



# Journal of Social and Political Sciences

**Gupta, Smita, and Malik, Namita Singh. (2021), Why We Lack in Basic Sanitation? An Assessment of Challenges in Ajmer and Solution Strategies. In: *Journal of Social and Political Sciences*, Vol.4, No.3, 119-130.**

ISSN 2615-3718

DOI: 10.31014/aior.1991.04.03.308

The online version of this article can be found at:  
<https://www.asianinstituteofresearch.org/>

Published by:  
The Asian Institute of Research

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# Why We Lack in Basic Sanitation? An Assessment of Challenges in Ajmer and Solution Strategies

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## Abstract

**Purpose of the study:** The paper attempts to find the answer to the question – Why do we lack in basic sanitation? What are the reasons for it? Paper introspects the challenges encountered in sanitation services for Ajmer district in Rajasthan. It identifies the key bottlenecks of the sanitation system to the ground realities of implementation for a non-metropolitan city. The article also outlines the way forward which is suggested to make the sanitation system in the city more available to all. **Methodology:** The paper is drawn on policy document analysis, urban sanitation policy and other Indian government promotional materials on urban sanitation, Indian municipalities, and a number of public-private partnerships. The paper reviews the extant literature on urban sanitation and thereafter examines challenges met in Ajmer district of Rajasthan. **Main findings:** It emphasizes the major challenges of access to sanitation, lack of private sector engagement, lack of regulation and standardization, treatment of wastewater and septage, low infrastructure, weak institutional framework etc. The Paper also proposes suggestions for meeting these challenges so that a proper system of sanitation may emerge. **Applications of this study:** This study will be useful for all those agencies who are involved with sanitation system governance. The paper contributes to the literature by addressing a neglected theme of investigating the challenges and their probable solution strategies about Ajmer district of Rajasthan. The study will provide background of various challenges faced in various cities in Indian perspectives and how they can be dealt by proposed suggestions. This study will be beneficial in the area of sanitation systems, urban governance, etc. **Novelty/Originality of this study:** This study is significant in highlighting the type of challenges and what could be possible solutions in Indian perspectives with special reference to Ajmer.

**Keywords:** Urban Sanitation, Urban Sanitation Policy, India, Ajmer, Sanitation Challenges

## 1. Introduction

The challenges of sanitation exacerbate that many urban residents living in most unplanned and undeserved areas have no access to sanitation. While substantial progress has been made in water and sanitation services but still lack these basic sanitation services. Around 2.4 billion people lack access to basic sanitation services, such as toilets or latrines. (United Organisation, 2020). As the world is going to urbanise more, basic sanitation

requirements will also increase stupendously. Well organised urbanization will sharpen the need for sanitation. As per UN Report on The World's Cities in 2018, by 2030, urban areas are projected to house 60 percent of people globally and one in every three people will live in cities with at least half a million inhabitants (The World's Cities in 2018, 2018). Just three countries- India, China and Nigeria- together are expected to account for 35% of the growth in the world's urban population between 2018 and 2050. India is projected to add 416 million urban dwellers, China 255 million and Nigeria 189 million (World Urbanization Prospects: The 2018 Revision, 2018). Three out of ten people (2.1 billion people in 2015) do not have access to safe drinking water, six out of ten (4.5 billion people in 2015) do not have access to safely managed sanitation services, and one out of none (892 million people) practice open defecation (Water and Sanitation, 2020).

Water, Sanitation & hygiene collectively known as WASH, is the most important aspect of community well-being as it provides shield to hazardous health impacts, enhances life span and acts as advantageous agent for the economy. To protect the environment and human health, sanitation is currently deployed as way to contain and scientific treatment / process of human excreta, to save water bodies that are major sources of drinking water across regions. Expansion in sanitation services is imperative as Poor WASH is the main attribute for faecally – transmitted infections (FTIs) including cholera and diarrheal disease, which remains the one of the leading causes for mortality among children below the age group of 5 yrs. Safe WASH is a prerequisite for maternal health and new-born babies. Safe WASH practices are quintessential for preventing degradation of water resources which affects access to drinking water, especially poor vulnerable children and their families.

Effective WASH interventions are critical for saving lives and therefore, it becomes the centre of 2030 Agenda for Sustainable Development Goals as SDG 6 – “Ensure access to water and Sanitation for all.” SDGs were adopted by on 25th September 2015 by 193 countries to end poverty, protect planet and ensure prosperity for all of us part of the new sustainable development agenda (CSR to achieve SDGs, 2017). A total of 17 SDGs aim at 169 targets that are set to be achieved by 2030. Although these goals are not achievable only by government initiatives but also require collaborations between the government, private sector and the civil society.

Sanitation in Rajasthan state has always been a challenge due to water scarcity, difficult terrain, low literacy and geographical widespread. However, change in state sanitation scenario was evident when rural sanitation was devolved to Department of Panchayati Raj and Rural development in 2010 which led to renewed focus on sanitation in rural areas and urban areas was catered by Directorate of local bodies at state level and incessantly, expanding coverage of sanitation services citing associated negative externalities within the health domain and beyond.

According to National Urban Sanitation Policy 2008 (National Urban Sanitation Policy, 2008), ‘Sanitation’ is defined as “safe management of human excreta, including its safe confinement, treatment, disposal and associated hygiene-related practices.” Sanitation is one of the critical determinants of the quality of human life which impacts the outcomes for public health, environmental protection and human dignity. Clean and accessible water is one of the most fundamental requisite of the world. We wish to live in world where there is sufficient of fresh water, despite this fact there are millions of people and children who die due to filthy water, poor sanitation, and hygiene. “Water-related diseases, including diarrhea, are a leading cause of death in children of developing countries. However, they can be prevented and controlled by improving access to safe drinking water and sanitation, as well as domestic and personal hygiene” (Water - a shared responsibility, 2006). Gender perspectives are linked to sanitation issues, where women and girls drop from the education system due to inadequate sanitation facilities. By incorporating women, men and children's concerns and experiences, more emphasis can be laid down on skill development, which can increase sanitation sector relevance and impact on society, to meet sector objectives.

It is estimated that 57% of urban dwellers lack access to toilets that provide a full sanitation service chain, including containment, treatment, and end-use treatment and disposal (Asian Water Development Outlook 2016, 2016). As per UN SD Goal 6 of ensuring access to water and sanitation for all across the world. “It targets for safe and affordable drinking water for all by 2030 which requires investment in adequate infrastructure, provides sanitation facilities, and encourage hygiene”. It is absolutely essential to restore water-related eco-systems. As

per the UN website, facts state that 2.4 billion people lack access to basic sanitation services, such as toilets or latrines (Water and Sanitation, n.d). Countries government have to invest in the sector to facilitate for clean and accessible water.

In India, structuring of the departments of Water and sanitation has been revamped from time to time. Ministry of Water resources, River development and Ganga Rejuvenation, 2014 was renamed as Ministry of Jal Shakti in 2019 with two departments i.e. department of water resources, River development and Ganga Rejuvenation and Department of Drinking Water and Sanitation. The budget speech 2020- 2021 of Finance Minister Nirmala Sitharaman on Feb 1, 2020, announced Rs.30,478 crore (Mahaprashasta, 2020) for Jal Shakti Ministry in comparison to Rs.28,261 crore (India News, 2019) in the budget 2019 -2020, which has been only marginal increase in the budget. Financial budget for water and sanitation sector depicts government and country priority for working in that particular sector.

### *Literature Review*

Although a lot has already been done in the field of sanitation but there are many who still lack in access to basic sanitation. The benefits of tackling the challenges of sanitation are many. Better sanitation services lead to lower percentage of disease burden, advanced nutritional levels, improved quality of life, healthier environment and social and economic gains broadly to society. Astrid Hendriksen and others have stated that “user acceptance of sanitation facilities is fundamental to achieve a sustainable impact, which makes participatory decision-making methodology an essential component of the system of design and implementation. It further argues that sanitation facilities improvements are facing many challenges including lack of user acceptance of innovative technologies but this factor is generally ignored but technical experts and municipal decision makers” (Hendriksen, Tukahirwa, Oosterveer, & Mol, 2012). Djonoputro study in South-east Asia region has developed a typology of challenging environments for sanitation as a means to: assess the scale of the challenges; understand the specific issues involved in improving sanitation; identify, develop or improve sanitation technologies to cope with different environments; and to disseminate the results in the study countries, regionally and beyond. He in his findings has laid down the existing common technical findings and proposed recommendations for it (Djonoputro, Blackett, Rosenboom, & Weitz, 2010). The author identifies that the major challenge is to find ways of creating the same demand for improved sanitation as for an improved water supply. As per him behavioural change and participatory methods can be useful for encouraging involvement in the commitment (Jong, 1996). Bruijne emphasised that “in many situations low cost sanitation is the only solution, because financial resources are limited. Furthermore throws light that in principle, we need to suggest cost-effective alternatives to serve larger numbers of people and deal with a global environmental problem” (Bruijne, 2000).

Not only the low-cost sanitation measures are to be adopted rather urgent need to understand the challenges to seek solutions. Williams and Sauer study focusses on the main blockage in advancing sanitation coverage – identified at Unclogging the Blockages, is the lack of inter-sector coordination among relevant sectors as housing, energy, agriculture and health, as well as public and private actors (Williams & John, 2014). Brands underline the importance of sustainable sanitation, establishing that, raising societal awareness of sanitation problems and exploring barriers to adapt changing sanitation systems. Author identifies challenges for sanitation in the study which are waste water weight, interest losses, sewage sludge, biosolids, human health risk toxics metals and micro pollutants, which are to be meaningfully addressed (Brands, 2014).

Mason, Oyaya and Boulenour have identified challenges of the institutional arrangements for urban sanitation in decentralising context, in Kenya and proposed possible responses. In their study, they listed majorly three key problems in Kenya: overlaps and competition around sector leadership at national and devolved levels; weak incentives for county governments to commit policy attention and finance, despite devolution; and limited regulatory oversight. To proceed further with the review of literature we find that majorly similar kind of challenges across developing nations (Mason, Oyaya, & Boulenour, 2020). As per study done in Kisumu, Kenya, the main water and sanitation challenges are inadequate, poor and deteriorating water quality, poor waste disposal

management system and poor sanitation services (Kanoti, et al., 2020). These are the challenges which we are still facing till date in India as well. Although much has been worked out in this area but still much more is left to be completed for access to better sanitation services. Challenges in regard to waste disposal is a significant cause for poor sanitation services. As per the study based on extensive consultation with urban householders in Africa and Asia. On-plot systems are appropriate for low income urban areas, and should be considered as viable, sustainable technology choices. There has been a significant gulf between the perceptions of professionals and those of the community when regarding the appropriateness of on-plot sanitation in the urban context (Technical brief No.61 : On-plot sanitation in urban areas, 1999). Author discusses the key challenges that continue to marginalise the sanitation sector like institutional framework, cost, monitoring, technology selection etc. Study states that 'sanitation programmes suffer from the unsettling habit of 'reinventing the wheel' in determining their strategies and institutional options' (Shordt & Snel, 2002). Searching for solutions to sanitation few policy recommendations have been suggested by authors. Municipalities should be allocated funds regular monitoring, management of municipal wastewater in line with National and Provincial Environmental Regulations must be ensured etc are some of the long-term recommendations (Khalid, 2020). Country case study of 2010 identified key to the improvement in sanitation services among deprived urban neighborhoods were working in collaboration and developing partnerships, financing water and sanitation improvements, using information to drive local action and scaling up (Mulenga, 2010).

### *Methodology*

The Paper is drawn on policy document analysis, urban sanitation policy, and Indian government promotional materials on urban sanitation, Indian municipalities, and a number of public- private partnerships. The paper reviews extant literature on urban sanitation and thereafter examines challenges met at Ajmer district of Rajasthan and the proposes suggestions to increase the pace for access to sanitation to everyone.

The framework of this paper comprises five parts, starting with the introduction. Section 2 deals with the background scenario of Ajmer, district in the state of Rajasthan, India. Section 3 examines present scheme of sanitation in Ajmer Section 4 discusses the challenges in city sanitation. Section 5 will take up way forward and Section 6 concluding remarks.

## **2. Ajmer City – Background**

Ajmer is situated 130 km from the state capital of Jaipur and 400 km from Delhi. It is the oldest municipality in the state, established in 1869 (Tourism in Jaipur, n.d.). Despite its long-standing history and cultural significance, the city lags on multiple parameters related to Sanitation and Solid Waste Management. In recent years, the city has been selected for major urban national schemes like the Smart City Mission, Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and Heritage City Development and Augmentation Yojana (HRIDAY) (The smart City Challenge - Stage 2).

Swachh Bharat Abhiyan emphasizes on management of solid and liquid waste, wherein provision of sanitation is essential to all. With onset of SBM2.0 which primarily focuses on sustainability of safe containment and processing of human excreta is adding another dimension far and beyond, after attaining the threshold level of open defecation free. Recycling and reuse of black and grey water highlights the need for sustainable use of water as a natural resource and its availability.

Key emphasis of WASH initiatives is to ensure availability of the below mentioned support regarding sanitation to each citizen:

- Availability of clean drinking water by water recycling and processing
- Adequate facility for safe excrement,
- Infrastructure for proper containment of excreta,
- Transportation of faecal sludge/matter,

- Processing and disposal of faeces thereof.

To reduce the spread and prevalence of some life-threatening diseases and faecally – transmitted infections (FTIs) due to poor WASH practices, it is imperative that human contact with faeces is prevented through implementation of effective and safe sanitation practices. Thus far, the Government of India has launched various Sanitation programmes since Sanitation has remained a chronic challenge in the developing world. These programmes include” Centre rural Sanitation Programme (CRSP)” launched in 1986, “Total Sanitation Campaign (TSC) in 1999 and Nirmal Bharat Abhiyan (NBA) in 2012.”

Since these programmes could not be successful and suffered major slippages, Swachh Bharat Mission (SBM) was launched by the Prime Minister Narendra Modi on October 2nd, 2014, the 145th birth anniversary of Mahatma Gandhi with the objective of achieving sanitation coverage pan country in a period of 5 years i.e. by Gandhi’s 150th birth anniversary (Swachhata Pakhwada, 2018). Since its inception, SBM has been defining India’s urban sanitation success story, outperforming most other flagship urban schemes and managed to spur a countrywide movement in sanitation. Particularly in the state of Rajasthan, Sanitation has always been a bigger challenge due to added factors like water scarcity, difficult terrain and low literacy as compared to many other states of India, centuries old practices have become ingrained behaviour of the residents of state. However positive change in sanitation scenario of the state was perceptible when sanitation strategy was devolved to Department of Panchayati Raj and Rural development in 2010 leading to renewed focus on sanitation in rural areas whereas in urban areas, it was catered by Directorate of local bodies expanding the coverage of sanitation services while acknowledging associated many negative externalities related to health and beyond. The city has attained and retained the certification of open defecation free, the focus is now shifting towards ensuring sustainability of implemented sanitation practices which include safe containment and processing of human excreta.

### 3. Present structure of Sanitation in Ajmer

Improving in urban sanitation in Ajmer City has become a major challenge. Appropriate drainage system and sanitation facilities are crucial for betterment of community health and hygiene. This section comparatively evaluates the progress made in 2001 to 2011 and current status of Ajmer City on the parameters of drainage facilities, urban household latrine availability, house hold on drinking water etc.

The 2001 census population of Ajmer is 21 lakh 81 thousand 670 and it is expected to rise to about 42 lakhs by year 2021. At present 950 MT solid waste is generated with per capita waste generations rate 0.35 kg/day (Sharma, 2008). As per the Census 2011, total number of urban households were 1,10,234 out of which 1,05,245 households were having latrine facilities, which is 55 %. Solid waste management status in Ajmer, as per Municipal Commissioner of Ajmer, 60 number of wards, 210 metric tonne per day total waste generation, 25% of total waste processing whereas it is targeted to achieve 65%. Swachh Bharat Mission triggers Ajmer Municipal Corporation to achieve acceptable standard of cleanliness through scientific solid waste management. Total number of wards in the city is 60. City targets 65% to process the waste.

The above initiatives result the Ajmer cities in moving towards the achievement of Rankings in Swachh Survekshan. Ajmer city ranking pan country was:

- a) 106<sup>th</sup> Position in Swachh Survekshan 2018
- b) 266<sup>th</sup> Position in Swachh Survekshan 2019

Ajmer achievements in physically constructing individual household toilet and achieved 100% of construction as of 2019 and also achieved 100% construction of community and public toilet. Ajmer Municipal Corporation (AMC) has been participating in Swachh Survekshan from 2017 onwards and has seen rise and fall of rankings since. During its first Swachh Survekshan in 2017, Ajmer Municipal Corporation secured a rank of 226 out of 434 participants (NIUA "Urban Wastewater Management in Rajasthan", 2019). In 2018; AMC secured a ranking of 106 out of 471 cities. In 2019, the city’s ranking fell to 266 out of 425 cities. The city got Open Defecation Free

Status (ODF) certification in August 2019 (Swachh Certificate for Open Defecation Free Status, 2020), and has applied for ODF++. The ODF++ status is awarded to cities having smart toilets, no open drainages, and the city should have adequate sewerage treatment plants (STPs).

### *3.1. Status of Municipal Solid Waste Management*

In Ajmer, “the total quantity of Municipal Solid Waste generated is 240 TPD which is collected from 60 wards” (City News - Jaipur news, 2020). Due to geographical barrier there were no provision of transfer stations in the city. The waste is taken to Secondary collection points, where it is collected using a dumper placer bin lifter or tractor and loader. Ajmer Municipal Corporation is carrying out pilot projects in 7 wards where source segregation is being practiced by all the residents of the wards; it plans to expand the same across the entire city. Currently the wet and dry waste is being collected through door to door with approx. 60% efficiency. For the processing of wet waste, a windrow composting facility has been set and Material Recovery Facility (MRF) facility is being used for the processing of dry waste. The city has floated tenders for Information & Communication Technology like IoT collection app, GIS mapping, geo fencing (Ajmer Municipal Corporation Official, 2020).

### *3.2. Status of Waste Water Management*

For management of wastewater management, there are 2 operational Sewage Treatment Plants in Ajmer at Khanpura and Ana Sagar with the capacity of 20 Million Litres per day (MLD) and 13 Million Liters per day (MLD) respectively (NIUA "Urban Wastewater Management in Rajasthan", 2019). These plants cater to around 40% of the city population. A third sewerage treatment plant (STP) is being constructed by the Ajmer Development Authority at Khanpura with the capacity of 40 Million Litres per day (MLD) commissioned to be operational by April 2020 (Ajmer Municipal Corporation Official, 2020).

“Sanitation and its value Chain Sanitation refers to the provision of facilities and services for the safe management of human excreta from the toilet to containment and storage and treatment onsite or conveyance, treatment and eventual safe end use or disposal” (Health Sanitation, n.d.). It is essential to learn the sanitation value chain or the ideal shit flow chart to understand the proper flow of faecal matter. The components of sanitation value chain include, to capture or access to toilets and its infrastructure, storage or collection of faecal matter, conveyance or transportation of faecal sludge, treatment and reuse or safe disposal.

The collection and transportation of faecal sludge is done by empaneled desludging operators, which provide on call services to residents to clean their septic tanks. It is understood that 6 desludging operators make about 2 trips per day (about 5000 litres each trip) coming to around 10,000 liters per day. These desludging operators, using suction machines transport the faecal sludge to either of the sewage treatment plants (STPs). The desludging operator vehicles are installed with GPS facility with an ICT monitoring system. Septage is here co-treated with sewage, as the city does not have Faecal Sludge Treatment Plants (FSTP) and a very few households are connected to sewerage network, which is one of the major challenges faced by the city. After co-treatment, the solid parts of the faecal sludge are used for land application (Ajmer Municipal Corporation Official, 2020).

It is significant to mention that the awareness level about correct design specifications for the construction of septic tanks, as per the Central Public Health and Environmental Engineering Organisation (CPHEEO) guidelines is very low in every individual household (Sanitation for All (An assessment of sanitation services in Ajmer), 2018). Thus, utilization of Information Education and Communication (IEC) and Behaviour Change Communication (BCC) tools to bring about behavior change, and awareness is indispensable (Ajmer Municipal Corporation Official, 2020).

## **4. Challenges in City Sanitation**

Following are the challenges which have been tabulated, during implementation of sanitation strategy for the city of Ajmer:

1. **Access to Sanitation** – The most important question to healthy sanitation is that maximum number of people must be having access to sanitation. While implementing sanitation strategies in Ajmer, it was observed that much of the population in the urban city has been habitually using open urination. Due to inadequate maintenance of community toilet and public toilet, people have not been able to use them. Inadequately maintenance of community toilets and public toilets was also due to insufficient funds. In order to maintain them in operational, it was necessary that some kind of financial sustainability have to be developed.
2. **Lack of private sector engagement**- Sanitation strategies implementation will accelerate if private sector engagement is more emphasized in the whole picture. Benefits of private sector engagement are many like it will enhance operational efficiency, will allow government to focus on core competencies, risk will be shared, provide access to skills and expertise etc. It becomes a social responsibility of private organisations as well to contribute in national welfare activities. As author indicates that the importance of corporate social responsibility and its role in community service has immense (Khan & Al Mamari, 2016). But in Ajmer there has been lack of private sector engagement. Mainly because of motivation and its connection in terms of profit margins and return of investments. It is also because of the limited capacity to engage the private sector and also because of regulatory concerns. There are challenges for private sector as well when they are engaged for eg: delayed decision making of government, non-standardization and non-transparent tender processes.
3. **Lack of Regulation and Standardization** – There has been absolute lack of regulation and standardization for construction of on-site sanitation system in Ajmer. Although there is much need of legal regulations and standardization. When designing a latrine, it is strongly recommended that local sludge accumulation rates should be measured. As it is suggested that maximum sludge accumulation rates for wastes retained in water where degradable and cleaning materials are used is 40 liters per person per year and wastes retained in water where non degradable and cleaning materials are used is 60 liters per person per year etc. Therefore, designing a latrine is strongly recommended (Franceys, Pickford, & Reed, 1992). In Ajmer no such standardization and regulation were implemented leading situation to be grosser. Private desludging operators must function under some regulatory body to make their work accountable. Lack of on-site sanitation systems data poses another challenge to the establishment of better sanitation facilities in the area.
4. **Treatment of wastewater and Septage** – Septage management in comparison to conventional sewerage system is much better as water requirement is less, capital cost and operational and maintenance costs are low along-with implementation challenges and technical expertise required is also low (Luthra, Bhatnagar, Matto, & Bhone, 2017). We are aware that sewerage systems serve majorly big cities but the treatment of waste water and better practices for faecal waste and septage management is significant but must be mandatorily implemented. But still in some parts of Ajmer dangerous conventional practices like dumping of faecal waste management in open grounds is highly unhygienic and threatening to health. Biggest challenge is the awareness about the Septage management system or sanitation chain which consists of faecal waste and how it flows from one system to another – from containment to emptying and transport of faecal waste, treatment and disposal & utilization of output for example as manure. Treatment of waste water is characteristic of septage management system. There are different technologies for waste water treatment and can be used for agricultural manure if treated properly.  
Rather this is the major challenge that we lack waste water reuse policy. Some countries of the world like Singapore are using these policies and are managing with shortage of water and other difficulties. Along with this, there is much needed heed to be paid on developing potential for treating waste water and septage. Overcoming these challenges will bring health and prosperity not only to Ajmer but also to the whole country.
5. **Low Infrastructure and Coverage**: There is an important bridge to bring closer the results of better sanitation in the country but low infrastructure and coverage emerges to be one of the major challenges in Sanitation system in Ajmer. More number of sewer networks has direct impact to well being of the people but it seems to be difficult to achieve as it bears lot of financial and operational costing in it. In case these hurdles are being met, space constraint are the one which cannot be met



until and unless government and other institutions provide full fledged support for waste processing and constructing sewer network. The problem is further complexed when waste treatment facilities are in scarcity. Strong need for improving collection and transport of faecal sludge is required in whole of Ajmer district. In order to built and overcome these problems it's absolutely essential to invest energies at enhancing faecal sludge and septage management (FSSM) chain by upgraded treatment and co-treatment facilities. Generally, in this region faecal sludge collection and transportation facilities are not on requirement basis but hover upon norm basis, which actually should not be on, this basis.

6. Improved conditions of waste management do require support from all levels individual, community and governmental support then only objectives can be achieved. Ajmer faced challenges at source segregation, processing, collection and transportation
7. **Weak Institutional Framework and lack of capacity** – Institutionally to set up a proper septage management system, we need to realise that Ajmer is absolutely weak in structural institutional framework rather not only Ajmer, but the country itself faces this challenge. For achieving objective of proper sanitation services in any of the area, it is essential to have proper coordination between various governmental and non-governmental institutions and agencies associated in the process. Ajmer and various administrative blocks uni-formerly confront non cooperation and non coordination. Urban local bodies are restricted and restrained by limited technical expertise and potential of capacity building. In order to sway away with these problems, smooth coordination is crucial between all levels vertically as well as horizontally. There is a need for standardized frameworks for administration and execution across all wards.
8. **Sustainable Financing** – Financial planning is the soul of any project and when objective is of better sanitation services then it has to sustainable financial planning. Such planning which can help to find out sustainable means and ways for continuity of such large people interests for a longer duration. If planning at operations and maintenance has not been done in systematic manner then this will not be able to lead to larger interests of sanitation for public. Ajmer district suffers from short term plans and investing on ad-hoc basis, which a wrong methodology for developing basic services of sanitation in the city. Shortage of funds is a major stumbling block in establishing sanitation services. These financial obstacles necessitate call for Partnerships with Private sector organisations and their corporate social responsibility activities.
9. **Sustained Behaviour Change and Awareness in Public** – The most fundamental truth about successful sanitation services establishment is the support of the community in the endeavor. Awareness among people and their dedication to keep up with good sanitation in the city is the biggest support for any city's administrative success. It is indispensable for sustained behaviour to maintain changed perspectives like use of toilets and regular cleaning of septic tanks. Lack of awareness about good sanitation practices among public creates the biggest hurdle for achieving the target. A culture of healthy sanitation practices has to be developed. Culture develops through imitation. As author Othman points out "In the theory of imitation, Gabriel Tarde argued that society, which comprises individuals, easily imitate what is close to them, such as parents and family members and later, more authoritative individuals, such as early education teachers" (Othman, 2014). So, in order to maintain hygiene and health, we need to have behavioural change and public awareness program which can make culture of healthy sanitation practices.
10. **Poor data collection and Management** – Implementation of better sanitation practices in the city require proper data analysis and management. Ajmer district insufficient robust data collection and management systems, processes make achievement of objective more arduous whether it is data for ready on-site sanitation systems or sewer networks etc. Data is essential to build a strong framework for proper planning and implementation. It recommends for usage of technical information technology tools for data integration and building capacity for the same.
11. **Lack of Regular monitoring and evaluation** – In the process of establishing better sanitation services in the city of Ajmer, a proper system of monitoring and evaluation has to be set. Proper evaluation system will increase the pace for the change to happen. There is an urgent need for independent assessment to better understand on-ground performance. It is essential to have

monitoring nexus on levels to evaluate the progress chart. It would be best to integrate central monitoring and evaluation framework across all wards of the administrative units in Ajmer.

## 5. Way forward

Over the years, the Government of Rajasthan has worked diligently to effectively utilise its resources and capabilities towards enablement of the economy to extract value, generate employment and create a cleaner environment for its people. With the help of government's concerted efforts, the State has been successful in achieving an overall rank of 11th in Swachh Survekshan 2019 (Swachh Survekshan 2019, 2019). Safe sanitation with good hygiene leads to the good health and quality of human life, economic as well as social development. The strategy provides the roadmap for government authorities to achieve the vision with a focus on reducing inequalities especially for the women and children.

In order to achieve the desired vision of sanitation and the goals that have been set for the city of Ajmer, the need is to implement the sanitation strategy in a manner such that the required outcomes brought about can be sustained with time. To ensure effective implementation of the strategy and adoption of the concept by the local bodies governing the cities, it is important to make sure that idea of an ideal town is same for both the local governing body of the city and the planner or expert engaged. The purpose of the strategy is to guide for effective implementation in order to realize the goals for city sanitation which are set for the upcoming decade such that Ajmer achieves levels of sanitation and solid waste management like those of model cities.

Few recommendations are suggested to accelerate the pace:

- 1) Institutional and Infrastructure Mechanism - City needs to strengthen the government infrastructures such as vehicles, compartmentalized bins, tippers, sewage treatment plants (STP) plants in order to meet the requirements of staff. City should establish an internal High-Power Committee for Sanitation, consisting of senior officials and head of departments under the chairmanship of the Municipal Commissioner, to promote inter-departmental coordination and quick identification and resolution of roadblocks.
- 2) Monitoring & Evaluation - City should use professionals to assist in the implementation and monitor the progress.
- 3) Private Sector Engagement - City should set up the performance metrics for payments. Cities can improve private player incentives by focusing on payment on observable outputs. This will also help enhance the possibility of better capturing private sector efficiencies in service delivery. For this city can take help from state. City should focus on sustainable financing framework. City shall coordinate with Private sector to garner investments in the priority areas of sanitation, liquid waste management (LWM) and faecal sludge and septage management (FSSM).
- 4) City reward system - Ajmer should plan to establish their own reward schemes to incentivize local stakeholders such as citizens/RWA/ Colonies/ Markets/ to participate in making city clean, rewarding them through gifts, nominal amount of money for maintaining sanitation services and organizing maximum campaigns related to sanitation for better environment and health of citizens, and for holding Environment Fairs, Health Camps, etc. Along with it the city should also work with health department in schools and colleges.
- 5) Sustainable Technology
  - E-learning portal - A dedicated E- Learning portal should be developed by the central government. City should follow the portal for strengthening the capacities of the stakeholders.
  - Septage management technology -City should adopt various technologies for Septage collection such as Gulper system, Fecal Sludge Treatment: FSTPs, Co-Treatment and for Energy Recovery, technologies such as Co-composting, Anaerobic Digestion should be adopted.
  - Waste water treatment technology - City should adopt technologies such as decentralized Waste Water Systems for onsite waste water treatment and sewage Treatment Plants for offsite waste water treatment.

- Implementing IT cell - City should establish specific IT Cell, Geographical Information System (GIS) & Global positioning system (GPS) based management information system (MIS) and the control room should be constructed as per best practices of an electronic equipment control room which should have fully air conditioned and firefighting provisions along with provisions for adequate data backup for meeting any eventualities.
  - Centralized complaint redressal system with a 24-hour helpline to clear any uncollected or unattended garbage, tracking household compliance, tracking desludging operators, Quick response vehicle, besides provide necessary.
- 6) Sustainable Financing - City should manage projects through public private partnerships (PPPs), municipal bonds or pooled financing mechanisms in order to meet the huge investment requirement of the sector. City should coordinate with their state government Banks, NBFCs, micro-finance institutions (MFIs).
  - 7) Water Sustainability - Ajmer city shall ensure and monitor the safe discharge of waste water into sanitary outlet. Urban Local Body (ULB) must ensure in establishing sufficient designed capacity of Sewage Treatment Plant as per the number of households connected to sewer. An appropriate de sludging vehicles to be ensured for de sludging of all the septic tanks in the city. City shall formalize special IT cell to resolve the complaints regarding chokes, leakage, uncleaning of septic tanks in order to connect with the citizens involvement

## 6. Conclusion

Safe sanitation with good hygiene leads to the good health and quality of human life, economic as well as social development. A proper sanitation provides the roadmap for government authorities to achieve the vision with a focus on reducing inequalities especially for the women and children. In order to achieve the desired vision of sanitation and the goals that have been set for the city of Ajmer, the need is to implement the sanitation strategy in a manner such that the required outcomes brought about can be sustained with time. To ensure effective implementation of the sanitation and adoption of the concept by the local bodies governing the cities, it is important to make sure that idea of an ideal town is same for both the local governing body of the city and the planner or expert engaged.

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