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URBAN DWELLER'S VIEWS ON MUNICIPAL SANITATIONS IN VIJAYWADA MUNICIPAL CORPORATION

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ABSTRACT
Sanitation is critical for human development, and it is seen as a fundamental right to have access to adequate sanitation. Sanitation refers to the safe treatment, disposal, and other hygiene measures associated with human excrement. Inadequate sanitation is the leading cause of disease all across the world and better sanitation can have a huge impact on public health. Congestion, limited housing, water supply and insufficient utilities for human excreta disposal are all key characteristics of cities and towns in developing countries. Poor sanitation costs most developing countries millions of lives and billions of money each year.

Most underdeveloped countries face difficulties in providing proper sanitation, and children in these countries are unlikely to develop to their full potential without it. The research was conducted in the city of Vijaywada, Andhra Pradesh, India. The purpose of this study is to assess public perception and Vijayawada Municipal Corporation efforts in the area of sanitation. The findings of this study are likely to aid local governments in identifying service delivery gaps and taking efforts to improve service delivery.

Keywords: Sanitation, Developing Countries, Vijayawada Municipal Corporation

1. INTRODUCTION

Sanitation is critical to human progress and many international organisations view sanitation as a barometer in the fight against poverty. Sanitation is the promotion of cleanliness and the prevention of diseases by upkeeping sanitary conditions. Environmental contamination and epidemics are caused by a lack of cleanliness. Inadequate sanitation facilities have an impact on all elements of human existence, with women and children being the primary victims.

The percentage of persons that use essential sanitation services, that is, enhanced sanitation amenities that are not shared with other households, is shown in Table 1. Improved sanitation facilities include flush / pour flush to piped cesspit systems, ventilated pit latrines, septic tanks and composting toilets.

Table 1: Population Using Essential Sanitation Services

Year	Population using basic sanitation services (Proportion of population) India	Population using basic sanitation services (Proportion of population) World
2011	38.2	65.49
2012	39.69	66.13
2013	41.18	66.77
2014	42.66	67.39
2015	44.15	68.09
2016	44.76	68.92
2017	45.32	69.36

Source: WHO / UNICEF Joint Monitoring Programme for Sanitation

According to the table above, the percentage of Indians who use basic hygiene services has raised from 38.2 percent in 2011 to 45.32 percent in 2017. During the same time period, the percentage of the world's population who have access to basic sanitation has increased from 65.49to 69.36 percent.

The percentage of urban and rural residents who use basic sanitation services is shown in Table 2. The table shows that the proportion of India's rural and urban population using critical sanitation services has increased from 2011 to 2017, but is still far behind the global average.

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Table 2: Rural and Urban Population Using Basic Sanitation Services

Year	Percentage of rural population using basic sanitation services (India)	Percentage of rural population using basic sanitation services (World)	Percentage of urban population using basic sanitation services (India)	Percentage of urban population using basic sanitation services (World)
2011	27.59	46.7	61.51	80.99
2012	29.15	47.48	62.48	81.23
2013	30.7	48.27	63.45	81.47
2014	32.25	49.05	64.42	81.72
2015	33.8	49.82	65.4	81.95
2016	34.21	49.23	66.48	81.98
2017	35.12	50.21	67.72	82.11

Source: Joint Monitoring Programme for Sanitation (WHO / UNICEF)

Sanitation is the means to promote health by preventing human exposure to dangerous wastes as well as proper discarding of sewage wastewater. However, in most of the developing nations, sanitation remains as a neglected sector and sewage poses threat to lakes, ponds, rivers and ground water table. Rivers passing through a town or city has become a stinking sewer. Appropriate sanitation means not only clean toilets, but also a safe environment with proper management of microbiological agents cause diseases. To improve the hygiene practices improved basic facilities are essential. Urban local bodies should know and evaluate the citizens' satisfaction with regard to the basic amenities provided to the community. This study aims to assess the public opinion on the sanitation service provided by VMC.

2. REVIEW OF LITERATURE

Bayrakci et al. (2017) in their research study, "Citizens satisfaction with municipal services: The case of Konya Municipality" have established that the public expectations and demands from public for civic amenities have changed due to globalization, development of information technology and new approaches like citizen-centered governance. Accordingly, the local governments are acting according to the public demand and gaining their support and respect.

Ghosh and Cairncross (2014) in their research work "The uneven progress of sanitation in India" have focused on the influence of meager sanitation on the mortality rate of children. The authors have mentioned that enhanced sanitation and drinking water could avert 2.4 million deaths every year in our world. This study has concluded that few of the states in India have reached the target in providing sanitation amenities and the authors have suggested for radical measures to achieve the targets in the area of sanitation.

Harris and Helgertz (2019) in their research study have emphasized on the impact on sanitary reforms on urban mortality. The researchers have outlined the major features that causes mortality change and the role of urban sanitary reforms. The findings of the study advocate that there was a sturdy relationship between investment in public works and changes in mortality.

Hawkins et al. (2013) in their study have ascertained that the coverage of sanitation in urban areas has increased rapidly in the last 20 years. They have also mentioned that in urban areas the access to toilets is higher in comparison to rural areas. In urban areas due to high density of population the space for construction of full latrine pit may not be sufficient.

Hazarika (2015) in their research study, "Sanitation and its impact on health: A study in Jorhat, Assam" have established that sanitation is a burning problem and most of the ponds, lakes and rivers fleeting through urban areas are polluted due to inappropriate disposal of human excreta. The author has mentioned that women looks after the cleanliness and hygiene of house and they should be educated.

Hobson (2000) in his research work, "Sustainable sanitation: experiences in Pune with a municipal-NGO-community partnership" has explained about the joint venture between the NGOs and Pune municipal corporation in construction of community toilets. This study has evaluated the experience with regard to sanitation project that has provided focus on working with public in informal settlements. The authors have also mentioned that the municipal corporation has shown new willingness to provide basic amenities for the urban poor.

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Joseph et al. (2008) in their research work, "Integrated approach to solid waste management in Chennai: an Indian metro city" have established that the solid waste management and sanitation are obligatory functions of urban local bodies both in towns and cities. According to the authors sanitation and solid waste management are challenges to local governments and they have suggested for an integrated approach to overcome the operational hurdles.

Sankarapu (2019) in his research work "Municipal Solid Waste Management in Visakhapatnam City, India" has mentioned that inappropriate solid waste management is likely to guide to disgusting condition of streets and lead to disease spreading. This study has suggested to arrange public awareness programs and to involve Residential Welfare Associations and NGOs while making decisions with regard to solid waste management.

Santra et al. (2017) have illustrated that efficient solid waste management is a key indicator of quality of life in the city. Due to rural migration and rapid industrialization the urban population is increasing and a major challenge to urban local bodies is providing civic amenities. The authors have suggested that the public and government have to join hands together otherwise; it will be a threat to urban dwellers.

Schrecongost et al. (2020) have mentioned that swift urbanization, aging infrastructure and change in climate are the major reasons of sanitation crisis. The authors have ascertained that radical rethink with regard to urban sanitation is essential to meet the sustainable development goals. This study recommends that the urban sanitation service should provide safe, sustainable and equitable sanitation service to everyone with priority to vulnerable groups.

Showkat (2016) in his research work "Coverage of sanitation issues of India" have articulated that print media play a crucial role in informing the public and also verify what we think and fret about. This study revealed that newspapers in India have given extreme importance to the sanitation policies.

Sinharoy et al. (2019) have examined the barriers of water, sanitation and hygiene policies in informal settlements. The authors have identified the key barriers such as social exclusion, lack of sufficient land, political economy and decision making. The authors have suggested for inter-disciplinary collaboration and both top-down and bottom-up approaches to ensure responsive policies for informal settlements.

III. OBJECTIVES OF THE STUDY

1) To appraise the community opinion on sanitation facility provided by the municipal corporation.
2) To divulge the endeavors made by Vijayawada Municipal Corporation with regard to provision of sanitation to community.
3) To assess the performance gaps and to propose suggestions for advancement.

IV. RESEARCH HYPOTHESIS

The following research hypotheses have been formulated -

HO1: The community is not contented with the sanitation service provided by VMC.

HO2: There is a considerable divergence in the community opinion (among the various geographic zones) in relation to sanitation service provided by the municipal corporation.

V. METHODOLOGY

For the purpose of the study, primary as well as secondary data has been collected. A structured questionnaire has been equipped and executed for gathering prime data. Data has been gathered from 450 respondents and used random stratified sampling technique for selecting sample. Secondary data has been gathered from reports, records, research papers, officials and website of VMC.

VI. Profile of the study area

Vijayawada is the second largest city of Andhra Pradesh. It lies on the banks of Krishna river surrounded by the hills of Eastern Ghats known as Indrakeeladri Hills in Krishna district. It geographically lies on the center spot of Andhra Pradesh. The city has been described as the commercial, political, and educational capital of Andhra Pradesh. It is one of the fastest growing urban areas in India. The city is also the third most densely populated urban built-up areas in the world and is classified as a Y-grade city by the Sixth Central Pay Commission. The city is the second most populous in the state with a population of more than one million.

The Municipality of Vijayawada was constituted on 1st April 1888 and was upgraded as a selection grade municipality in the year 1960. The municipality was upgraded to a corporation in 1981. With the merger of Gunadala, Patamata and Bhavanipuram village panchayats and two villages payakapuram and Kundavari

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kandrika in the corporation in 1985. The total area of the corporation is 61.88 sq.kms. The city is divided into 59 political wards. An elected body headed by the Mayor performs the Administration of the Corporation. The Commissioner acts as the executive head, and oversees the day to day functioning of the local body. The staff strength of the corporation is just over 5000.

Population Details of Vijayawada

Population as per 2011 Census	10,39,518
Male Population	5,27,307
Female Population	5,12,211

The City is divided into 34 Sanitary Divisions and about 2500 staff, of which 50% are from 74 DWCUA groups, have taken up the task of cleaning the roads every day. The total waste generated is around 550 M.T. and this is transported to Excel Plant, Sri Ram Energy Systems Plant and Bio Methanization plant for recycling into manure and power generation. The city has geographically expanded that is driven by economic activities and development. Irregular settlements have been mushroomed rapidly wherever space is available.

VMC is maintaining six STPs at Bhavanipuram, Autonagar, Ramalingeswara Nagar, Ajit Singh Nagar and Jakkampudi, treating the sewage water more than their actual capacities. Vijayawada Municipal Corporation (VMC) also adopted advance technology in construction of STP with Moving Bed Biofilm Reactor (MBBR) technology at Autonagar. In addition to this VMC make composting units mandatory in apartments and gated communities in the city. Now the Corporation is planning to make sewage treatment plants (STPs) mandatory for all new apartments and existing ones with above 50 flats like Bengaluru city. The municipal corporation has also made efforts to develop community toilets with the aim to make all wards of the city to be open defecation free. Many community toilets have been developed by VMC and are managed with the help of Sulabh International and Self-help groups. Due to lack of capacity and maintenance issues of treatment plants the wastewater generated in the city is not fully treated. A small portion of treated water is reused by different industries.

VIII. Respondents opinion on sanitation services provided by VMC

The public perception on municipal sanitation service is evaluated. This study covered the community opinion on the factors such as Sanitation services are provided regularly, Cleaning of Drains, VMC use modern technology of sanitation, Road's cleaning,

Table 3: Public Perception public perception on municipal sanitation service

Variables	Mean Value							
	Area-1	Area -2	Area -3	Area -4	Area -5	Area -6	Average	F
Sanitation services are provided regularly	3.81	3.34	3.59	3.98	3.08	3.34	3.52	10.38**
Cleaning of Drains	3.51	3.80	3.06	3.36	2.61	2.91	3.22	13.57**
VMC use modern technology of sanitation	3.75	3.94	3.34	3.44	2.84	2.94	3.38	19.38**
Road's cleaning	3.51	3.98	4.01	3.77	2.54	3.19	3.24	25.7**
The sanitation services are provided adequately	3.53	2.82	3.06	3.39	2.74	2.93	3.07	6.31**
Staff motivation and commitment offered sanitary services	3.58	3.22	3.19	3.60	2.86	3.00	3.24	6.58**
Complaint handling system	3.70	3.11	3.25	3.19	2.84	2.95	3.17	7.89**

Source: Primary Data

The Cronbach's Alpha score of the seven variables stands at .983 and indicate the high reliability. The factor "Sanitation services are provided regularly" has secured a mean score of 3.52 (on a 5 point scale) that evidently designate that the populace has optimistic outlook with regard to the effectiveness of drains cleaning. Amongst the various zones the people of Area- 4 area with a mean score of 3.98 are highly contended and the public from Area 5 area (3.08 mean score) least contented with effectiveness of municipal corporation in cleaning up the drains.

"Cleaning of Drains" has secured 3.22 mean score on a 5-point scale designate that the community have optimistic mind-set towards this factor. The general public from Area – 2 area (3.80 mean score) are more convinced and people from Area- 5 area (2.61 mean score) are less convinced in between the various zones with regard to regularity in provision of sanitation services.

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The variable "VMC use modern technology of sanitation" has a mean score of 3.38 exemplify that the citizens have affirmative perception on VMC in relation to this factor. The populace from Area- 2 area with a mean score of 3.94 is highly contented and people from Area – 5 area with 2.84 mean score are least satisfied among the different zones.

The factor "complaint handling system" has secured 3.17 mean score on a 5-point scale mention that the public have positive perception towards this variable. The residents of Area – 5 area with 2.84 mean score are least satisfied and with 3.70 mean score the residents from Area – 1 aree are highly satisfied among the different zones of VMC. A one analysis of variance has been carried out to find out the public perception on the municipal corporation in relation to sanitation services in different zones. The study reveals that there is a substantial variation in the mean scores of respondent's opinions of different zones with regard to municipal sanitation services.

Thus, the outcome of the study sturdily supports the null hypothesis that there is a significant divergence in the community perception in between various zone areas in relation to sanitation services provided by VMC.

IX. CONCLUSION AND SUGGESTIONS

The contemporary study has concentrated on the public perception on the sanitation service provided by VMC. The results of the study explore that average mean score secured by seven factors is 3.31 on a 5-point scale. According to the outcome of this study carried out with an aim to determine and analyze the citizens satisfaction on sanitation service provided by VMC; it can be concluded that the citizens are satisfied with the sanitation service to a large extent, whereas the citizens are not fully satisfied.

The area under the jurisdiction of municipal corporations in developing nations is expanding rapidly due to migration of people from rural areas for education and employment. The high growth of population in urban areas enhances pressure on municipal corporations for civic amenities. The policy makers are recommended to emphasize on development of satellite towns.

The drains in most of the cities are blocked and roads overflow with wastewater especially, in the rainy season. In this regard the urban local bodies are advised to recruit staff as per the need and to provide sanitary services to all areas under the jurisdiction according to the requirement.

This study has explored that much has been accomplished still a lot have to be done for improving the sanitation condition. Women play a considerable role in improving the hygiene of the house as they look after the cleanliness and fetch water for the household. In this regard, the urban local bodies are suggested to educate women about cleanliness and its benefits.

Privatisation of sanitary services can be the substitute that can be tried to cope up with the challenges posed by the sanitary needs of growing population. Adequate technical and administrative capacity, political support and financial resources are crucial for municipal corporations for radical changes. An integrated approach is recommended to overcome the procedural obstacles and to build the capability of municipal corporations with the help of education institutes.

Improving sanitation is imperative and urban local bodies are suggested to take community feedback sporadically, take support from NGOs, business houses and all stakeholders to improve sanitation services.

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