features of the development process of Andhra Pradesh. Presently, while it focuses on development process of Telangana state, its research activities have expanded beyond the state, covering other states apart from issues at the national level. In keeping with the interests of the faculty, CESS has developed expertise on themes such as economic growth and equity; rural development and poverty; agriculture and food security; irrigation and water management; public finance; demography; health; environment and other areas. It is important to recognize the need to reorient the priorities of research taking in to account contemporary and emerging problems. Dissemination of research findings to fellow researchers and policy thinkers is an important dimension of policy relevant research which directly or indirectly contributes to policy formulation and evaluation. CESS has published several Books, Journal Articles, Monographs and Working Papers over the years. The Monographs are basically Research Studies and Project Reports done at the Centre. They provide an opportunity for CESS faculty, visiting scholars and students to disseminate their research findings in an elaborate form.

The present Monograph titled "Working and Living Conditions of Sewerage Workers in Vijayawada Municipal Corporation" by Srinivasa Reddy Mandala, Hanumantha Rao Kavalipurapu, is one of the outcomes of a larger study's undertaken by the Scheduled Caste and Scheduled Tribes Research Unit funded by Director, Scheduled Caste Welfare, Government of Andhra Pradesh under Andhra Pradesh Scheduled Caste Component Plan.

Sewerage workers are one of the vulnerable groups in urban Andhra Pradesh. The present study documents their conditions of work and living in Vijayawada Municipal Corporation based on household survey of 98 workers, Focused Group Discussions and Interviews.

Contrary to normal expectation, worker from Other Backward Castes and Other Castes outstrip those from Scheduled Castes, reflecting the unemployment situation of the unskilled in the state. Sizeable proportion of them work on contract basis without any social security benefits. Poor working conditions, work induced health disorders and non-provision of safety equipment at the worksites reflect their vulnerability. Low levels of education, lack of skills and limited opportunities in the labour market restrict their mobility vertically as well as horizontally. The Study arrives at vulnerability indices and suggests measures for reducing vulnerability. The key elements of living standards are awareness about and access to government welfare schemes, multiple sources of income and social capital. Thus, agencies and states should initiate measures to promote awareness about schemes and enabling environment through an increase in social capital supported by recognized Non-Governmental Organisations.

I hope this work proves useful to the sewerage workers, researchers, policy makers, development practitioners and all those interested in improving the working and living conditions of sewerage workers in general, and Vijayawada Municipal Corporation in particular.

E. Revathi
Director, CESS

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Acronyms and Abbreviations Used

AP	Andhra Pradesh
AAH	<i>Anna Amrutha Hastam</i>
AE	Assistant Engineer
AI	Awareness Index
AISKA	<i>AllIndia Safai Karmachari Andolan</i>
APL	Above Poverty Line
OBC	Other Backward Castes
BPL	Below Poverty Line
CBOs	Community Based Organisations
Chandranna Bhima	Scheme Flagship scheme for insurance cover to the workers in the unorganized sectors in AP
CHC	Community Health Centre
DA	Dearness Allowance
DE	Divisional Engineer
Deepam	LPG connections on free of cost to the rural women members of the SHGs and 'BPL' families
EPFO	The Employees' Provident Fund Organisation
ESI	Employees' State Insurance Corporation
FGDs	Focused Group Discussions
FMCA	Family Member with Chronic Ailment
GoI	Government of India
GPF	General Provident Fund
GSI/GSAI	Govt.Schemes Accessed Index
HRA	House Rent Allowance
ICDS	Integrated Child Development Scheme
IWC	Index of Working Conditions
JE	<i>Japanese Encephalitis</i>
JnNURM	Jawaharlal Nehru Urban Renewal Mission
LIC	Life Insurance Corporation
LPG	Liquefied Petroleum Gas
LSCI	Living Standards and Construction of Index
LSI	Living Standard Index
MS Act 2013	Manual Scavengers and their Rehabilitation Act
MDM	Mid Day Meal Programme
MLD	million liters per day

MPCI	Monthly Per Capita Income
NGOs	Non-Governmental Organisations
OBC	Other Backward Castes
OC	Other Castes
PDS	Public Distribution System
PEI	Per cent of Expenditure on Intoxicants
PHC	Physically Handicapped
PMJDY	Pradhan Mantri Jan-Dhan Yojana
PMJJBY	Pradhan Mantri Jeevan Jyoti Bima Yojana
PMSBY	Pradhan Mantri Suraksha Bima Yojana (It is a GoI, Accidental Insurance Scheme)
Rs.	Rupees
SAI	Schemes Awareness Index
SAVI	Schemes Availing Index
SC	Scheduled Castes
SCC	Scheduled Caste Component
SCI	Social Capital Index
SCSP	Scheduled Caste Sub Plan
SDP	Skill Development Programme
SHGs	Self Help Groups
SI	Savings and Insurance
SNP	Supplementary Nutrition Programme
SSN	Social Safety Nets
ST	Scheduled Tribes
SVT	Skill and Vocational Training
STPs	Sewage Treatment Plants
Sulabh Complexes	Sulabh International is an India-based social service organization to promote environmental sanitation
SWD	Social Welfare Department
UGD	Under Ground Drainage
Ujjwala	LPG connections are to be provided to BPL households
VCI	Vulnerability and Construction of Index
VI	Vulnerability Index
VMC	Vijayawada Municipal Corporation
VMCUGDWA	Vijayawada Municipal Corporation Under Ground Drainage Workers Association
WCCI	Working Conditions and Construction of Index
WCI	Working Conditions Index

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Srinivasa Reddy Mandala
Hanumantha Rao Kavalipurapu

Executive Summary

Sewerage workers are one of the most vulnerable groups in urban Andhra Pradesh. This study documents their conditions of work and living in Vijayawada Municipal Corporation based on a sample survey of 98 workers and a few focused group discussions. Most of them were distress migrants, mainly from rural areas of Krishna district, while a few were manual scavengers from north coastal Andhra. We observed occupational mobility and improvement in education levels. Contrary to our expectations, Other Backward Caste and Other Caste workers outstripped those from Scheduled Castes; this reflects the unemployment situation of the unskilled workers in the state. A sizeable proportion of workers are employed on contract or time-scale employment without any social security. Low levels of education, lack of skills, and limited opportunities restrict their mobility to other avocations, while the hope of becoming regularized in the future makes them continue in this profession. Their salaries were stagnant and neither linked to years of service nor inflation. The expansion of the limits of the Vijayawada Municipal Corporation; population growth; lack of recruitment, which forces them to work longer hours; and contractual nature of service weakened their bargaining power.

Mechanization has not reduced their workload, as the number of machines in working condition is much less than their demand, and the small size of the drainage pipes compels workers to carry out the work manually in several places. The worksites are not safe, as workers are not provided with the recommended safety equipment, and their exposure to health hazards is still high. The health care services presently provided are reported to be unsatisfactory, resulting in high morbidity and low life expectancy. Many of them have not received any formal training on the use of modern equipment and preventive and curative health practices. The Working Conditions Index suggest that the Madigas, followed by the Rellis, were worse off compared to Other Backward Caste and Other Caste workers. Work-induced health disorders and non-provision of safety equipment are the main reasons their working conditions are pathetic. We suggest some action points to improve their working conditions, such as providing annual increments and linking wages to inflation; promoting contract/time-scale workers to the next level based on their years of service; providing skill development training for horizontal and vertical mobility; improving their work environment by providing facilities and safety equipment; recruiting staff; and extending

effective health care services with periodic checkups through Aarogyasri cards, which must be given to all sewerage workers, irrespective of employment status.

Based on self-perceptions, 62 per cent are financially insecure. Using the state's income criterion of Rs. 1.5 lakh per annum per household, we identified that about 20 per cent of the sewerage worker households were below the poverty line in 2016-17. Almost 90 per cent of worker households were indebted mainly for unproductive purposes like health and education. Their access to institutional credit is limited and thereby lending from informal sources at exorbitant rates of interest. About 70 per cent feel financially insecure. On several indicators of living standards, such as housing, social capital, ration cards, and Aarogyasri cards, among the SCs, Madiga workers were more deprived than Rellis. The most disadvantaged were contract workers. Most of them were leading medium/moderate living standards. The key determinants of living standards are awareness about and access to government schemes, multiple sources of income, and social capital. Thus, agencies and states should initiate measures to promote awareness about schemes and create an enabling environment through an increase in social capital, supported by recognized non-governmental organisations.

1. Backdrop

The sewerage workers are one of the most vulnerable categories of workers in the state and the vulnerability in the livelihoods is compounded with the low social status ascribable to the sub-marginal conditions of work. Studies report that Scheduled Caste (SC) households are predominantly engaged in this occupation. They suffer from untouchability and different forms of discrimination. The sub-group on Safai Karmacharis (sanitation workers) for the XI Five Year Plan (2012–17) delineates the conditions of these worker households and expresses concern over the issue of human dignity. It underscores, for persons engaged in sewerage work, the need for strict implementation of all provisions under various labour laws; additional safety measures, given the nature of risks associated with this occupation; welfare measures to bring them on par with workers in other sectors ; and technical upgradation and modernization of the underground drainage system.

The state has devised several schemes under the Scheduled Caste Sub-plan (SCSP) to improve the well-being of these SCs, but the under utilization of funds tacitly raises several questions regarding the problems accessing the schemes and their effective utilization. It is imperative that the sewerage workers of SC community would be suffering from multiple deprivations forcing them to remain in chronic poverty. The present study has been undertaken to critically examine the conditions of work and living in the Vijayawada Municipal Corporation (VMC). The thrust of the inquiry is to understand the constraints of this group of workers in accessing the development schemes in the livelihood and social developments spheres to address these challenges squarely so that they can move out of low these levels of living in a phased manner.

2. Objectives and Approach

The specific Objectives are:

- i) To document the socio-economic profiles of the sewerage workers of Vijayawada Municipal Corporation;
- ii) To assess the levels of living of these workers and their vulnerability levels affecting the quality and sustainability of living standards;

- iii) To examine the working conditions of these workers with special reference to safety measures and capacity building initiatives;
- iv) To record the perceptions of these workers regarding the changes in socio-psychological relations and the stigma associated with this occupation;
- v) To study the workers awareness levels about social safety nets and the extent of utilisation for economic security; and
- vi) To suggest measures for the improvement of the working and living conditions of sewerage workers.

Sampling Design:

Based on the information provided by the Municipal Corporation of Vijayawada and the contractors, the list of workers (223) in the three divisions of the VMC was prepared (*Annexure A1*). Since Other Backward Caste (OBC) ¹and Other Caste (OC) ²members were also present in this occupation, 15 of them were randomly drawn for comparison. There are about 223 workers engaged in sewage operations in the city of Vijayawada and nearly one-third of these workers belong to the SC community (83). Contrary to normal expectation, a higher proportion of workers is from OBC (98) and a few from OC (36) communities. Whether the participation of the latter communities has removed the social stigma attached to this work was also examined. As the number of Scheduled Tribes (ST) workers was six, they were excluded from the sampling frame. The SC workers were regrouped based on employment status, circle wise, i.e., permanent, time-scale and contract. Sample of workers not exceeding 15 from each category was randomly chosen and in case the number was small, all of them were selected.

Data Collection Instruments:

Secondary data were collected from the Municipal Corporation and a few contractors/ companies concerning the number of sewerage workers, caste and sub-caste wise, pay structure, terms and conditions of engagement and the type of facilities provided at the worksite, etc. Semi-structured interviews were held with senior and field level officials of VMC and selected companies on certain qualitative parameters. A structured schedule

¹Sub- castes under OBCs are: *Vaddira, Mudiraj, Palle Kapu, Padmasali and Koppula Velama*

²Sub- castes under OCs are: *Kapu and Adi Velama*

was developed and administered to the sample of sewerage workers and a few focused group discussions (FGDs) were held with the sewerage workers to elicit their views on selected aspects of work and living conditions. The sewerage scenario and activities in VMC and mechanization efforts were briefly narrated in *Annexure A2*.

The data on the following indicators were collected to analyse the socio-economic status, working conditions and living standards of the sewerage workers and to identify the factors leading to their vulnerability (poverty, ill-health, malnutrition, etc.). Data on the awareness levels, perceptions, expectations and field-level problems experienced by the sewerage workers were obtained from these sample households. Two indices of working conditions and levels of living were constructed to identify the extent of deficiency/deprivation/gap and to suggest measures to bridge these gaps. Another index on vulnerability to low-quality life which is related to the living standards index was also developed and presented in *Annexure A5*. Though these two are related, they are not exact and reduction in vulnerability is a necessary condition but not a sufficient one.

3. Socio Economic Profiles of Sewerage Workers

Household Size:

Of the 223 workers, 43 are permanent, 14 are on the time-scale and the remaining 166 are on contract. The composition of the sample workers is provided in Table 3.1. Since OBCs and OCs constitute a sizeable proportion of the sewerage workers, sample workers from these groups are drawn for comparison. Among the SCs in the sample (83), a sizeable proportion was *Relli* workers (56), *Madigas* (26) and *only one Mala*³. The average family size was 4.18 and it varied between 4.25 (*Relli*) and 3.58 (*Madiga*). The nuclear families were predominant while joint families were conspicuous among the *Relli* community.

Table 3.1: Composition and Type of Engagement of Sample Sewerage Workers of VMC

Employee Status	SC	OBC and OC	Total
Permanent	21	4	25
Time Scale	5	3	8
Contract/Out sourced	57	8	65
Total	83	15	98

Source: Field Survey Data

Migration:

Over 40 per cent of these worker families were migrants from rural areas (80%); they were largely from the Krishna district (72%). Two-thirds of OBC and OC worker families, 43 per cent among *Rellis* and 23 per cent from *Madiga* workers were migrants. Some of the Relli migrants from North Coastal Andhra were manual scavengers at the place of origin. The distribution of worker families according to years since migrated indicates that nearly 38 per cent migrated to Vijayawada long back (more than 30 years ago). The push factor was the main reason for the migration of these families to Vijayawada.

Literacy and Education of Children:

The percentage of illiterates among fathers of the sample workers was 67, 45 and 50 among OC and OBC, *Rellis* and *Madigas*, respectively. The mean 'years of schooling' of the literates in these categories was 7.4, 5.4 and 3, respectively. The literacy levels have improved in the next generation. None was illiterate and the "mean years of schooling" was 10.27, 10.79 and 7.85 among OC and OBC, *Rellis* and *Madigas*, respectively. Most of the sewerage workers possess educational qualification of 10th or below 10th class. The newly joined ones, say for the past 5 to 7 years, are found to be possessing qualification of above 10th class to degree and a few have technical qualifications also.

Occupational Mobility:

Inter-generational Occupational mobility was observed since the occupational distribution of workers' fathers (at the place of origin) was highly diversified: casual workers in agriculture and non-agriculture (48%), self-employed in agriculture (25%) and self-employed in non-agriculture (9%). The main reasons for OBC and OC workers getting in to sewerage work are lack of employment opportunities and the hope to get in to government service (after some time). None of the sewerage workers informed even their family members about the nature of work and was given an impression that they work in the VMC or water works department. The members from OBC and OC have come in to this profession hoping that their jobs will be regularised some time in future.

³ Of the total 83 SCs workers only one belongs to the Mala community. Hence, the sub-caste comparison under SCs was carried out between Relli and Madiga.

4. Worker Profiles and Working Conditions

Status of Employment:

Only 3 per cent of the workers were illiterate while the others had schooling of one to 17 years. The mean years of schooling were 4.1 years. The modal age group of the sample workers was 20-40 years. Of these workers, hardly 7 per cent was in the supervisory position. More than one-fourth of OBC and OC workers were supervisors while 7 per cent of *Relli* workers were in this position. Most of the supervisors were permanent employees and belonged to OBC and OC categories. Nearly 20 per cent of the sample workers are permanent workers and less than 8 per cent are time-scale employees and the rest are contract workers (Table 4.1). The work experience varied from 7 days to 39 years and the average years of experience were about 13 years. Most of them were aged and contract workers (without social security).

Working Hours and Allowances etc.:

Wage related issues, Working Hours and Allowances:

The mode of wage payment was online transfer and about 70 per cent of the workers reported no delays in the payment of wages. Only one per cent of the workers received special allowance/ perks. The workers reported that they worked for 8 to 12 hours during the day shift – 11 workers reported 12 hours, 62 workers reported 10 hours and the rest 8 hours. Thus, the number of hours of work during day time was 8 to 12 hours.

Table 4.1: Workers Position across Worker Employment Status

Caste/Category	Position	Worker Employment Status			Total
		Permanent	Time Scale	Contract	
OBC and OC	Worker	1(9.1)	3(27.3)	7(63.6)	11(100)
	Supervisor	3(75)	0(0.0)	1(25)	4(100)
	Total	4(26.7)	3(20)	8(53.3)	15(100)
Relli	Worker	9(17)	3(5.7)	41(77.4)	53(100)
	Supervisor	2(66.7)	0(0.0)	1(33.3)	3(100)
	Total	11(19.6)	3(5.4)	42(75)	56(100)
Madiga	Worker	5(19.2)	2(7.7)	19(73.1)	26(100)
	Total	5(19.2)	2(7.7)	19(73.1)	26(100)

Source: Field Survey Data

During the night shifts, the hours of work varied between 6 and 12; a few didn't take part in the night shifts.

Concerning the salary of the contract workers – both the newly appointed ones and senior workers (even after 10 years of experience), are paid by the contractors the same salary (about Rs.9,000). The time-scale employees get about Rs.15,000 from VMC and their take-home salary was between Rs. 11,000 and Rs. 12,000. These were considered as above poverty line households and thereby denied white ration cards and *Aarogyasri*, fee reimbursement and other facilities. The terms and conditions of these two categories of workers are undefined and there are no promotional avenues and annual increments. The permanent employees get their salaries from VMC as per the scale and receive annual increments and other benefits.

There is a severe manpower problem in the field of Sewerage work. Due to the shortage of manpower, the workload is mounting on the existing staff as they are made to work for extra hours without providing special allowance/perks and not even any type of leave. Youth (new comers) are not evincing interest in taking up sewerage work and are keen on shifting to other fields of works.

A great amount of sub-ordination was reported and the workers were much scared of their senior officials like AE and DE. They don't disobey or question any thing or argue with the senior officials since it may lead to non-renewal of jobs or transfers.

Wage Earnings:

The wage earnings data is presented in Table 4.2. It can be gleaned from the data in this Table that the wage payments were low for time-scale and contract workers. Some of the contract employees were taking up private sewerage works to supplement their wage earnings and the average earnings for these was Rs.3,333.

Among the sewerage workers, four each from OC and OBC category and *Rellis*, and one from *Madiga* community were earning from private Sewerage work and all of them were contract employees. About two-thirds of OC and OBC workers, 59 per cent among *Relli* workers and 70 per cent of *Madiga* workers reported multiple sources of income. Some of the workers were engaged in multiple occupations in the labour market with sewerage work as a principal occupation; this needs to be construed as an indication of the economic insecurity of these households. The percentage of households perceiving

financial security was 53, 29 and 27, respectively, among OC and OBC, *Relli* and *Madiga* Community.

Health Hazards:

The main health hazards are skin diseases, eye and ear, respiratory problems, gastro enteritis and liver related problems due to alcohol addiction. It is also reported that when they get down in to the drainages for work, some times they accidentally swallow/ sip (drink) drainage water which may be one of the reasons for getting liver infections.

Table 4.2: Number of Workers and Sources of Wage Earnings by Employee Status and Caste(Rs./Month)

Caste/Category	Employee Status	Wage Income from Salary	Income from Private Sewerage Works
OBC and OC	Permanent	4(46545)	0
	Time Scale	3(14494)	0
	Contract	8(11556)	4(3875)
	Total	15(21474)	4(3875)
Relli	Permanent	11(44395)	0
	Time Scale	3(15711)	0
	Contract	42(12197)	4(2625)
	Total	56(18710)	4(2625)
Madiga	Permanent	5(50129)	0
	Time Scale	2(15861)	0
	Contract	19(11579)	1(4000)
	Total	26(19322)	1(4000)
SC	Permanent	21(60620)	0
	Time Scale	5(15771)	0
	Contract	57(11218)	5(2900)
	Total	83(19135)	5(2900)
Total	Permanent	25(57824)	0
	Time Scale	8(15292)	0
	Contract	65(11260)	9(3333)
	Total	98(19501)	9(3333)

Source: Field Survey Data

Box Item**Table 4.3: List of diseases affecting the sewerage workers**

Skin infections and diseases; anaemia; diarrhoea and dysentery; vomiting; jaundice; Trachoma (eye infection); cardiovascular degeneration; musculoskeletal disorders (joint/muscle pains); infections; skin diseases; respiratory ailments.

back pains; ear and eye problems; water and food contamination.

Diseases caused by mosquito bites, such as malaria, dengue, chikungunya, Japanese encephalitis (JE) and other diseases like filariasis, brain fever.

Diseases with a high risk of spreading are typhoid, cholera, yellow fever, encephalitis, plague and dengue fever.

Source: Field Survey (PRA/FGD Methods)

The sewerage workers are facing several problems/hurdles in accessing the health services: forfeiting salary for visiting hospitals, the casual approach of doctors in the Employees' State Insurance Corporation (ESI) hospital who simply refer the patients to Government hospitals. By virtue of their job in VMC, they are unable to access medical facilities under government welfare schemes. Due to their inability to go to the private hospital for treatment, they are neglecting the health issues, which, in due course of time, are turning to be serious and severe. The time-scale employees are facing problems as they do not have eligibility for ESI or *Aarogyasri*. Even though the permanent employees are getting partial support in the form of medical reimbursement, by the time the persons were going for treatment their health conditions were worsening. Most of the sewerage workers were forced to take loans from non-institutional sources of credit at exorbitant interest to get cured in private hospitals. None of the sewerage employees is registered under the Health Insurance Scheme. It is also understood that even the life insurance agents are not showing interest to involve them under the Health Insurance Scheme when they come to know about their occupation.

Use of Safety Equipment, Training and Perceived Safety:

To prevent hazards at work and reduce physical drudgery, machines were introduced. However, a few of them were not functional due to repairs and the existing number is inadequate to serve the entire municipal area. Further, equipment, such as protective gear, face masks, goggles, liquid repellent and rubber boots are to be provided for safety at the work place. Most of them were not provided while a few were issued and not

replaced when not fit for use. See Table 4.4 for details. Very few workers were provided equipment and those using/adopting modern equipment at the worksite, across social groups, found it useful.

Table 4.4: Provision and Use of Safety Equipment: Responses of Workers

Equipment	Caste/Category	Responses	
		Provided	Used
Safety Gear (kit)	OBC & OC	1(6.7)	1(6.7)
	<i>Relli</i>	0	
	<i>Madiga</i>	2(7.7)	0
	SC	2(2.4)	0
	Total	3(3.1)	1
Face Masks	OBC & OC	1(6.7)	1(6.7)
	<i>Relli</i>	1(1.8)	0
	<i>Madiga</i>	0(0.0)	0
	SC	1(1.2)	0
	Total	2(2.1)	1(1)
Goggles	OBC & OC	1(6.7)	1(6.7)
	<i>Relli</i>	1(1.8)	0
	<i>Madiga</i>	0	0
	SC	1(1.2)	0
	Total	2(2.1)	1(1)
Liquid repellent	OBC & OC	0	0
	<i>Relli</i>	1(1.8)	0
	<i>Madiga</i>	1(3.8)	0
	SC	2(2.4)	0
	Total	2(2)	0

Source: Field Survey Data

Index of Working Conditions (IWC):

Taking wage-related indicators (5), use of safety index (5), perceived safety at workplace (1) and health safety at work (10), an index of working conditions was developed and these indices were shown in Table 4.5. The list of indicators and construction details are given in *Annexure A3*. The working conditions index (WCI) has four components, viz., wage-related aspects (such as hours of work, allowances for additional work, delays in wage payment and mode of payment), provision and use of safety equipment, perceived

safety at workplace, nature of work leading to health disorders. About 21 indicators were selected to reflect the conditions under the four areas. All the indicators are either binary or those with a maximum score of '1'. All four areas are treated as equally important. Higher the score on WCI better is the working condition.

Table 4.5: Index of Working Conditions of Sewerage Workers by Caste

Caste/ Category	Working Index Category	Number	Wage related Index	Safety Equipment use Index	Perceived Safety at work Index	Health Safety Index	Index of Working Conditions
OBC & OC	Moderate	15	0.6666	0.2	0.453	0.76	0.5199
<i>Relli</i>	poor	3	0.6	0	0.6	0.422	0.4055
	Moderate	53	0.6416	0.057	0.475	0.7327	0.476575
	Total	56	0.6392	0.054	0.482	0.7161	0.472825
<i>Madigas</i>	Poor	1	0.6	0	0.2	0.3667	0.291675
	Moderate	25	0.696	0.12	0.488	0.668	0.493
	Total	26	0.6924	0.115	0.477	0.6564	0.4852
SC	Poor	4	0.6	0	0.5	0.4083	0.377075
	Moderate	79	0.659	0.077	0.479	0.712	0.48175
	Total	83	0.656	0.073	0.48	0.6972	0.47655
Permanent Time Scale Contract		25	0.73	0.15	0.66	0.6967	0.559168
		8	0.675	0.375	0.475	0.6667	0.547918
		65	0.6348	0.0435	0.4232	0.7145	0.453993
Total	Poor	4	0.6	0	0.5	0.4083	0.377075
	Moderate	94	0.6602	0.097	0.475	0.7197	0.487975
	Total	98	0.6578	0.093	0.476	0.7069	0.483425

Note: Based on the number of indicators, the Index of Working Conditions scores ≤ 0.3 was treated as Poor and between 0.31 and 0.7 as Moderate and above 0.7 as Good.

Source: Field Survey Data

On the wage-related index, there was no significant variation across social groups and it was 60 -70 per cent of the ideal situation. The use of safety equipment was awfully low (less than 12 per cent). The perceived safety varied widely between 20 and 50 per cent. The work-induced health disorders were reported to be substantial (70%) and fluctuated between 37 per cent and 73 per cent. Combining all these indices, the index of working conditions was developed. It can be inferred that the working conditions were either poor or moderate. It is the responsibility of the contractors and the VMC to ensure better working conditions.

5. Levels of Living and Living Standard Index

The levels of living were assessed through a set of indicators spread over several demographic-social-economic areas and the results were discussed below.

Housing, quality and amenities:

About 35 per cent of the workers owned their houses while the rest lived in rented houses; these percentages across caste groups were as follows - 20 among OC and OBC, 36 among *Rellis* and 42 among *Madigas*. As far as quality of housing is concerned, 46 per cent of these houses were *Kutcha* type and another 42 per cent were *Semi-Pucca*. Hardly 12 per cent lived in *Pucca* houses. Nearly 72 per cent of these dwellings were located in slums which were notified; over 70 per cent of *Madigas* and *Rellis* were living in slums. Almost all these houses have tap connections, electricity and a toilet facility within the habitation. The majority of the employees are living in rented houses. However, unable to bear high rents in the urban areas, most of the employees are living in rented houses in slums.

Assets:

Hardly 3 and 10 per cent of worker households had some agriculture and non-agriculture land.

Household Income:

The worker households earn income from different sources and data on household income, source wise and per capita income (PCI) were presented in Tables 5.1 and 5.2. The income earnings of other members of the family were impressive and it increased with the increase in income of the sewerage worker. The wives of most of these workers were casual workers in non-agriculture and their contribution was significant among contract and time-scale employees. Some of the workers were engaged in multiple occupations in the labour market with sewerage work as a principal occupation; these need to be construed as an indication of the economic insecurity of these households.

None of the worker households was in poverty based on the official poverty line (Tendulkar Committee adjusted for inflation is Rs.1352 per capita per month in 2016-17). However, adopting the state below poverty line (BPL) norm of Rs.1.50 lakh, the percentage of BPL households was 26.7, 17.8 and 23, respectively, in OCs and OBCs, *Rellis* and *Madigas*.

Household Expenditure:

The expenditure is a better indicator of welfare than income. Further, for 30 per cent of the households, the expenditure exceeded the income. The shares of important commodity/groups in household expenditure were presented in Table 5.3. A lion's share of expenditure (almost 50 %) was on food items. About 13-16 per cent of expenditure was for rent. The SC workers were incurring over five per cent on health services and about 9-10 per cent on transport. While FGDs reveal that most of the workers are addicted to intoxicants, the sample survey data didn't lend support to this view with

Table 5.1: Workers' Household Monthly Per Capita Income (Rs.) by Social Groups

Caste/ Category	HH MPC Range	Wage Income/ Salary of Self	Income from: Pvt. Sewerage Works (Self)	Income of Other Members	Gross Monthly HH Income	Per Capita Monthly HH Income
OBC and OC	<5,000	8(11806)	3(4500)	4(6500)	8(16744)	8(3731)
	5,000-10,000	4(28021)	1(5000)	1(6000)	4(30771)	4(7130)
	10,000-20,000	2(32515)	0(0.0)	1(25000)	2(45015)	2(15005)
	>20,000	1(50547)	0(0.0)	1(30000)	1(80547)	1(26849)
	Total	15(21474)	4(4625)	7(12428)	15(28507)	15(7682)
Relli	<5,000	24(12093)	2(2750)	10(4110)	24(14035)	24(3392)
	5,000-10,000	23(15844)	2(2500)	21(13690)	23(28561)	23(6450)
	10,000-20,000	6(45742)	0(0.0)	5(20600)	6(62909)	6(13595)
	>20,000	3(46775)	0(0.0)	2(9000)	3(52775)	3(22899)
	Total	56(19097)	4(2625)	38(11831)	56(27313)	56(6786)
Madiga	<5,000	13(11571)	1(4000)	5(4500)	13(13610)	13(3246)
	5,000-10,000	8(17374)	0(0.0)	8(9125)	8(26499)	8(6735)
	10,000-20,000	4(40291)	0(0.0)	3(9666)	4(47541)	4(13793)
	>20,000	1(51784)	0(0.0)	1(10000)	1(61784)	1(20594)
	Total	26(19322)	1(4000)	17(7911)	26(24649)	26(6609)
SC	<5,000	37(11910)	3(3166)	15(4240)	37(13886)	37(3341)
	5,000-10,000	32(16763)	2(2500)	29(12431)	32(28933)	32(6734)
	10,000-20,000	10(43562)	0(0.0)	8(16500)	10(56762)	10(13674)
	>20,000	4(48027)	0(0.0)	3(9333)	4(55027)	4(22323)
	Total	83(19402)	5(2900)	55(10620)	83(26791)	83(6812)
Total	<5,000	45(11891)	6(3833)	19(4715)	45(14394)	45(3410)
	5,000-10,000	36(18087)	3(3333)	30(12216)	36(29152)	36(6781)
	10,000-20,000	12(41720)	0(0.0)	9(17444)	12(54804)	12(13896)
	>20,000	5(48531)	0(0.0)	4(14500)	5(60131)	5(23228)
	Total	98(19726)	9(3666)	62(10824)	98(27059)	98(6948)

Source: Field Survey Data

HH: Household; MPC: Monthly Per Capita Income; Pvt.:Private

Table 5.2: Workers Sources of Income across Employee Status (Rs./Month)

Caste/ Category	Employee Status	Income/ from Salary	Income from: Pvt. Sewerage Works	Income of Other Members	Monthly HH Income	Per Capita Monthly HH Income
OBC and OC	Permanent	4(46545)	0(0)	2(18000)	4(55545)	4(14930)
	Time Scale	3(14494)	0(0)	3(12333)	3(26828)	3(7223)
	Contract	8(11556)	4(3875)	2(7000)	8(15244)	8(4136)
	Total	15(21474)	4(3875)	7(12428)	15(28308)	15(7682)
<i>Relli</i>	Permanent	11(44395)	0(0)	8(15125)	11(55395)	11(14637)
	Time Scale	3(15711)	0(0)	1(11000)	3(19378)	3(5761)
	Contract	42(12197)	4(2625)	29(10952)	42(20009)	42(4718)
	Total	56(18710)	4(2625)	38(11832)	56(26926)	56(6786)
<i>Madiga</i>	Permanent	5(50129)	0(0)	5(8800)	5(58929)	5(14471)
	Time Scale	2(15861)	0(0)	2(5500)	2(21361)	2(4513)
	Contract	19(11579)	1(4000)	10(7950)	19(15974)	19(4762)
	Total	26(19322)	1(4000)	17(7912)	26(24649)	26(6609)
SC	Permanent	21(60620)	0(0)	13(12692)	21(74156)	21(19143)
	Time Scale	5(15771)	0(0)	3(7333)	5(20171)	5(5261)
	Contract	57(11218)	5(2900)	39(10182)	57(17523)	57(4421)
	Total	83(19135)	5(2900)	55(10620)	83(26524)	83(6812)
Total	Permanent	25(57824)	0(0)	15(13400)	25(70386)	25(18318)
	Time Scale	8(15292)	0(0)	6(9833)	8(22667)	8(5997)
	Contract	65(11260)	9(3333)	41(10027)	65(17282)	65(4392)
	Total	98(19726)	9(3666)	62(10824)	98(27059)	98(6948)

Source: Field Survey Data

Table 5.3: Distribution of Household Expenditure by Caste (Rs./Month)

Commodity/group	OC and OBC	Relli	Madiga
Food	9400	8173	8192
Rent	2967	2575	2108
Health	817	942	916
Education	988	1679	459
Transport	1133	1523	1556
Intoxicants*	820	875	938
Total	19042(100)	17221(100)	16360(100)

Note: *include pan, tobacco and liquor

Source: Field Survey Data

less number of workers reporting such consumption. It was observed in the field that whatever the workers earn, they are spending mostly on liquor, tobacco and tobacco products, such as cigarettes', *guthka*, *pan parag/pan masala*/chewing tobacco, and different types of pan. They incur about Rs.400 towards mobile charges.

Table 5.4: Membership in Workers Associations, CBOs and Political Parties by Caste

Caste/Category	Workers Association	CBOs/SHGs	Political Parties
OBC and OC	10(66.7)	8(100)	0(0.0)
Relli	29(51.8)	36(64.3)	3(5.4)
Madiga	11(42.3)	12(46.2)	1(3.8)
SC	40(48.8)	48(58.5)	4(4.9)

Source: Field Survey Data

CBOs: Community Based Organisations; SHGs: Self Help Groups

Indebtedness and Interest Rates:

Less than 10 per cent of the workers were not indebted. The Scheduled Commercial Banks (SCBs) have provided loans to 26 per cent of the workers and the bulk of these loans were taken for house loans and loans made to wards medical treatment. The percentage of loans for a productive purpose (loans for working capital and investment) was 7. Among the indebted, 12 per cent received loans from cooperatives and all were for unproductive purposes. The non-institutional sources have also extended loans to these workers and 30 per cent of the workers were indebted to SHGs and the bulk of them (67%) for unproductive purposes. The workers had little access to the money

lender and five per cent of them borrowed for unproductive causes while one per cent took loans for productive purposes. The most important source of borrowed funds for workers appeared to be “friends and relatives” since 60 per cent of workers took loans for un-productive purposes while 5 per cent borrowed for productive use. A few workers had access to non-institutional finance companies and private cooperatives. About 35 per cent of workers reported that they could get adequate and hassle-free credit; such percentage was about 56, 36 and 40, respectively, among OBC and OCs, *Rellis* and *Madigas*. These debts were cumulative. The details are summarized in Table 5.5.

The average outstanding loan per indebted worker household was Rs.3, 22,667 for OC and OBC workers, Rs.2,48,084 for *Rellis* and Rs.1,49,549 for *Madigas*.

Table 5.5: Workers’ Sources of Credit, Purpose, Amount (inRs.’000) and Rate of Interest (%) by Social Groups

Source of Credit	Caste /Category	Purpose	Loan Amount	Interest Rate
Scheduled Commercial Banks (SCB)	OBC & OC	Productive	1(65.0)	1(14)
		Un-productive	6(403.3)	6(17)
		Total	7(355.0)	7(16.6)
	<i>Relli</i>	Productive	4(402.5)	4(14)
		Un-productive	11(292.7)	11(15.3)
		Total	15(322.0)	15(14.9)
	<i>Madiga</i>	Productive	1(300.0)	1(12)
		Un-productive	2(125.0)	2(19)
		Total	3(183.3)	3(16.7)
	SC	Productive	5(382.0)	5(13.6)
		Un-productive	13(266.9)	13(15.8)
		Total	18(298.9)	18(15.2)
	Total	Productive	6(329.2)	6(13.7)
Un-productive		19(310.0)	19(16.2)	
Total		25(314.6)	25(15.6)	
Co-operatives	OBC & OC	Un-productive	3(166.6)	3(20)
	<i>Relli</i>	Un-productive	5(324.0)	5(13.20)
	<i>Madiga</i>	Un-productive	3(198.3)	2(19)
	SC	Un-productive	8(276.9)	7(14.86)
	Total	Un-productive	11(246.8)	10(16.40)

Self Help Groups (SHGs)	OBC&OC	Un-productive	3(73.3)	3(12)	
	<i>Relli</i>	Productive	7(29.3)	7(11.86)	
		Un-productive	14(47.1)	14(12.21)	
		Total	21(41.2)	21(12.10)	
	<i>Madiga</i>	Productive	2(20.0)	2(8)	
		Un-productive	3(50.0)	3(12)	
		Total	5(38.0)	5(10.40)	
	SC	Productive	9(27.2)	9(11)	
		Un-productive	17(47.6)	17(12.18)	
		Total	26(40.6)	26(11.77)	
	Total	Productive	9(27.2)	9(11)	
		Un-productive	20(51.5)	20(12.15)	
		Total	29(44.0)	29(11.79)	
Money Lenders	OBC & OC	Productive	1(150.0)	1(60)	
	<i>Relli</i>	Un-productive	2(50.0)	2(36)	
	<i>Madiga</i>	Un-productive	1(30.0)	1(60)	
	SC	Un-productive	3(43.3)	3(44)	
	Total	Productive	1(150.0)	1(60)	
		Un-productive	3(43.3)	3(44)	
		Total	4(70.0)	4(48)	
Friends & Relatives	OBC & OC	Un-productive	10(401.0)	10(31.80)	
		<i>Relli</i>	Productive	3(133.3)	3(25.33)
			Un-productive	32(196.7)	32(39.25)
			Total	35(191.3)	35(38.06)
	<i>Madiga</i>	Productive	2(375.0)	2(30)	
		Un-productive	14(131.4)	14(42.43)	
		Total	16(161.9)	16(40.87)	
	SC	Productive	5(230.0)	5(27.20)	
		Un-productive	46(176.8)	46(40.22)	
		Total	51(182.1)	51(38.94)	
	Total	Productive	5(230.0)	5(27.20)	
		Un-productive	56(216.9)	56(38.71)	
		Total	61(217.9)	61(37.77)	
Finance Companies	<i>Relli</i>	Un-productive	2(90.0)	2(36)	
	<i>Madiga</i>	Un-productive	1(40.0)	1(14)	

	SC	Un-productive	3(73.3)	3(28.67)
	Total	Un-productive	3(73.3)	3(28.67)
PrivateCo-operatives	<i>Relli</i>	Un-productive	1(100.0)	1(24)
	SC	Un-productive	1(100.0)	1(24)
	Total	Un-productive	1(100.0)	1(24)

Source: Field Survey Data

The interest varied with the change of credit source and purpose. The modal interest for bank and cooperative loans was 12-18 per cent. It was 12 per cent in the case of SHGs. Money lenders and 'Relatives and Friends' charged interest as high as 60 per cent and bi-modal interest rates were prevailing, i.e., 36 and 60 per cent.

Savings and Insurance:

Two important sources of savings for workers were the Employees Provident Fund Organisation (EPFO)/ General Provident Fund (GPF), SHGs and Life Insurance Corporation (LIC) and most of the savings were made monthly. The details on the savings of the worker households were presented in *Annexure A6*. The insurance details are presented in Table 5.6. The *Chandranna Bhima* Scheme with an annual premium of Rs.15 was taken by 36 per cent of workers. Due to a lack of awareness and ineligibility, several workers could not get in to this scheme. Only 8-10 per cent of the workers were enrolled under Pradhan Mantri Suraksha Bhima Yojana (PMSBY) by paying a premium of Rs.12 per annum. The health and other insurance schemes were not popular among these workers.

Table 5.6: Insurance Schemes (General and Health) details of Workers by Caste

Caste/Category	LIC	Health Insurance	Health Insurance (Own)	Chandranna Bhima	PMSBY	PMJJBY
OBC and OC	7(6557)	0(0.0)	15(0.00)	15(8)	4(12)	1(330)
<i>Relli</i>	19(10783)	4(492)	56(113)	56(5)	4(12)	1(330)
<i>Madiga</i>	5(7804)	1(2000)	26(0.00)	26(4.6)	0(0.0)	0(0.0)
SC	24(10163)	5(794)	82(77.41)	82(5.1)	4(12)	1(330)
Total	31(9349)	5(794)	97(65.44)	97(5.6)	8(12)	2(330)

Note: figures in () are premium values in Rs.

Source: Field Survey Data

LIC: Life Insurance Corporation; PMSBY: Pradhan Mantri Suraksha Bima Yojana;
PMJJBY: Pradhan Mantri Jeevan Jyoti Bima Yojana

The workers were made to make several visits when they go for applying for government welfare schemes like PMSBY, PMJJBY, Chandranna Bhima, etc. Furthermore, as most of the employees do not know various welfare schemes they have not insured themselves under any of the schemes. Due to lack of information, knowledge about schemes and time none of them has got benefited from Scheduled Caste Associations or the Social Welfare Department Scheduled Caste (SWD: SC), including Scheduled Caste Corporation (SCC).

State Support:

About 23 per cent of these households have bank accounts under Pradhan Mantri Jan-Dhan Yojana (PMJDY): 26 per cent among OC and OBC, 23 per cent among *Rellis* and about 20 per cent in the *Madiga* community. However, all of them have bank accounts and *Aadhaar* Cards. About 62 per cent were covered under health schemes, mainly ESI (93%). Most of these health cards were sponsored by the agency/ company. The ration card was available for 80 per cent of these households; 98 per cent of the OBC and OC group, 76 per cent of *Rellis* and 80 per cent of *Madigas* possessed ration cards. Of these, 82 per cent possessed white cards while 17 per cent pink cards. As per their assessment, only 32 per cent reported that they were financially secure and such percentage was 28 among SCs.

Social Capital:

The social capital in this exercise was confined to only membership in formal and informal organizations and it was nothing, as the majority of them were not members in workers' associations (51%), CBOs/SHGs (42%), and political parties (95%) (Table 5.5). Even among the members, only a small proportion of workers held formal positions. The main reasons for not taking part in these organizations are lack of awareness, including advantages of participating in these organisations, lack of interest and time. Some of them have no confidence that these associations would protect their interests. But as members, they took part occasionally in the meetings of workers' associations and political parties and regularly participated in CBOs. These members perceive that their participation was useful.

Living Standard Index (LSI):

Living standards of worker households were worked out using 33 indicators and the list was presented in *Annexure-A 4*. The distribution of sewerage worker households according to caste and employment status *vis-a-vis* LSI levels can be gleaned from Tables 5.7. Based on the LSI scores, the workers were grouped in to medium and high Living standard households and it is interesting to note that 12 per cent of *Madiga* households and time-scale employees had high levels of living. This is a composite index capturing the socio-economic status of the worker household. Six major spheres of the living standard are considered as housing (ownership, quality and location); selected amenities (leading to hygienic environment and type of energy use); education (as a proxy to capabilities); health status (low levels of mortality, malnutrition, morbidity and ailments), credit worthiness (access to a productive resource); and income (risk absorption capacity and secured feeling). About 21 indicators spanning all the six areas are selected and most of them are binary and the responses on the rest of the indicators are calibrated in such a way that the maximum score is equated to '1'. All the six spheres of living conditions are assumed to be equally important.

Table 5.7: Distribution of Workers According to LSI by Caste and Employment Status

Caste/Category	Living Standard Index (LSI) of Sewerage Workers		
	Medium LSI (11-22)	High LSI (>22)	Total
OBC and OC	15(100)	0(0.0)	15
<i>Relli</i>	55(98.2)	1(1.8)	56
<i>Madiga</i>	23(88.5)	3(11.5)	26
SC	79(95.2)	4(4.8)	83
Permanent	25(100)	0(0.0)	25
Time scale	7(87.5)	1(12.5)	8
Contract	62(95.4)	3(4.6)	65
Total	94(95.9)	4(4.1)	98

Source: Field Survey Data; Note: figures in the () indicate the per cent to total

Determinants of Living Standards:

A regression equation was fitted with caste (dummies), income sources (dummy), Social Capital Index (SCI), assets (non-agricultural land as proxy), Government Schemes Accessed Index (GSI) and Awareness Index (AI). The details are given below:

$$LSI=17.12-1.024*Relli-2.05^{***}Madiga+1.408^{***}MSI+0.41*SCI+0.424^{**}NAGL+0.118^{**}SAI+0.227^{**}SAVI$$

$$Adj.R^2=0.24, F=5.417^{***}$$

NAGL: Non-agriculture Land; SCI: Social Capital Index; SAI: Schemes' Awareness Index; SAVI: Schemes Availing Index

*,**and*** refer to significance levels at 10,5 and 1 per cent levels, respectively.

Thus, the living standards index was lower for *Relli* and *Madiga* community compared to OBCs and OCs. The factors significantly contributing to living standards are more income sources, improvement in social capital, possession of non-agriculture land, awareness about the government schemes and the extent of utilisation of relevant to them. The state should initiate an awareness drive in a campaign mode with the help of recognized Non-Governmental Organisations (NGOs) who can also guide workers when it comes to accessing welfare schemes. The sewerage workers should be organized in to SHGs and enabled so that they can meet some of their needs through collective action.

The details regarding the vulnerability index can be seen in *Annexure A5*.

6. Social Safety Nets (SSNs)

The state and central governments have devised several welfare schemes to reduce the vulnerability and more so for the SC households under Scheduled Caste Sub-Plan (SCSP).

Table 6.1: Indices of Awareness and Access of Welfare Schemes and Safety Net Indices by Caste

Caste/Category	Welfare Scheme Awareness Index (WSAI)	Scheme Access Index (SAI)	Safety Net Index (SNI)	User Satisfaction Index (USI)
OBC and OC	0.7267	0.763	0.5542	0.922
<i>Rellis</i>	0.7804	0.736	0.5746	0.8863
<i>Madiga</i>	0.7615	0.749	0.5702	0.91
SCs	0.7744	0.740	0.5732	0.8938
Total	0.767	0.744	0.5704	0.8981

Source: Field Survey Data

The awareness of the workers about 25 schemes spread over food security, health, education, training, housing and socially and economically disadvantaged spheres was

ascertained. Further, their access to the schemes relevant to them was also recorded. The efficiency of the delivery system was assessed by user satisfaction. The indices were constructed in respect of awareness, access and satisfaction of the workers and the details can be seen from *Annexure A5* and scores on these indices are presented in Table 6.1. It is evident that awareness levels were high (76.7%) but workers were not able to fully access the schemes appropriate to them. Thus, the safety net index (SNI) was about 55 per cent. The satisfaction from those availed schemes was good (90%).

7. Socio Psychological Perceptions

Changing Social Relationships at Work:

The workers reported that the public still perceive the sewerage occupation as “mean to very mean” and it was echoed by 98 per cent of the workers. However, the working relations with other workers of VMC were better and friendly (36%) while others opined that such relationships were either neutral (59%) or hostile (5%). Half of the workers informed that their relations with officials of VMC were either cooperative (34%) or functional (50%), while 16 per cent of them felt that these were more of authoritarian nature. More than one-third of the workers strongly felt that other community members would be willing to be their neighbours. However, in this regard 57 per cent of the workers were indecisive. The other members of the SC community were not averse to having marital relations with the sewerage community and such a view was shared by 80 per cent, while 6 per cent expressed that others were willing to do so. The incidence of violence on SC women and girls was not occurring according to 43 per cent of the workers while others were not sure of such happenings. The children of this community earlier suffered from the practice of social discrimination in schools. But the scenario has been changing as 40 per cent of the sample workers informed that such events were not happening. The details of these responses were presented in the Tables below:

Table 7.1: Perceptions of the Society about Your Occupational Status

Caste/Category	Very Mean		Mean		Better	
	Number	%	Number	%	Number	%
OBC and OC	0	0.0	15	100	0	0.0
<i>Rellis</i>	1	1.8	54	96.4	1	1.8
<i>Madiga</i>	0	0.0	25	96.2	1	3.8
SC	1	1.2	80	96.4	2	2.4
Total	1	1.0	95	96.9	2	2.1

Source: Field Survey Data; Number=No. of persons

Table 7.2: Working Relations with Other Workers of the Municipal Corporation

Caste/Category	Hostile		Neutral		Friendly	
	Number	%	Number	%	Number	%
OBC and OC	2	13.3	5	33.3	8	53.3
<i>Relli</i>	4	7.1	32	57.1	20	35.7
<i>Madiga</i>	1	3.8	18	69.2	7	26.9
SC	5	6	51	61.5	27	32.5
Total	7	7.2	56	57.1	35	35.7

Source: Field Survey Data; Number=No.of persons

Table 7.3: Working Relations with Officials of the Municipal Corporation/Companies

Caste/Category	Authoritarian		Functional		Cooperative	
	Number	%	Number	%	Number	%
OBC and OC	4	26.7	4	26.7	7	46.7
<i>Relli</i>	8	14.3	29	51.8	19	33.9
<i>Madiga</i>	4	15.4	15	57.7	7	26.9
SC	12	14.5	45	54.2	26	31.3
Total	16	16.3	49	50	33	33.7

Source: Field Survey Data; Number=No.of persons

Table 7.4: “Other SC Communities are Averse to Offering their Children to Children of Your Community for Marriage”:Responses

Caste/Category	Averse		Not Averse		Willing	
	Number	%	Number	%	Number	%
OBC and OC	2	13.3	6	40	7	46.7
<i>Relli</i>	9	16.1	27	48.2	20	35.7
<i>Madiga</i>	2	7.7	17	65.4	7	26.9
SC	11	13.3	45	54.2	27	32.5
Total	13	13.3	51	52	34	34.7

Source: Field Survey Data; Number=No.of persons

Table 7.5: “Other SC Communities are Reluctant to be Your Neighbours”: Responses

Caste/Category	Very Much		Can't Say		Willing	
	Number	%	Number	%	Number	%
OBC and OC	1	6.7	7	46.7	7	46.7
<i>Relli</i>	4	7.1	33	58.9	19	33.9
<i>Madiga</i>	3	11.5	16	61.5	7	26.9
SC	7	8.5	50	60.2	26	31.3
Total	8	8.2	57	58.1	33	33.7

Source: Field Survey Data; Number=No.of persons

Table 7.6: Incidence of Violence on Women and Girl Children of SCs

Caste/Category	Frequent		Don't Know		Not Occurring	
	Number	%	Number	%	Number	%
OBC and OC	1	6.7	6	40	8	53.3
<i>Relli</i>	1	1.8	30	53.6	25	44.6
<i>Madiga</i>	0	0	18	69.2	8	30.8
SC	1	1.2	49	59	33	39.8
Total	2	2	55	56.1	41	41.9

Source: Field Survey Data; Number=No.of persons

Table 7.7: “Children of Sewerage Workers Suffering from Discrimination in Schools”: Responses

Caste/Category	Frequent		Indecisive		Not Occurring	
	Number	%	Number	%	Number	%
OBC and OC	0	0	7	46.7	8	53.3
<i>Relli</i>	0	0	31	55.4	25	44.6
<i>Madiga</i>	1	3.8	18	69.2	7	26.9
SCs	1	1.2	50	60.2	32	38.6
Total	1	1	57	58.2	40	40.8

Source: Field Survey Data; Number=No.of persons

Effect of Modernization of Sewerage System:

The mechanization facilitated in image building and health of sewerage workers to some extent and such a view was endorsed by 90 per cent of the workers (see Table 7.8).

Table 7.8: Modernization of Sewerage System has Improved the Image in the Society and Health of the Workers

Caste/Category	Not at all		To Some Extent		To a Large Extent	
	Number	%	Number	%	Number	%
OBC and OC	1	6.7	13	86.7	1	6.7
<i>Relli</i>	5	8.9	51	91.1	0	0
<i>Madiga</i>	4	15.4	22	84.6	0	0
SCs	9	10.8	74	89.2	0	0
Total	10	10.2	87	88.8	1	1

Source: Field Survey Data; Number=No.of persons

8. Stakeholders' Views Based on Focused Group Discussions (FGDs) and Interviews

Workers' Views:

The views expressed in the FGDs are summarized and presented below:

Working Conditions:

Even though nearly 80 sanitation staff, on average, retire every year in the VMC, the Corporation has failed to fill these vacancies with new faces. There has been no recruitment of sanitation staff since 2010. Thus, the workload has increased due to the expansion of the city with new capital, government offices, and business establishments. The government should enhance its manpower or recruit more staff besides regularizing the services of the underground drainage (UGD) workers who have been working for more than 10 years.

The Contract worker payment details are Rs.354.83 per day and a Gross Salary of Rs.10644.9 for 30 days/Rs.13159 per month and the Net Salary after the deductions is Rs.9513.56.

Timely payment to the contract labour has been underscored since there were delays of 10 to 15 days in salary payment. The salaries of the sewerage workers, who are working for 10 years and above, have to be doubled. Contract labour wages need to be increased to Rs.18,000 (Rs.600 per day). Salaries should be provided/ disbursed directly through VMC/Government to all types of employees so that they will get regular and timely salary payments.

Problems of Time Scale Employees:

They are getting only Salary and Dearness Allowance (DA). They are not receiving House Rent Allowance (HRA), Other benefits such as retirement benefits, Health Cards not even ESI Card (earlier they were given the card and were denied after putting in time-scale) and deprived of all the BPL related Government welfare schemes and benefits. They should be given increments in salary based on their seniority, provide better facilities like employees in other sectors; 100 per cent fee reimbursement for the children.

The majority of workers are commuting from far-off places to reach their worksites and subsidized or free transport facilities need to be provided.

It was reported that when they ask for drinking water while on duty as sewerage workers, the families usually give them water in old mugs or old/damaged/discarded bottles.

It was also mentioned by many that getting houses on rent is also very difficult when they disclose their occupational identity.

It was felt that the retired employees or employees who have left the job due to severe health problems are assigned with works like management / running of "Sulabh Complexes". The workers opined that *Swatch Bharath* should also take in to consideration the welfare of the Drainage Workers by improving their working and living conditions.

A few are keen to seek other employment as they are not willing to work for a long period in this profession. Others informed that they can't leave the job as they do not possess any other skills and have no other option for their livelihood. These employees are optimistic that their jobs will be regularised and they can provide a better future for their children.

Discrimination at the Workplace:

Some of the OBC and OC workers have a degree or technical qualifications and their services are being availed of in office work. But for this, there is no caste-based discrimination in the work.

Mechanization:

For clearing sewer over flows in small lanes and by-lanes, the VMC introduced the Air Tech machines. To remove silt from manholes, silt grabbers are being procured. They are

also contemplating an insurance cover of Rs.10 lakh for victims involved in “untoward incidents.”

There is a strong demand that along with the supply of machines, formal training needs to be provided to the workers concerning their operational and maintenance aspects. They should also be educated and trained periodically on problems they come across, and on the ways of over coming them. Regular technical training, exposure visits, incentives, increments, promotions, etc., on par with the regular employees to be eligible, should be provided. The government must conduct basic education classes in the evening time for sewerage workers.

The senior workers opined that the use of machines in the cleaning of drainage/sewers helped in going deeper and to a certain extent reduced drudgery. They expressed that even after the introduction of machines, the workers’ involvement is a must and they should be ready to go manually in the drains and such attitude would be helpful in the smooth running of drainage systems.

Health Disorders and Health Care:

It is mentioned that with the introduction of machines their health-related risks have been reduced to a certain extent. Previously, when the machines were not in use, they had no other option than to regularly get down in to the manholes for work during which the filthy water used to enter in to their body through the nose (accidental sipping (drinking) during the work) and were exposed to dangerous gases. These types of problems have some what been addressed with the supply and usage of the machines.

The drainage/ sewerage workers expressed their unhappiness regarding the claims of the state about the distribution of safety health-related equipment (to us) several times whenever they read the news paper and watch on TVs. The fact was different and hardly a few received some equipment.

There should be a Community Health Centre (CHC) for the sewerage employees which will help them to improve their health status. Free medical checkups regularly and treatment on a priority basis to the workers should be ensured since the nature of work is hazardous. Their demands include: (a) total health care; (b) maternity and early child care; (c) provident fund (PF) benefits; (d) family benefits; (e) amenities/benefits including housing, drinking water, sanitation; (f) compensation for work-related injuries (including

invalidity benefits); (g) retirement and post-retirement benefits (gratuity, pension and family pension); (h) some insurance cover in cases of loss of earning capacity due to nature of work; and (i) besides these, there should be schemes, either independently or in association with the government, welfare bodies, NGOs and social organisations, for the up-gradation of their skills and the education of workers.

Awareness:

There are no specific welfare schemes/programmes for improving the working and living conditions of sewerage workers. The sewerage workers are not having proper awareness about the present ongoing government schemes, including the insurance schemes. Lack of awareness is responsible for low/non-coverage of the sewerage employees in all the welfare schemes, in general, and insurance schemes in particular.

Only a few Sewerage workers heard about Schedule Caste Sub-Plan (SCSP) but they did not know what it is and how it benefits. About the notification/advertisement given by the government on various schemes/programmes and entitlements (either livelihood or health-related), they reported that though they had heard about them no one was there to explain and help to access the benefits. However, now-a-days, a few parents are trying to know about several educational schemes for the benefit of their children in schools and colleges. For instance, about 60 per cent of them are availing pre-metric scholarships. The others could not get these scholarships as they have no knowledge or understanding about the documents they have to submit to the department for accessing scholarships. The other reason is that they do not have enough time to go to the concerned officials to submit the documents since their work loads are very heavy due to a shortage of manpower. Regarding children accessing post-metric scholarships, the situation is some what better when compared to the pre-metric scholarships. The reason is that the children themselves know the procedural aspects of how to apply, and they are applying on their own.

When asked about the children's education, children in nearly 70 to 80 per cent of families are pursuing higher education. They are attending private schools with English as the medium of instruction. It is also reported that most of the families are stopping their children's education at the secondary level itself due to poverty.

It is suggested that through local NGOs, the sewerage workers should be educated about "on duty principles", their rights as employees, different welfare schemes implemented by the government, awareness on preventive and curative health measures.

Housing is a basic need for all the sewerage workers and this facility has to be provided. It is reported by several workers that when they go searching houses, the owners are not willing to let their houses when they introduce themselves as sewerage workers. It is also suggested that the VMC should recommend their case to the Housing/Social Welfare Department. If this is not possible, the sewerage workers should be allotted staff quarters.

Social Capital:

Most of the workers are not interested to join the Caste and Political Associations due to lack of confidence in those institutions' ability and concern for improving the welfare of sewerage workers. Some other reasons for non- and inactive participation are lack of awareness, lack of interest and time. There is no specific Association for the sewerage workers until last year (2016). This association is not full-fledged and is not having any office room or regular activities. This has happened due to the death of two workers who fell in to sewers during work. The All India *Safai Karmachari Andolan* (AISKA) leaders motivated all these workers and federated as Vijayawada Municipal Corporation Under Ground Drainage Workers Association (VMCUGDWA).

Public Perceptions:

The Sewerage workers feel that still the society looks down upon their profession and for that reason they are living in habitations far from the worksites and not disclosing their occupation and reporting as workers in VMC and Water Works Department. There are instances when the daughters-in-law of several OBC and OC workers severed their relations with the family when they came to know that their fathers-in-law are sewerage workers.

The male members of the families are not going to the parents' meetings called for by the school administration. Instead, they are sending their wives to such meetings and occasions, for fear that some one may notice them as sewerage workers and their children may be ill-treated in the school by their fellow children or their parents. Most of them do not say that they are working as sewerage workers; instead, they are introducing themselves as workers in VMC. Some of the workers felt that changes in social relations for the better are taking place but the public image of the occupation has not changed much.

Manual Scavengers and their Rehabilitation Act (MS 2013 Act):

The VMC considered the underground drainage workers in the engineering section but not as manual scavengers. So, whatever the rehabilitation related benefits were to be provided under the Act had not been made applicable to these workers. Only the health and sanitation section workers were shown under the VMC scavengers and these were provided such rehabilitation benefits and schemes, etc.

What the sewerage workers knew about Manual Scavengers and their Rehabilitation Act 2013 Act was that they should not get down in to the manhole for work. They also knew that in the event of an accident when on duty, they would be paid compensation. They did not know anything more than this and no one was there to give them information or educate them about the Act. All the sewerage workers were manual scavenging workers only before 2013 and even now, they are involved in getting down in to manholes and working. Responding to the question on why they are still doing the work manually, they said that the machines are not working properly. Further more, when stones or garbage are deposited in drains, the workers must get down in to the manholes and clear them manually only.

Official Views:

According to the Engineering Officials, the sewerage workers are not interested to use the sewerage machinery for the undertaking of their regular works/sewerage repairs, etc., and are interested to do it manually without wearing relevant safety equipment. This attitude is responsible for the problems of their health and injuries, etc. The workers, on the other hand, expressed that VMC Officials have not distributed any safety-related equipment (protective gear/protective clothing, etc.).

Reasons for not using or partially using the machinery/equipment, according to the workers, are the long term habit of doing works manually and without machinery, the perception that use of machinery is a time-consuming affair and needs a lot of patience to handle works through machinery.

9. Conclusions and Action Points

A sizeable proportion of sewerage worker households were distress migrants long back from rural areas and lack of skills and assets drove them to this occupation. Currently, all the children in 6-14 years of age are in school and mostly in private institutions. Economic

conditions have been compelling most of these children to dropout after secondary level of education.

Only 20 per cent of the workers are permanent indicating that 80 per cent of the employees are vulnerable due to low wages, lack of proper terms and conditions of engagement and uncertainty regarding continuation of work. Most of the workers are aged and contract workers with little social capital.

Their working conditions are deplorable and the workers suffer from several work-induced health hazards. The severe manpower problem has led to longer hours of work and the temporary nature of their job reduces their bargaining power. The stagnancy in wages further erodes their living standards. The supply and use of safety equipment at work is very insignificant. Even after the introduction of machines, there are instances of manual operations due to an inadequate number of machines and repairs and the small size of drainage pipes in certain areas.

The inadequate supply of safety equipment at worksites and exposure to dangerous gases has resulted in a high incidence of morbidity and low life expectancy. Further, the denial of health cards to time-scale workers and the poor quality of health care support from ESI hospital to contract workers worsened their precarious health status. The workers receive information on technology and health care in formally. The indices of working conditions for most of the workers were either poor or moderate and the average index value was below 50 per cent of the ideal conditions.

The average monthly per capita household income was Rs.7682, Rs.6786 and Rs.6609, respectively, for OC and OBCs, Rellis and Madigas in 2016-17. None was found to be poor based on the official poverty line adjusted for inflation (Rs.1352 per capita per month). Using the state's income criterion of Rs.1.5 lakh for identification of poor, about 27, 18 and 23 per cent of OC and OBCs, Rellis and Madigas, respectively, were below the poverty line (BPL). About 62 per cent of them feel economic insecurity. The contributions of other members of the family to household income is substantial in the case of contract and time-scale employees and the importance of the former group declined with improvement in employment status.

While the average household income was higher than the average expenditure, about 30 per cent of worker households incurred expenditure more than their income; a disturbing feature. It is disheartening to note that worker households incurred 4 to 6 per cent each

on health and intoxicants. On transport, the SC households spent about 10 per cent of total expenditure and there is a need to subsidise the transport expenses by the state.

About 90 per cent of the sewerage workers were indebted and the average outstanding debt per worker household was Rs.3.2 lakh, Rs.2.5 lakh and Rs.1.5 lakh, respectively, for OBC and OC, Relli and Madiga groups in 2016-17. Their access to institutional loans was limited and very few of them could get productive loans. They are paying exorbitant interest rates (over 36%) for the amounts borrowed from informal sources.

About 65 per cent of the workers did not own a house and most of them live in slums. The living standards were found to be moderate and Madigas and Rellis were at disadvantage compared to OC and OBC workers. The living standards can be improved by enhancing social capital, awareness and access to welfare schemes.

The vulnerability (to poor quality life) index constructed using 23 indicators reveals that 23 per cent and 77 per cent of sewerage workers, respectively, were experiencing low and moderate vulnerability. Contract and *Madiga* workers were more vulnerable. Provision of multiple livelihoods, building awareness, reducing expenditure on intoxicants and issuing ration cards would reduce the vulnerability, to some extent.

Most of them were not aware of details of Manual Scavengers and their Rehabilitation Act 2013 and, in fact, sewerage workers were not treated as manual scavengers. The workers reported that the public image of the occupation was meanial. At work and with society, the relations are improving but slowly. The presence of OCs and OBCs in a large percentage among the sewerage workers is contrary to the normal expectations and it has not improved the image of the occupation. It is to be noted that none of the workers is disclosing their nature of work even to the family members.

Action Points:

The salaries of the contract and time-scale employees should be raised and linked to inflation. Annual increments should be provided as an incentive.

To improve the working conditions, all workers should be supplied with new machines, safety kits, etc., and formal training on technology, periodic health checkups during duty hours should be provided.

There is a need to enhance the manpower to rationalise the workload and also sanction 12 leaves with pay so that they can visit hospitals for treatment and approach development departments for getting benefits.

For enhancing the social capital of the sewerage workers, the Social Welfare Department should identify vibrant Non-Governmental Organisations (NGOs) for organizing, educating and enabling them in to Self Help Groups (SHGs) to access the development schemes. Or else, Vijayawada Municipal Corporation Under Ground Drainage Workers Association (VMCUGDWA) should be strengthened for protecting and promoting the interests of sewerage workers. Provision of Skills would help the young workers to move horizontally and vertically for better positions and to occupations with dignity.

The state should give priority to allotting houses/ staff quarters and ration cards to ensure better social status and food security. Banks should be asked to provide soft loans at concessional interest to these workers to relieve them from the clutches of money lenders.

The state should evolve a comprehensive health and life insurance scheme for the contract and time-scale employees and pay the entire premium to ensure social and economic protection.

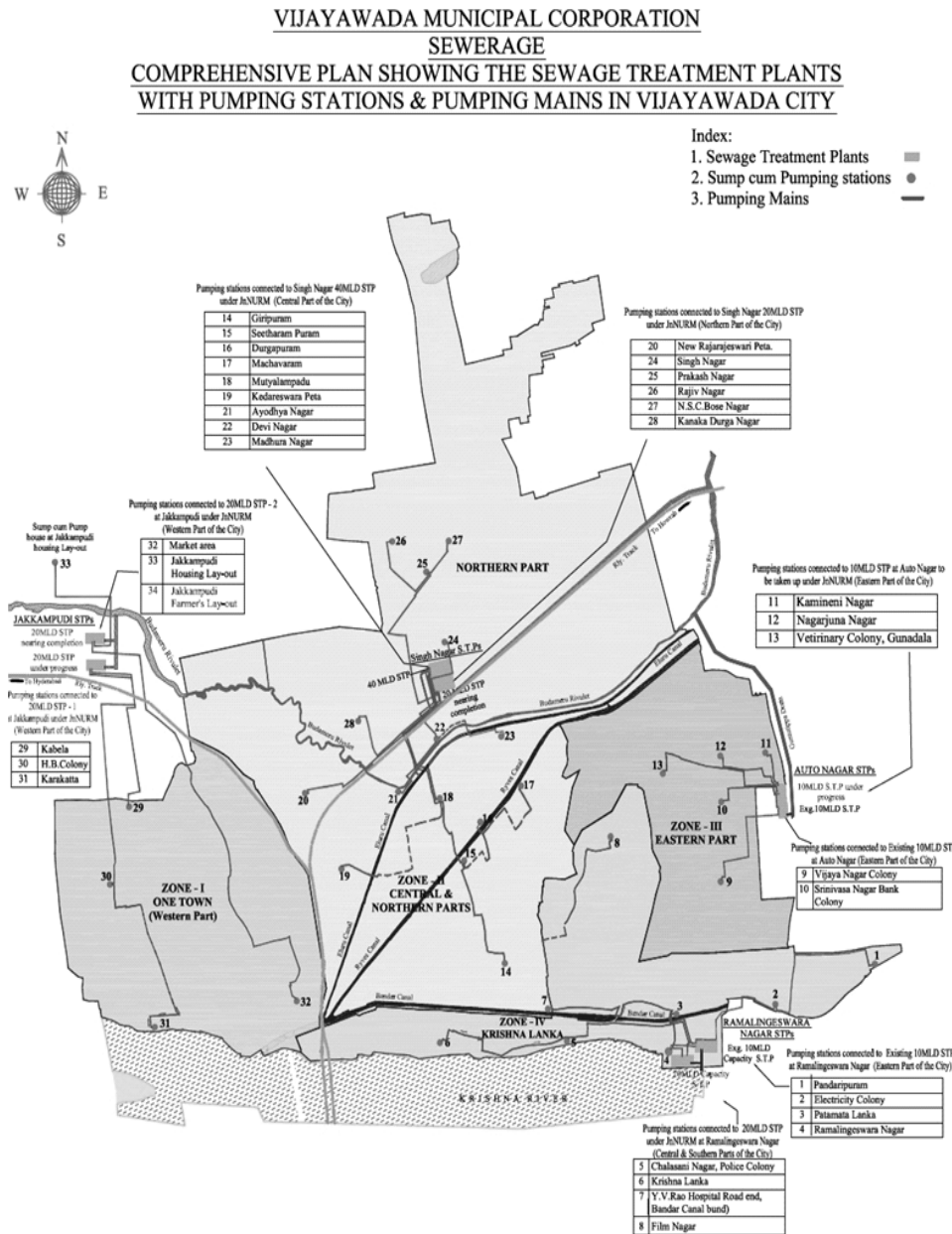
The workers who are retired /sick / dependents of deceased (other than permanent workers) may be allotted “Pay and Use Toilets” on a priority basis.

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Annexure

Map: Sewerage Treatment Plants Influencing Areas



Source: Office of the Vijayawada Municipal Corporation, Vijayawada

Annexure A1**Distribution of Sample Sewerage Workers by Circle, Employment Status and Caste**

Circle	Permanent	Time Scale	Contract	Total
SC				
I	1	0	4	5
II	14	3	22	39
III	6	2	31	39
Total	21	5	57	83
OBC & OC				
I	1	0	0	1
II	2	3	2	7
III	1	0	6	7
Total	4	3	8	15
All Castes				
I	2	0	4	6
II	16	6	24	46
III	7	2	37	46
Total	25	8	65	98

Source: VMC Records and Field Survey (PRA/FGD Methods)

Note: SC: Scheduled Castes; OBC: Other Backward Castes; OC: Other Castes

Sampling Frame**Table 1: Circle- wise Total Sewerage Workers/Employees across Job Status in VMC (Underground Drainage/Sewerage Treatment Plants)**

Circle	Permanent	Time Scale	Contract	Total
SC				
I	1	0	4	5
II	14	3	22	39
III	6	2	31	39
Total	21	5	57	83
ST				
I	0	0	1	1
II	1	0	0	1
III	0	0	4	4
Total	1	0	5	6
OBC				
I	0	0	6	6
II	7	3	19	29
III	7	3	53	63
Total	14	6	78	98
OCs				
I	0	0	0	0
II	6	1	17	24
III	1	2	9	12
Total	7	3	26	36
All Castes				
I	1	0	11	12
II	28	7	58	93
III	14	7	97	118
Total	43	14	166	223

Source: VMC Records/ PRA/FGD Methods

Note: SC: Scheduled Castes; OBC: Other Backward Castes; OC: Other Castes

Annexure A2

Sewerage Scenario and Activities in Vijayawada Municipal Corporation and Mechanization

Vijayawada Municipal Corporation (VMC) is the 2nd largest city in the state after the bifurcation of Andhra Pradesh (AP) with a 10 Million + population extended in 63 Sq.Km of area. The political wards of the VMC are 59. The Central and Eastern parts of the Vijayawada city had been covered with Under Ground Drainage facility before Jawaharlal Nehru Urban Renewal Mission (JnNURM). The VMC has been taken up underground drainage facilities in all un-served areas of the Vijayawada city by providing a sewer collection network, laying of Ductile Iron (D.I.) Pumping mains, construction of Sump cum Pumping stations, erection of Pumpsets and Transformers etc. under JnNURM scheme. VMC has provided a sewer collection network and other drainage facilities to all the areas of Vijayawada City. About 80 per cent area of the city has been commissioned. VMC has extended the Operation and Maintenance services of UGD for all the covered areas of Vijayawada city. The sewage generation was about 126 million liters per day (MLD) in 2006 and is expected to go up to 152 MLD by 2021.

The present scenario of Sewerage:

- Area covered under sewer network - 61 sq.km.(97%)
- Length of sewer network laid - 798 km.
- Total Number of UGD HSCs so far - 69,000 numbers
- Balance UGDHSCs for which connections are in progress - 1,20,000 numbers

Sewage Treatment:

Existing :120 MLD (40 MLD-1, 20 MLD-3 and 10 MLD – 2 numbers)

To be commissioned:10 MLD (10 MLD–1number); Under construction: 20 MLD (20 MLD –1 number)

Sewage Treatment Plants

There are 3 Sewage Treatment Plants (STPs) with a combined treatment capacity of 47 MLD. There are presently nearly 71,000 UGD connections in the city. The VMC embarked on a project to cover the entire city with a sewerage network by 2018.

The total sewage generation in the corporation limits is estimated to be 148 MLD. The two existing STPs have a utilizable capacity of around 20 MLD and are put in to operation, which is very low. The treatment plants have been devised based on the conventional method of treatment with oxidation ponds and the digester. The final treated waste water will be let out in to the *Budameru* after achieving the desired effluent standards. Out of the total sewage generated, only 10 per cent of it is treated and disposed of.

Vijayawada city is divided into three circles and, for easy maintenance, these circles are further divided in to four zones. These zones are further divided in to simpler blocks. According to primary sources, the sewerage connections at individual house levels are very less in the city.

Circle I has no underground sewerage system and the sewage is led in to open drains. The existing sewerage scheme serves around 2.50 lakh populations with a scientific method of treatment. The sewage schemes for the entire central area has been functioning with 18,000 sewerage connections, covering only around 10 per cent of the population. However, in slum areas, the access to sewerage connections is very low, i.e., around 2 per cent. And in the case of surrounding zones, a sewage network does not exist.

Table 2: VMC Circle-wise Details of No. of Machines Available and Required as per Norms

Machine	Total No. of Machines Using by Status				
	Circle	Own	Hired on Retail Basis	Total No. of Machines Existing	Additional Required No.
1	1	1	1	2	2
	2	3	2	5	3
	3	3	4	7	3
2	1	0	0	0	2
	2	2	0	2 (in pair)	3 (in pair)
	3	3	0	5 (in pair)	5 (in pair)

Source: Field Survey Data (PRA/FGD Methods); Secondary data from Offices of VMC Circles

Machine 1= Air Tech machines to clean manholes (Air Tech Sewer Line Cleaning Machine); and Machine 2=UGD Mainline Silt Bucket Machine

Overall, the workers and supervisors expressed that 40 per cent of machines are in shortage and need to be arranged to complete our work in time and reduce the drudgery.

Annexure A3

**Indicators of Working Conditions and
Construction of Index (WCCI) Indicators: 21**

Sl.No	Indicator	Measurement
Group A: Duration of Work and Wage Payments		
1	Hours of work–day time	<8hours=1;>8 hours= 8/x, x is number of hours
2	Hours of work–night time	<8hours=1;>8 hours= 8/x, x is number of hours
3	Delays in wage payment	Nodelay=1;Delayed=0
4	Mode of payment	Online transfer=1;Others=0
5	Special allowance for over time	Yes=1;No=0
Group B: Provision of Safety Equipment		
6	safety gear	Provided=1;Not provided/not fit for use=0
7	Face Mask	Provided=1;Not provided/not fit for use=0
8	Goggles	Provided=1;Not provided/not fit for use=0
9	liquid repellent	Provided=1;Not provided/not fit for use=0
10	Rubber boots	Provided=1;Not provided/not fit for use=0
Group C: Safety at Work place		
11	Perceived safety	Reported score/max.score(5)
Group D: Health Disorders due to Work		
12	Occurrence of skin diseases	Reported score/max.score(3)
13	Cardio vascular degeneration	Reported score/max.score(3)
14	Respiratory disorders	Reported score/max.score(3)
15	Spinal problems	Reported score/max.score(3)
16	Jaundice	Reported score/max.score(3)
17	Trachoma	Reported score/max.score(3)
18	Gastroenteritis	Reported score/max.score(3)
19	Ear infections	Reported score/max.score(3)
20	Communicable diseases	Reported score/max.score(3)
21	Other diseases	Reported score/max.score(3)

Annexure A4**Indicators of Living Standards and Construction of Index (LSCI)
Living Standards Index (LSI)****Components:**

Housing (H); *Education (E), *Skill and Vocational Training (SVT); *Health Status (H); *Credit Worthiness (C); *Income (I); *Savings and Insurance (SI)

Sl.No	Indicator	Measurement
	Housing	
1	Ownership of house	Owned =1; Others=0
2	House type	<i>Pucca</i> -1; Semi- <i>Pucca</i> -0.66; <i>Kutcha</i> -0.33
3	Location	Non-Slum-1; Notified Slum-0.66; Non-Notified Slum-0.33
	Amenities	
4	Access to tapped water	Yes=1; No= 0
5	Toilet within habitation	Yes=1; No= 0
6	Electricity	Yes=1; No= 0
	Education	
7	literacy of adults	No. of Literates/No.of Adults
8	Education level of adults	Sum of The Scores of Adults/No. of Adults (Primary-1/4; Secondary-2/4; Higher Secondary-3/4; Above-1)
9	Child literacy	Children going to School / No. of Children in 6-14Years
	Health Status and Mortality	
10	No infant deaths in last 5 years	Yes=1; No= 0
11	No adult deaths in last 5 years (other than age related and accident)	Yes=1; No= 0
12	No malnourished child	Yes=1; No= 0
13	Women having No Anaemia	Yes=1; No= 0
14	Women having No Sickness	Yes=1; No= 0
15	Women having no skin disease	Yes=1; No= 0
16	Women having no chronic ailments	Yes=1; No= 0
	Credit worthiness	
17	Can get hassle free loan	Yes=1; No= 0
18	Got institutional loan	Yes=1; No= 0
19	Got loan for productive purposes	Yes=1; No= 0
	Income	
20	Multiple sources of income to the household	Yes=1; No=0
21	Feeling financially secure	Yes=1; No= 0
	Savings and Insurance	
22	Had a savings account (other than SHG)	Yes=1; No= 0
23	SHG account	Yes=1; No= 0
24	Covered under health insurance	Yes=1; No= 0
25	Covered under life insurance	Yes=1; No=0

Annexure A5

Social Safety Nets (SSN) Score

Awareness (1), Availed Relevant Schemes (1), Level of Satisfaction of the Schemes Availed (4 & 5-1)

General:

PDS, Housing, *Deepam*, *Ujjwala*, SDP, *Aarogyasri*, PHC/SC, Subsidized Interest, *Bhimal* Insurance

Specific Cases:

1. Household with Children below 6 Yrs - ICDS
2. Household with School going Children – MDM, Uniform, Books, Hostel, Coaching, Pre and Post Metric Fellowships, Vocational Training
3. Household with Pregnant/Lactating Women – SNP/AAH
4. Household with Aged – Old Age Pension
5. Household with Widows – Widow Pension
6. Household with PHC – PHC Pensions

General Case:

Equate Max.Possible Score to 1

Special Case A:

Consider All Relevant Cases and Equate Max. Possible Score to 1
Awareness Score for All - 25 (0-25)

Availing and Satisfaction: Only Relevant Categories (Only for those with Awareness);
Satisfied and Very Much Satisfied-1

SSN Score: Min.– 0; Max.

Indicators of Vulnerability and Construction of Index (VCI)

Vulnerability index (VI)

1. No Owned House
2. Living in *Kutcha* house
3. Living in Slum
4. No Tap Water
5. No Toilet within the Habitation
6. No Electric Gadgets
7. Infant Deaths in last 5 years
8. Adult Deaths in the last 5 years other than Age-related and Accidents
9. Presence of Malnourished Child
10. Women suffering from Anaemia
11. Women suffering from Sickness
12. Women suffering from Skin Diseases
13. Women suffering from Chronic Ailments
14. Not able to get Govt. Health Care Services
15. No Credit worthiness
16. No Institutional Credit
17. No Production Credit
18. No Insurance Coverage
19. Low Social Capital (score<5)
20. Perceived Financial Insecurity
21. Low Awareness of Social Safety Nets (score <)
22. Low score on Availing of Social Safety Nets (score <)
23. No Safety at Work Site

All these indicators are binary variables and thus the index lie between '0' and '23'

Vulnerability (to low-quality life) and Determinants

Vulnerability is concerned with ‘the likelihood of being exposed to hazards/shocks’ and “their capacity to with stand them which relates to their socio-economic circumstances” (Schneiderbauer and Ehrlich 2004). It refers to the chances of leading to low levels of living /poor quality of life. The factors which can drive a household to such a deprived situation together constitute “vulnerability” and are considered for the construction of the index. The Vulnerability Index (VI) was constructed based on 23 indicators and the list of indicators was presented in *Annexure A5*. The VI values lie between 0 and 23. Keeping the theoretical range, all those workers with a score less than 9 were classified as low vulnerable and those with VI values between 9 and 16 were considered as medium vulnerable. The rest were treated as highly vulnerable and none was in this group. About four-fifths of Scheduled Caste workers were in the medium vulnerable group while only two-thirds of Other Backward Caste and Other Caste workers belonged to this category.

Classification of worker households was made by employment status and vulnerability levels and these results were shown in Table A 5.1. It is to be noted that almost 62 per cent of permanent workers were in the medium vulnerability category. Thus, vulnerability of sewerage workers was deep rooted.

Table A5.1: Index of Vulnerability Caste-wise and Employment Status

Caste /Employment Status	Vulnerability Index (VI)		
	Low Vulnerability (<=8)	Medium Vulnerability (9-16)	Total
OBC & OC	5(33.3)	10(66.7)	15
SCs	17(20.5)	66(79.5)	83
<i>Relli</i>	13(23.2)	43(76.8)	56
<i>Madiga</i>	4(15.4)	22(84.6)	26
Permanent	11(44)	14(56)	25
Time Scale	2(25)	6(75)	8
Contract	8(12.3)	57(87.7)	65
Total	21(21.4)	77(78.6)	98

Source: Field Survey Data

Note: figures in the () indicate per cent to total

Determinants of Vulnerability:

To reduce the vulnerability levels of these workers, the factors significantly influencing the vulnerability were identified using multiple regression and the results are given below:

$$VI = 12.848 + 0.021^{ns} \text{Time Scale Emp.} + 1.827^{***} \text{Contract Emp.} - 0.16^{***} \text{Awareness Index} - 1.52^{***} \text{rationcard} - 1.415^{**} \text{supervisorstatus} - 0.679^* \text{MSI} + 0.049^{**} \text{PEI} + 2.439 \text{FMCA}$$

$$\text{Adj. } R^2 = 0.45, F = 11.45^{***}$$

Note: PEI: per cent of expenditure on intoxicants; FMCA: family members with chronic ailment suppressed categories are permanent employees; households without a ration card; worker position and households with a single source of income.

The most vulnerable group is the contract employees and, *ceteris paribus*, the Vulnerability Index will be higher by 1.83 points compared to other groups. Awareness about the government welfare schemes and possession of ration cards (as a proxy to food security) would reduce the vulnerability significantly. Promotion of supervisory status of the eligible would improve their financial/economic security and access to multiple sources of income would reduce their vulnerability. So efforts should be made to provide more supplementary employment opportunities or more secure employment. Households with chronically ill members and higher expenditure on intoxicants (like tobacco and liquor) enhance their vulnerability. So, assured quality health care by health department officials is necessary and NGOs need to be entrusted with sensitization and educating the alcohol addicts on its adverse effects.

The vulnerability to quality life index reveals that about 77 per cent were moderately vulnerable. This can be reduced through improved awareness and better access to general welfare and SC- specific programmes, provision of multiple livelihoods; issue of ration card - particularly White Cards; reduction of expenditure on intoxicants and quality health care for all the members of the family.

Annexure A 6**Table A 6.1: Workers' Sources of Savings details on Duration, Amount and Rate of Interest across Social Groups**

Source/Caste Category	Duration	Amount (inRs.)	Interest Rate (%)
EPFO/GPF			
OBC & OC	Short Term	15(2306)	15(8.7)
<i>Relli</i>	Short Term	55(2050)	55(8.6)
	Long Term	1(6000)	1(7.8)
	Total	56(2121)	56(8.6)
<i>Madiga</i>	Short Term	26(2298)	26(8.6)
SC	Short Term	82(2156)	81(8.6)
	Long Term	1(6000)	1(7.8)
	Total	83(2204)	82(8.6)
Bank/Co-operatives			
OBC & OC	Long Term	1(100000)	1(6)
<i>Relli</i>	Short Term	1(2000)	1(18)
	Long Term	1(10000)	1(18)
	Total	2(6000)	2(18)
SC	Short Term	1(2000)	1(18)
	Long Term	1(10000)	1(18)
	Total	2(6000)	2(18)
Post Office			
<i>Relli</i>	Short Term	1(3000)	1(7.5)
	Long Term	1(20000)	1(8.8)
	Total	2(11500)	2(8.1)
<i>Madiga</i>	Short Term	2(1000)	2(6)
SC	Short Term	3(1667)	3(6.5)
	Long Term	1(20000)	1(8.8)
	Total	4(6250)	4(7.1)
SHGs Category			
OBC&OC	Short Term	8(113)	8(3)
<i>Relli</i>	Short Term	36(106)	36(3)
<i>Madiga</i>	Short Term	11(100)	11(3)

Source: Field Survey Data

Note: EPFO: The Employees Provident Fund Organisation; GPF: General Provident Fund

SHGs: Self Help Groups

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