Baseline Assessment – Faridabad, Udaipur and Mysore

IHUWASH Project – Supported by USAID

Table of Contents

1.0 Introduction

India is increasingly becoming urbanized. The Census of India - 2011 highlighted that there are now about 8,000 towns and cities in India. However, habitable conditions in them are not favorable due to inadequate infrastructure or satisfactory service delivery for Water and Sanitation especially for urban poor. The Ministry of Urban Development (MoUD), Govt. of India rolled out the National Urban Sanitation Policy (NUSP) in 2008. The NUSP envisions, "All Indian cities and towns become totally sanitized, healthy and livable and ensure to sustain good public health and environmental outcomes for all their citizens, with a special focus on hygienic and affordable sanitation facilities for the urban poor and women". Subsequently, in 2009-10, the MoUD conducted a rating of 423 class I cities on sanitation related parameters. Unfortunately only four cities in India were in slightly better conditions i.e. in blue category and not a single was declared as a "Green" city.

The Swachh Bharat Mission (SBM) was launched in 2014 by the Govt. of India, in 2014 to improve sanitation conditions in the country., SBM is separately run for rural and urban India[1]. Since the launch of SBM, significant improvements have occurred in urban areas in terms of reduction of open defecation and construction of toilets. Apart from SBM, two other important national missions are the Smart Cities mission and Atal Mission for Rejuvenation and Urban Transformation (AMRUT) that strive to improve the infrastructure, institutional and financial status of cities. Despite these ambitious missions launched by the Govt. of India, issues in Water, Sanitation and Hygiene (WASH) sector are yet to be resolved. One of the prime challenge is that of scale.

Apart from the Government, many international agencies have extended their support to improve the WASH sector in India. The USAID-India mission is supporting various development targets in the country since long. To tackle the urban WASH challenges, USAID- India has supported the consortium of NIUA, TARU, IRC and Ennovent, with the strategic support of YES BANK and Valluri Technology Accelerators, to set up the 'Innovation Hub for Urban WASH Solutions' to support the development of scalable solutions for WASH within the national, state and city level framework. The primary goal of this initiative is to improve urban WASH sector performance through incubation and acceleration of innovative solutions, technologies, programs and service delivery models within a collaborative framework.

In consultation with the MoUD and USAID, three cities Faridabad, Udaipur and Mysore (Mysuru) located in the Haryana, Rajasthan and Karnataka have been identified to implement IHUWASH project. All three cities have diverse cultural, economic and developmental histories. This attracts significant floating population in cities both tourists including foreigner and people from surrounding regions to find livelihood opportunities. Therefore, the challenges or WASH sector is more, which make them ideal to implement ambitious IHUWASH project.

1.1 Baseline Assessment

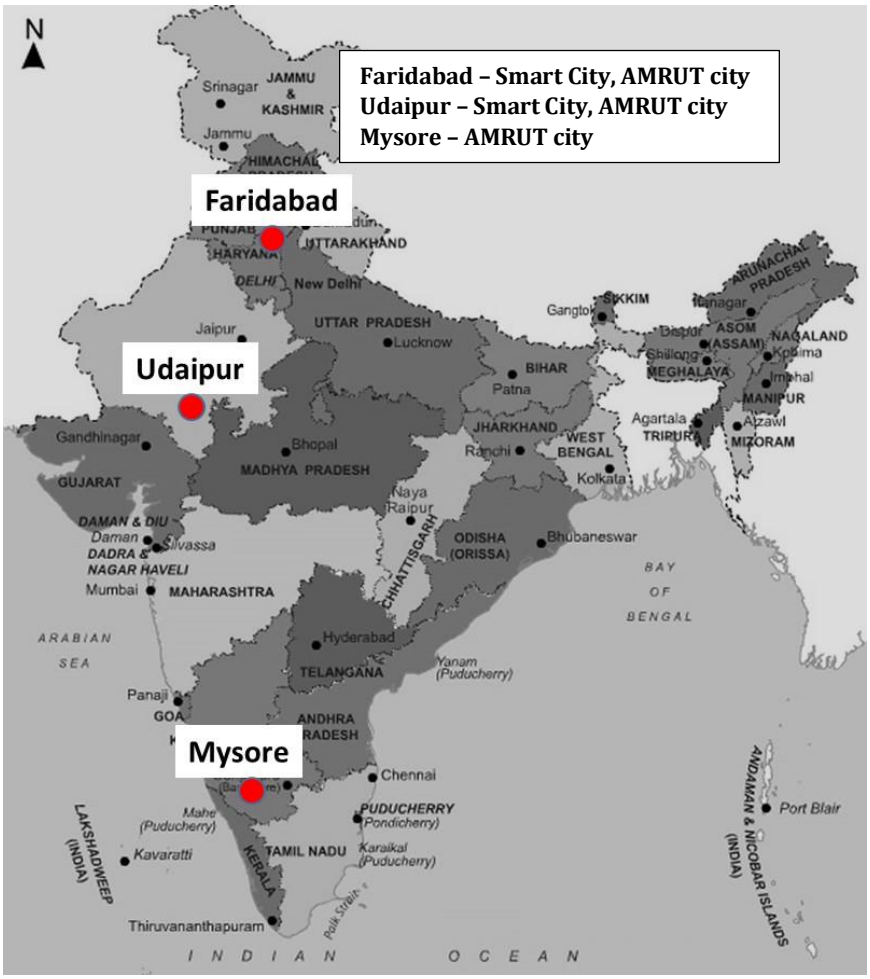
One of the important requirements to implement the IHUWASH project is to determine the baseline situation related to WASH sector in selected cities, so that the changes can be monitored

[1] Source: http://www.swachhbharaturban.in/sbm/home/#/SBM

in line with sustainable development goals (SDGs), USAID Wash indicators, and the benchmarks set by various national missions. Following are important objectives of the baseline study:

1. To identify resource allocation under various national mission in cities
2. To map situation the State in terms of urbanization, state policies for urban development as well as water and sanitation requirements.
3. To understand the recent WASH situation of cities in general and particular for urban poor
4. To identify important stakeholders in city which can catalyze the implementation of the project.

As a first step towards conducting baseline assessment, relevant information from all secondary data sources is collated for state and city level for comparative appraisal in order to prepare the effective roadmap of implementation of the project. Following sections covers profiles of States for three selected cities. Faridabad city in Haryana lies in the northern part of India. Udaipur is located in western part of India in Rajasthan state and the third city is Mysore (Mysuru) in Southern part of India in the state of Karnataka. The following sections cover details of states and cities moving from north to south. The following map of India shows locations of three project cities.



1.1.1 Urbanization Status in States

Urban areas of India had almost 377 million people in the last Census, which was 33 percent of the total population of the country. It is expected to increase up to 600 million by the year 2030. The level of urbanization in India increased to 31.16 percent from 27.81 percent in Census 2001. Urbanization follows economic prosperity. However, it also has challenges related to Infrastructure management and service delivery. The following table provides summary information on the urbanization level in the respective states. The Table shows that urban population is highest in the Karnataka state followed by the Haryana and Rajasthan.

City	State	Capital City	City Distance from State Capital (km.)	Total State Population – Census 2011 (in million)	State Urban Population – Census 2011 (%)
Faridabad	Haryana	Chandigarh	280	25	30
Udaipur	Rajasthan	Jaipur	350	68	25
Mysore (Mysuru)	Karnataka	Bangalore	150	61	39

To meet challenges of increasing urbanization, the state governments have prepared urban development policies and development plans for cities. The State Urban Development Authority in Haryana, the Urban Development and Housing Department in Rajasthan and the Urban Development Department in Karnataka prepare roadmaps for the development activities. Each of these states have Water and Sanitation related policies.

1.1.2 Sanitation Related Policies in States

The availability of the policies indicates that the states have an enabling environment to facilitate the implementation of the IHUWASH initiatives and ensures that support would be extended from state level. Under the NUSP, each state in India was supposed to prepare State Sanitation Strategies (SSS). The present study states do not have SSS. However, to address the Sanitation issues, each state has rolled out the Sanitation policies. Govt. of Haryana has also laid emphasis to strengthen the institutional framework concerning water and sanitation. (SWSM) Haryana is a great example of a policy level initiative. Recognizing the need for urban development, government of Karnataka has come out with two guiding documents, which determine the framework for its long-term planning and implementation - these are State Water Policy (SWP) and Karnataka Urban Drinking Water and Sanitation Policy. The State Water Policy guides on how to maintain, use and develop state's water resources and formulate strategies around it. The Karnataka Urban Drinking Water and Sanitation Policy ensures people's access to necessary water and sanitation services.

State	Urban Development Agency	Sanitation Policy initiative
Haryana	Haryana Urban Development Agency	Water and Sanitation Mission
Rajasthan	Urban Development and Housing Department	State Sewerage and Waste Water Policy
Karnataka	Urban Development Department	Urban Drinking Water and Sanitation Policy

Similarly, in Rajasthan the Local Self Government (LSG) department, considering the grim situation of sanitation in the state, has recently prepared the State Sewerage and Waste Water Policy in year 2016. It aims to provide sustainable sanitation services in urban areas of the state. Importantly, this policy also encourages private sector participation and acknowledges that technology in the field of wastewater management is evolving continuously, and therefore the policy includes guidelines for management of sewage projects through Public Private Partnership (PPP) including hybrid annuity based PPP model. The policy promotes to use the byproducts like treated water, manure, gas etc.

1.1.3 Status of ongoing National Missions

Currently, three ongoing missions launched by Govt. of India are the Smart Cities, AMRUT and Swachh Bharat Mission (SBM). All these three missions are important from the IHUWASH project perspective. Improving provisions for sanitation is a common factor across all missions in the three cities. Except Mysore, both the Faridabad and Udaipur are chosen as Smart Cities. Under AMURT mission, all three cities have provisions to improve Sewerage and Fecal Sludge Management. SBM (urban) has set targets for each city to construct public toilets and community toilets until 2019. The following table provides further details on provisions for each study city in the national missions.

Smart City Mission	AMRUT Mission	SBM (Urban)
Faridabad city in Haryana has envisions to "Reduce, Reuse, Recycle, and Rethink". Under the ABD retrofitting Plan, there is provision to construct smart public toilets. A total of Rs.1,486 Crores is proposed in the smart city mission for the city. Udaipur ranked 16th among the 20 lighthouse smart cities' list declared in January 2016. The Project Implementation Unit (PIU) is housed under the SPV "Udaipur Smart City Ltd". Projects worth Rs. 1,212 Crores are proposed under the smart city mission in the city. The Mysore in Karnataka is not part of the list of the Smart cities.	Each state has prepared State Annual Action Plan (SAAP) in which infrastructure gaps, expenditure details are provided. Haryana has 18 cities under the AMRUT scheme, and has proposed to invest an estimated INR 3,500 Crores in water supply, sewerage and septage management and improving drainage in the state. In Rajasthan, the highest allocation of Rs. 270 Crores is for the state capital, Jaipur . For Udaipur city, the overlay is Rs. 168.75 Crores. 27 cities in Karnataka are under the scheme. One of the thrust area for the state under AMRUT has been sewerage development. Out of the total amount budgeted under AMRUT (i.e. Rs 4,323 Crores over 5 years ending 2019-20), 52 percent (Rs. 2,266 Crores) represents sewerage projects. Rs. 3,592 Crores is an overlay under AMRUT mission for the state.	Under SBM, Haryana planned to build 216,685 IHHLs, 4,081 Community Toilets seats and 6,313 public toilet seats with a total cost of Rs 329.75 crores. However, the target for IHHL was revised by State after actual survey to 110,000. Rajasthan has planned to build 562,524 IHHLs, 13,744 Community Toilets seats and 12,620 public toilet seats with a total cost of Rs 732.56 crores. However, the target for IHHL was revised by State after actual survey to 393,767. Karnataka planned to build 888,367 IHHLs, 17,043 Community Toilets seats and 17,796 public toilet seats with a total cost of Rs 1,053.21 crores. However, the target for IHHL was revised by State after actual survey to 350,000.

1.2 Appraisal of Study Cities

This section provides comparative information about the three cities More details are covered in the following sections for each city.

City	Status	Area (sq.km.)	No. of Wards	Population Census 2011	Slum Population (%)	Slums Numbers	CDP/CSP Plans
Faridabad	Municipal Corporation-1993-94	208	35	1,414,050 (1.41 million)	15	52	CDP-Old, CSP not available
Udaipur	Municipal Corporation-2013	65	55	451,100 (0.45 million)	10-11	40	CDP revised in 2014, CSP-2011
Mysore (Mysuru)	Municipal Corporation-1977	128	65	893,062 (0.893 million)	6	70	CDP-Old, CSP-2011 with 2001 Census profile

In terms administrative status of study cities, Municipal Corporation the Mysore is oldest and Udaipur is the most recent. The devolution of powers under the 74th CAA is more streamlined in Mysore and Faridabad as compared to Udaipur. In terms of city area and formulation of administrative wards, Mysore city is well structured whereas Udaipur has less area but has more numbers of wards. The limitation of spread in Udaipur might be due to the city's physical setting - surrounded by hills that provide less growth opportunities.

Faridabad, the northernmost city of this project has the highest population. It is also the largest city in Haryana state located at a distance of 32 km. from the national capital city, Delhi and therefore has significant influence of Delhi. Second largest city of this project in terms of population is Mysore which about 140 km. away from the capital city of Karnataka, Bangalore. Udaipur has the least population and it is located farthest from state capital Jaipur compared to other two cities. Considering achievement of targets set by various national missions, Faridabad faces more challenges. However, due to its proximity to Delhi, it has advantages to harness its resources in terms of knowledge, technology, innovation etc.

Apart from the city population in general and urban poor population, floating population is a very important aspect for the study cities. Udaipur and Mysore cities are important tourist destinations of the states. Considerable revenue is generated from tourism in these cities. There is also significant influx of foreigner tourists in cities. Detail on tourists in cities is covered in the section on respective cities. Apart from tourists, there are daily visitors in cities who come in search of better livelihood opportunities offered by industries, IT firms, commercial centers and tourist spots. Therefore, these cities require WASH facilities to cater to the need of the floating population.

City Development Plans (CDPs) are important in terms of identification of gaps, particularly infrastructure and preparation of capital investment plans. Under the JNNURM programme, each study city had prepared CDPs providing baseline information for 2004-05. Significant improvements have occurred in cities post JNNURM. CDPs require updation after 10 years' time due to changed conditions. Udaipur is the only study city, which has revised the CDP in 2014 under the Capacity Building of Urban Development Project (CBUD) sponsored by the MoUD and the World Bank.

The City Sanitation Plan (CSP) is another important document, which provides a strategy for improving sanitation conditions. Therefore, from perspective of the IHUWASH project, it is very important. Except Faridabad, both cities have CSPs prepared in year 2011. It provides the status of sanitation and investment requirements to improve sanitation. The assessment of CSPs of Udaipur and Mysore indicates that the information used is latest in case of Udaipur; Mysore has Census 2001 information as base and therefore will require more careful rapid assessment.

1.3 Status of Urban Poor in Study Cities

As per the latest Census (2011), there are three categories of slums viz. notified, recognized and identified. The 'Notified category' recognizes slums as per the Slum Act.
All areas recognized as 'Slum' by State, UT Administration or Local Government, Housing and Slum Boards, which may have not been formally notified as slum under any act are referred to as 'recognized' slums. 'Identified' slums include 'A compact area of at least 300 population or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities'.

The highest proportion of slum population recorded is in Faridabad (15 percent) followed by Udaipur (10 percent) and Mysore (6 percent). Mysore has highest numbers of slums but the slum population is only 6 percent, which is much less compared to the other two cities. This needs to be further investigated during the rapid assessment surveys in the city.

The Following table provides an overview of the water and sanitation coverage in slums of the three cities. The data is extracted from the respective CDPs and CSPs. The situation is poor in Faridabad as maximum slum population is found here; moreover, the information for water supply and sanitation coverage is not available. Faridabad does not have a CSP. Estimates indicate that almost 50 percent population residing in slums practice OD. Though Mysore has the highest numbers of slums but minimum OD is practiced. It may also be noted that in the recent Swachh Survekshan-2016, Mysore topped the ranking among 70 cities.

City	Slums Numbers	Appx. Households Numbers	Population	Appx. Water Supply Coverage (%)	Appx. Sanitation Coverage (%)	Open Defecation (%)
Faridabad	52	42,400	212,107	NA	NA	50
Udaipur	40	9,530	47,636	53	55	18
Mysore (Mysuru)	70	10,375	51,224	56	34	11

1.4 Water Supply and Sewage Management in Study Cities

Water supply and Sewage management information in the city is assessed from all available sources of information like web portals of municipal corporations, recent CDPs and CSP. In most of the cities, the infrastructure conditions have improved since the implementation of the JNNURM programme. However, emphasis was given more on the water supply in this programme and therefore not much progress has occurred in cities in terms of sewage management. The assessment done by MoUD in 2009-10 to rank cities for sanitation parameter in population proportionality progress perspective seems unchanged till the last survey carried out in 2016. The results of the recent Swachh Survekshan is awaited.

The following table provides a comparison of key parameters for water supply and sewage management in the three cities. More information is provided in sections dealing with respective cities. Udaipur and Mysore rely more on surface water sources whereas, Faridabad depends on groundwater sources. In Udaipur, about 70 percent wastewater is untreated and in Mysore it is 23 percent. The dependency on Onsite Sanitation System (OSS) is very high in Udaipur followed by Faridabad and Mysore. Fecal sludge management is not scientific practiced in these cities. In terms of per capita water supply, only Mysore provides water as per the Service Level Benchmarks (SLB) mandated by CPHEEO.

Parameters	Faridabad	Udaipur	Mysore
Population (Census 2011) in million	1.41	0.45	0.89
Water Supply			
Daily Supply (MLD)	240	78	196
Groundwater (MLD)	240	5	-
HH Coverage (%)	95	81	79
Per Capita Supply (LPCD)	160	115	135
Sewage			
Sewage Generated (MLD)	200	65	158
HH Coverage (%)	50	13	96
Untreated Sewage Disposal (%)	43	70	23
Faecal Sludge Management		Urgent	Not Urgent
MOUD Sanitation Rating 2009-10 *Red- Serious Hygiene and Envt. Conditions* *Blue- Recovering but requires attention*	237 Red Category	262 Red Category	02 Blue Category
Swachh-Survekshan Rating 2016 **73 Cities**	51	NA	01

Under AMRUT, mission funds are allocated for Water supply, Sewerage, and Septage infrastructure in all the three cities for the next five years (2015-2020). For Faridabad, a total of Rs. 409 crores has been allocated, out of which Rs. 165 crores are for Water supply and Rs. 200 Crores are for Sewerage and Septage Management. Similarly, for Udaipur, a total Rs. 4041 crores is allocated. Out of this, Rs. 30 crores is towards Water supply and Rs. 85 crores is allocated for Sewerage and septage management. In the Mysore city as the conditions seems better, as total Rs. 160 crores are allocated to improve all infrastructure, which is very less compared to the other two cities. For the first year 2015-16, Rs. 50 crores is allocated to water supply but no funds are allocated to sewerage and septage management.

1.5 Status of Toilets in Study Cities

Public toilets are installed at places with high footfalls like bus and railway stations, parking areas, and commercial complexes for use of the general public. The community toilets are shared and essentially constructed for the people who cannot afford to own individual toilets in their houses. The following table provides a summary of toilets in study cities. The CSPs of Udaipur and Mysore have proposed to construct innovative public toilets in cities. Moreover, the financial outlay as well as possible business models are also discussed in CSPs. For example, in Udaipur, Built Operate and Transfer model is recommended for the public and community toilets.

City	Public Toilets	Community Toilets	Urinals	Managed By
Faridabad	Information is not reliable			
Udaipur	40-45	None	97	Sulabh International
Mysore	33	None		MCC, private agencies, NGO

Under SBM, Haryana plans to build 216,685 IHHLs, 4,081 Community Toilets seats and 6,313 public toilet seats with a total cost of Rs 329.75 crores. However, the target for IHHL was revised by State after actual survey to 110,000.

Rajasthan plans to build 562,524 IHHLs, 13,744 Community Toilets seats and 12,620 public toilet seats with a total cost of Rs 732.56 crores. However, the target for IHHL was revised by State after actual survey to 393,767.

Karnataka has planned to build 888,367 IHHLs, 17,043 Community Toilets seats and 17,796 public toilet seats with a total cost of Rs 1,053.21 crores. However, the target for IHHL was revised by State after actual survey to 350,000.

1.6 SWOT Analysis of Study Cities for IHUWASH project

The appraisal of three study cities from National, State and City level perspective is summarized in the form of a SWOT analysis. The baseline assessment of all three-study cities indicates that information on numbers of urban poor clusters, population, households and data on WASH sector is vary in different documents. This information is either not available or not updated on the web-portals of the urban local bodies. The rapid assessment of the study cities will be essential to verify key information related to WASH sectors from the study cities.

The following table provides a SWOT assessment for all study cities in terms of implementation of IHUWASH project. This will be further substantiated in the Rapid assessment of cities.

Strengths	Weakness
• In all three States, there is an enabling framework in the form of Water and Sanitation Policy, which will support implementation of the project. Rajasthan has the latest Water and Sanitation Policy followed by Karnataka and Haryana.	• Faridabad city administration has still not prepared a City Sanitation Plan and the status of implementation of CSP in Udaipur and Mysore is not clear. Mysore CSP is based on Census 2001 data

• City Sanitation Plans are available for Udaipur and Mysore which indicates the cities' commitment to the National Urban Sanitation Policy • Udaipur has a vision to recycle and reuse the waste water and storm water for irrigation and industrial purpose • Mysore city has ranked to No.1 in latest Swachh Survekshan 2016	• Open defecation is maximum in Faridabad followed by Udaipur and Mysore • Status of infrastructure in urban poor colonies (slums) is very grim
Opportunity • Significant financial resource allocation in the AMRUT mission in Faridabad for Sewerage and Fecal Sludge Management • As per the baseline assessment, there are no community toilets in Udaipur and Mysore. Under SBM, the city is planning to build community toilets. • The tourist influx in Udaipur and Mysore is very high and increasing every year indicating a rise in demand for public toilets in addition to the existing ones. • Faridabad city has already demonstrated the accelerator model for community toilet	**Threats** • In Udaipur, public toilets are managed by Sulabh International which could be a competitor for the new startups in the city • Delay in permission for the space to construct the WASH Park could be an issue especially in Faridabad due to high value of land • Mysore city is not selected as a Smart city. It has also not indicated the requirement for sewerage and fecal sludge management in AMRUT mission

2.0 Faridabad City

The city is 50km in south of the Delhi. As per 2011 census, its population is 1.4 million. MoUD ranked city 33.25 for its sanitation status. Only 13 percent HH in city has access to tap water, which is very less and has impact on sanitation. The dependency of HH on public toilet is low (<1 percent), thus Swachh Bharat Mission convergence for Construction of Smart Community & Individual Household Toilets is possible here. After conducting the survey, verification is in process for the selection of beneficiaries for construction of IHL toilets (more than 500 already approved). DPRs have been submitted to State Govt. for construction of Smart community/ public toilets. Latest ranking under SBM of city is 49.

2.1 Haryana State Profile

Haryana is a State in the northwest of India and was carved out of the Indian state of Punjab on 1st, November 1966. With capital at Chandigarh which is administered as a Union Territory. Haryana is an agrarian state whereas 85% of its area is under cultivation, engaging about 78% of its population in agriculture. Haryana, at present, ranks 1st among the major states in terms of per capita income. Per capita overall investment in Haryana during the fiscal year 2007 has also been one of the highest in the country. Despite significant industrial development during the recent past, the economy of Haryana is primarily agrarian and it is reliant on allied activities.

For administrative purposes, the State has four divisions - Ambala, Rohtak, Gurgaon and Hissar. Within these four divisions there are 21 districts i.e. Ambala, Kurukshetra, Panchkula, Yamuna Nagar, Faridabad, Palwal, Gurgaon, Mahendragarh, Mewat, Rewari, Bhiwani, Fatehabad, Hisar, Kaithal, Sirsa, Jhajjar, Karnal, Panipat, Rohtak, Sonipat and Jind. Haryana has three types of Urban Local Bodies (ULB) namely, Municipal Corporation, Municipal Council and Municipal Committee. There are 10 Municipal Corporations, 18 Municipal Councils and 51 Municipal Committees in Haryana.

Govt. of Haryana has also laid emphasis to strengthening the institutional framework concerning water and sanitation. State water and Sanitation Mission (SWSM) Haryana, is a great example of a policy level initiative. The primary objective of SWSMH was to provide broad state specific policy and programmes implementation framework to enable the PRIs and community based organizations etc. to play their role effectively in planning and implementation of National Rural Drinking Water Programme and Total Sanitation Campaign. It also aimed at policy guidance on water and sanitation and related sectors and periodic review of implementation of the MOU signed with the Department of Drinking Water Supply and Sanitation, Govt of India.

Beyond the realm of creating infrastructure at a household level, Govt. of Haryana has taken steps to make improve sanitation facilities in commercial and public areas. A major milestone came in 2010 through Town and Country Planning department, with the inclusion of sanitation facilities in brick kilns, rice cellars and dhabas [2].

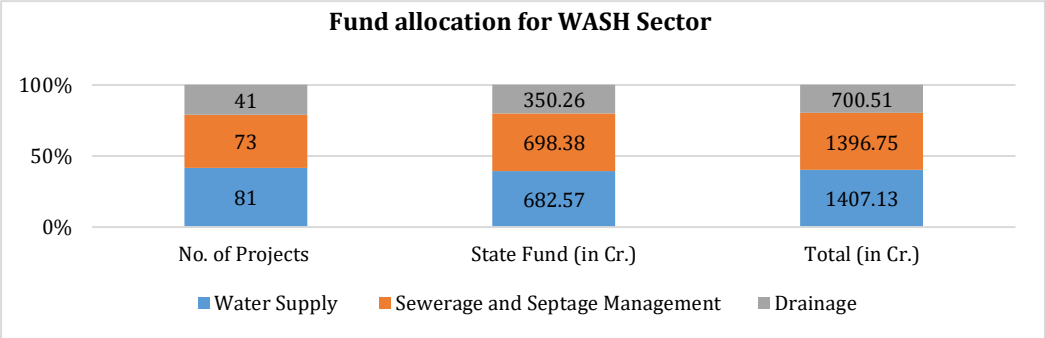
2.2 Status of National Missions in Faridabad

AMRUT

Haryana has 18 cities under the AMRUT scheme, of which Faridabad and Gurgaon are the most populous. During the preparation of SAAP under AMRUT scheme, Govt. of Haryana has given priority to ULB's with higher proportion of urban poor. Potential Smart Cities like Faridabad will receive weightage as well as more consideration in reducing gaps in infrastructure. As per Census 2011, Haryana has 17, 51, 901 urban households with 77.5 percent of them with tap water coverage and more than 75 percent of the area in 60 notified and one de-notified city with sewerage system. For the financial year 2015-2020, Govt. of Haryana has proposed to invest an

[2]Creation of adequate Sanitation Facilities by Commercial establishment like brick Kilns, Rice Shellers and Dhabas etc action taken on the decisions of the First Meeting of the State Sanitation Mission (SSM) held on 6.10.2009 at 11:00 A.M under Chairmanship of the Chief Secretary, Haryana.

estimated INR 3500 crores in water supply, sewerage and septage management and improving drainage in the state.



Swach Bharat Mission (SBM)

Under GoI's Swach Bharat Mission program, Haryana targets to achieve universal coverage for water supply sewerage by March 2018. The state has planned to implement 154 projects to achieve the target of universal coverage with proposed spending of an estimated INR 2800 crores. Major cities: Faridabad, Gurgaon, Amabala and Panipat will receive majority of the funds (approx. INR 1145 crores) (State Annual Action Plan, Haryana, 2014). A breakdown of the state wise fiscal sanctions for the year 2015-16 for Haryana clearly lays emphasis on building of latrines at a household level and community toilet blocks (CTB). INR 3.01 crores and INR 12.57 crores have been respectively allocated towards building infrastructure in the state. As on date, Haryana has built 1261 CTB seats, 1092 public toilet block (PTB) seats and 15,521 constructed toilets.

Smart City Mission

Following the first list of 20 smart cities, Faridabad made the cut to the list of next 13. The city's proposal for the Smart City Program clearly indicates a few focal areas i.e. waste management, e-governance, smart toilets, etc. In its first round of the citizen's consultation a majority of the participants voted waste management (15%), water supply (10%) and, sanitation (9%) as the pertinent areas for the Smart City initiative to focus on. Faridabad has opted for an Area Based Development approach for retrofitting. The selected for the retrofitting projects is 1664 acres with a population of 80, 395 (including 11,712 floating) and 17, 865 households. The projects will cover sector 16A, 19, 21A, 21C, 21D, 27A, 28 and 29. Adequate water supply including wastewater recycling and storm water use, sewer revamping, improved infrastructural support for solid waste management and installation of Smart Public Toilets are some of the key areas of focus under the area based development approach. Municipal Corporation of Faridabad has proposed INR 1486 crores for five years. Of this, INR 500 crores each will be supported by the state and the center, while the rest will the locally generated by the various department. Under the orders of Ministry of Urban Development[3], Govt. of Haryana constituted a Special Purpose

[3]Vide its memo no. K15016/157/2015-SC-I (vol II) dated 26th May, 2016.

Vehicle (SPV) for Faridabad Smart City limited. The SPV will function to oversee, approve and monitor the various project under the Smart City Program. (Smart City Proposal, Faridabad)

2.3 Faridabad City Profile

Faridabad is a southeastern town in the state of Haryana. It is situated on the Delhi – Mathura National Highway No. 2 at a distance of 32 km. from Delhi, at 28° 25' 16" north latitude and 77° 18' 28" east longitude. The town is bounded on the north by Delhi State, on the east by Agra and the Gurgaon canals and on the west by the Aravalli Hills. The Yamuna flows very near to the city at its northern side and moves away as it goes south. The city forms a part of the bigger district of Faridabad; it is named after its headquarters, Faridabad city. Faridabad town experiences a semi-arid climate that is characterized by wide temperature variations and scanty and irregular rainfall. During summer, temperature may reach up to 450 C in June while in winter it drops to 1.90 C in February. May and June are the hottest and driest months, when dust storms from the west prevail with high speed. The average wind velocity is 2.1 km. /hours during June and 1.3 km. /hour during November. The relative humidity is maximum during August (up to 84 percent) and minimum during May (up to 16 percent).

The average annual rainfall recorded at the Faridabad rain gauge station is 845 mm as computed from the data of 1978 to 1997. Maximum rainfall occurs during July to September because of the south – east monsoon. The number of actual rainy days varies between 7 and 22 in a year.

Significance in NCR

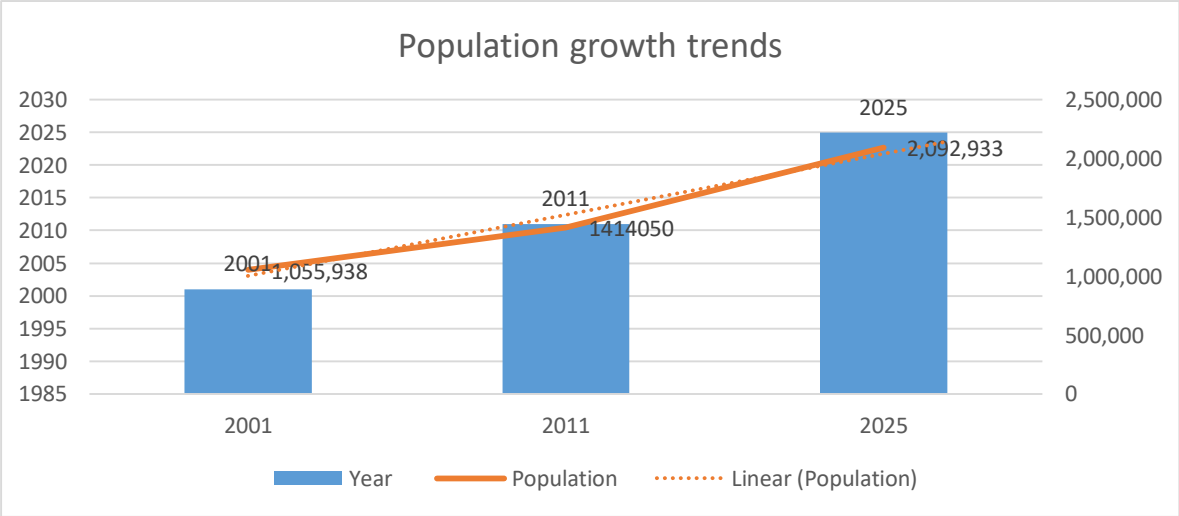
Faridabad is an important constituent of NCR and is identified as a Central National Capital Region (CNCR) city earlier referred to as Delhi Metropolitan Area (DMA) city. Faridabad was formerly Haryana's leading industrial city and a popular choice for setting up industry due to its location on the Delhi-Mathura Road. There are now about 15,000 small, medium and large industries in this complex providing direct and indirect employment to nearly half a million people and ranks ninth largest industrial estate in Asia. The combined turnover is estimated to be about INR 1500 billion. Many international/ multinational companies like JCB, Yamaha Motors, Whirlpool, Goodyear, Larsen & Toubro, Asia Brown Boveri, GKN Invel, Woodward Governor, Castrol besides Escorts, Eicher, Cutler Hammer, Hyderabad Asbestos, Nuchem are operating in this belt. Faridabad is the most populated and industrialized city in the whole of Haryana. Faridabad alone generates about 60 percent of the revenues of Haryana with its large number of industrial units.

Population details

In 2011, Faridabad had population of 1,414,050 of which male and female were 754,542 and 659,508 respectively (Census of India, 2011). In 2001 census, Faridabad city had a population of 1,365,465 of which males were 747,673 and remaining 617,792 were females. Faridabad District population constituted 7.14 percent of total Haryana's population. In 2001 census, this figure for Faridabad District was at 6.46 percent of Haryana's population. The floating population was estimated at 70, 232 in 2011 which was significantly higher since 2001.

There was change of 32.54 percent in the population compared to population as per 2001. In the previous census of India 2001, Faridabad District recorded increase of 58.88 percent to its population compared to 1991.

Out of the total Faridabad population for 2011 census, 79.51 percent lives in urban regions of district. In total 1,429,093 people, live in urban areas of which males are 763,705 and females are 665,338. (Census of India, 2011)



2.4 Status of Urban Poor

Expanding informal settlements in Faridabad has been a major issue for the Municipal Corporation of Faridabad. Currently there are 63 urban slums in the city (Swach City Plan, Faridabad, 2015). The slum population of Faridabad has gone from 147,000 in 2006 to 219, 264 in 2011, this constitutes to 15.21 per cent of the total population of Faridabad city (Census of India, 2011). Projections show that by 2019 the slum population will grow to 288,736 (Swach City Plan, Faridabad, 2015). The majority of the slums are concentrated at critical locations like along the alignment of the Badarpur bypass, the entire area between Old Faridabad and G.T. Road, and several lands acquired by HUDA for residential and industrial purposes. Constantly expanding industrial sector and work force driven economy has resulted in an influx of migrant population in the city. This has resulted in the growing number of informal settlements are slums in and around the heart of the city.

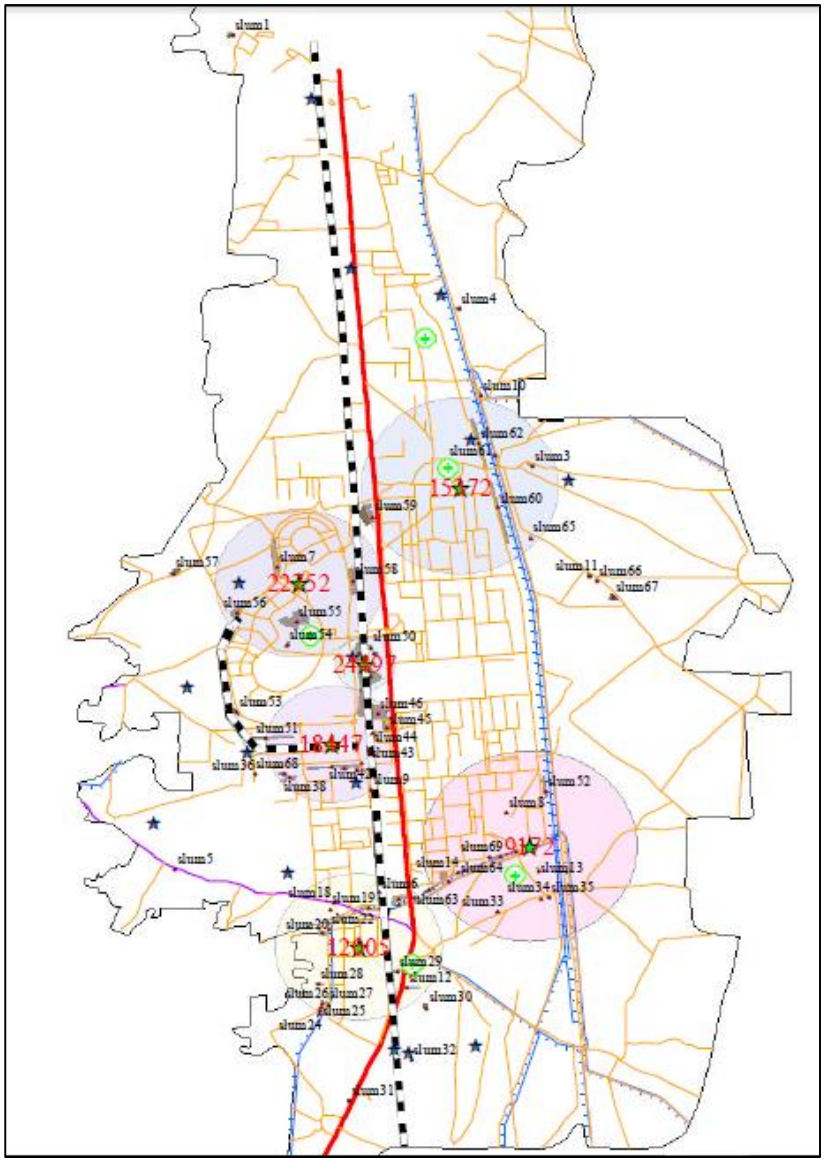


Figure 4 Slum Map of Faridabad (Master Plan, 2031)

Key issues for slums and urban poor

Restriction on providing civic amenities to slum dwellers on rehabilitation lands

Govt. of Haryana has ordered a stop vide Memo No. 439(30)/8081/G.II dated 21-07-1997 on providing any civic amenities to unauthorized *jhuggi* clusters residing on rehabilitation lands. This is in view of several slum dwellers raising *pucca*/ semi pucca structures on such lands meant for rehabilitation purposes thereby leading to 1) non-usage of these lands for the very purpose of rehabilitating the jhuggie dwellers in a planned manner and 2) poor living conditions in many slums of the city.

Concentration of slums along sensitive locations

The majority of the slum dwellers in the city have taken refuge on easily available locations close to the railway land and major road corridors apart from vacant lands. This dense concentration of slum dwellers along such environmentally and developmentally sensitive locations has only resulted in the complete lack of access to basic services, causing unhygienic living conditions.

Unaffordable housing situation for LIG/ Slum dwellers

Today, the land market in Faridabad under the impact of NCR is booming with real estate values reaching levels unaffordable by the LIG/ slum dweller groups. In addition, the lack of any specific proposals for these groups in the Development Plan has led to a shortage of housing for these unprivileged groups in an otherwise large housing market.

Lack of awareness on slum development programs

There is a general lack of awareness of the various slum development schemes and programs announced from time to time by the central and state governments. This leads to long delays in the implementation of the programmes and overall dissatisfying results, apart from the factor of the benefits of the programs not reaching the intended beneficiaries.

2.5 Industrial Profile and Institutional Set up in city

Industry profile

Faridabad is called the industrial capital of Haryana. The city is home to one of the largest industrial estates (9th rank) of Asia, which houses a large number of manufacturing industries. Economy of Faridabad is largely dependent on industry. As far as industries in the city are concerned, there are about 200 large and medium scale industries and around 15000 small scale industries, which provide direct and indirect employment to nearly half a million people. The city is also part of the famous Delhi-Mumbai Industrial Corridor. Faridabad individually is contributing to generate around 60 percent revenues in Haryana.

The association of Faridabad with industry dates back year 1950s, when after India-Pakistan partition, in order to rehabilitate the refugees of Pakistan, establishment of industries took place in the city. This was the foundation of industrial development in Faridabad. Further, it began to grow and develop gradually when more and more refugees from Pakistan began entering India. Faridabad was a kind of place which was considered as a bounteous for working. Soon, it filled

Pakistani refugees alongside people of different communities, religions, races and multi-language.

At present, Faridabad is among the top most centers known for plenty of opportunities in agriculture and industrial sector. It is famous for production of Henna in agriculture sector. Apart from that, its industrial products such as switchgears, tractors, motorcycles, refrigerators, tyres and shoes are highly famous all across the country. The place is home to many international/multinational companies namely; Whirlpool, Goodyear, Larsen & Toubro, Escorts, Eicher, Cutler Hammer, Hyderabad Asbestos and Nuchem Lafarge, Yamaha, Imperial Auto Pvt. Ltd., Havell's, Khaitan and many others.

Within NCR, Gurgaon and Noida have been in the forefront in attracting investments, which have been primarily in the information technology (IT) and biotechnology (BT) sectors. Faridabad has lagged behind in these sectors and is now gearing up to catch up with Gurgaon and Noida. More and more investments are flowing into various sectors of industry, commerce and real estate. According to a study, growth of Faridabad has been declining in last 2 decades, share of Faridabad in investment is less than 1 percent and 93 percent of investment is in paper industry.

As per Draft Development Plan 2031, 17.98 percent (6179 hectares) of land in covered under industrial land use. Keeping in view the above, land use proposals have been formulated on the consideration that industrial activities and trade and commerce will continue to remain the major economic base of the town. The town is growing as a major industrial centre of the State as well as of the region. The Haryana State Industrial and Infrastructure Development Corporation has already acquired land and developed an Industrial Modal Township (IMT) on the eastern side of the Agra Canal. Many industrial activities have already come up in the controlled areas after obtaining the change of land use permissions from the competent authority. Besides, the city is now witnessing expansion in IT sector also. Trained and skilled professionals are migrating to Faridabad for a bright and secured future.

There are five major industrial associations in Faridabad, which play a major role in terms of the development and regulation of industrial activity in the city. They are:

1. Faridabad Industries Association
2. Faridabad Small Industries Association
3. Laghu Udhyog Bharti
4. Faridabad Manufacturers' Association
5. Faridabad Chamber of Commerce & Industries

Academic Institutions

The city-district has educational institutions for school education and higher education; both government and private. Higher education has colleges and universities in disciplines, such as Engineering, Commerce, Management, Pharmacy, Biotechnology, computer, Medical, Nursing, Ayurveda, etc.

Institutional Profile

The Municipal Corporation of Faridabad (MCF) came into existence in 1992 and constituted the erstwhile municipalities of Faridabad Township/ New Industrial Township (NIT), Faridabad Old, Ballabgarh and 38 numbers of revenue villages then referred to as the Faridabad Complex Administration. The Haryana Municipal Corporation Act, 1994, governs MCF (HMCA). As per this Act, MCF is obligated to provide basic infrastructure like water supply, drainage, sewerage and roads, and services such as conservancy, firefighting, streetlights, education and primary health.

The Municipal Commissioner is the key figure in local self-government and is the administrative head of MCF; senior officials in discharging his functions assist the Commissioner. Supporting the executive is the local elected body, headed by the Mayor. The elections to the municipal body are held every five years. The ward committees are constituted as per the provision of 74th CAA. There is a Ward Committee for each of the administrative ward within the MCF area. There are 40 wards in MCF (Map has been attached for reference).

MCF and HUDA are the primary institutions involved in the physical development or service delivery aspects in Faridabad. All the core municipal services, their design and implementation are within the domain of MCF. HUDA primarily exercises the role of a land developer. To an extent, the Town & Country Planning Department of Govt. of Haryana also has an institutional role to play in the form of preparing and notifying the DP for the MCF as well as FCA areas. Implementation of the DP however is outside the purview of Town & Country Planning Department.

HUDA, apart from providing basic infrastructure like roads, drains and streetlights as part of development of a sector, maintains the sector for five years. If such sectors fall under the jurisdiction of MCF they are later transferred to MCF for further maintenance. However, water supply, sewerage and waste management functions are looked after by MCF from the day of the development of the sector irrespective of whether it is administered by MCF or not. This situation is understood to be leading to a lot of revenue loss to MCF.

The various Departments in MCF are:

- Administration
- Accounts
- Audit
- Commissioner Office
- District Attorney
- Engineering
- Establishment
- Fire
- IT Cell
- MOH (Medical Officer of Health)
- Planning
- Smart City Faridabad
- Taxation
- Tehsildar

Haryana Power Generation Corporation Ltd (HPGCL) is setting up a solar power plant at the site of a defunct thermal power plant in Faridabad. In case of Faridabad, Haryana State Industrial

Development Corporation (HSIIDC) is the nodal agency for the purpose of industrial development.

2.6 Faridabad City Profile – WASH

2.6.1 Water Sector

The source of water supply to the city of Faridabad is ground water, tapped from 420 deep tube wells located in various parts of the city and two rainy wells located along the Yamuna River. The river Yamuna runs along the length of Faridabad-Ballabgarh at a distance of about 10 km. The total installed capacity of the tube wells is 195 MLD and that of the two rainy wells is 45 MLD, leading to a total installed capacity of 240 MLD. Faridabad is utilizing the entire installed capacity to cater to the demands of the residential, commercial and industrial areas.

Total Number of Households	Main Source of Drinking Water									
	Tap water from treated source	**Tap water from un-treated source**	**Covered well**	**Un-covered well**	**Hand pump**	**Tube well/Borehole**	**Spring**	**River/ Canal**	**Tank/ Pond/ Lake**	**Other sources**
2,87,848	1,49,469	30,373	658	134	43,922	38,630	95	151	5,550	18,866

Table 1 Drinking water source in Faridabad (Census of India, 2011)

Table 1 shows that 62 % of the households in Faridabad city are receiving tapped water (treated and untreated), while 28.6 per cent of households are consuming drinking water from hand pumps and tube wells. Despite the impressive numbers, a significant proportion of the city still relies on river and lake as their primary drinking water source.

MCF has privatized the operation and maintenance of all the tube wells supply water to the city. The private operator has provided for a centralized monitoring system for the same whereby it exercises control over the hours of operation of the tube wells.

Coverage and Distribution

The total number of house service connections in the city is 1,06,850; 93 percent of the total connections are domestic in nature, five percent commercial and the rest two percent industrial. As on date, the total number of public stand posts (PSP) provided by various agencies including MCF, PWD-PH and HUDA is about 765, of which an estimated 425 are located in various slums of the city.

Service Delivery

Faridabad has a gross supply of about 188 lpcd and a net supply of 160 lpcd. The distribution network in the city covers a length of 910 km., which is about 75 percent of the road length. The system, presently, covers almost 100 percent of the developed areas excluding the slums. The newly added areas are currently being catered to by tanker supply. The distribution system in

the city is driven by both gravity and pumping; the total storage capacity available is 65.92 ML, which is 27.5 percent of the installed capacity (240 MLD) of the system. Elevated storage capacity stands at just 11.36 ML that is 4.7 percent of the installed capacity. (City Development Plan, 2006-2012)

Key Challenges

The rapid urbanization and the consequent population increase in the city has led to increased pressure on water sources. Estimates show that by year 2031 ground water will barely meet the per capita water needs of the city (City Development Plan, 2006-2012). It will be imperative for the city to find alternative solutions for drinking water and incorporating those in the policy framework.

Service coverage is another pressing problem for the city of Faridabad. With close to three-lakh household in the city and only half of those connected to tap water source indicates a large quantum of non-revenue water and consequently, poor cost recovery for the ULB.

Policy as well as legal framework have to be changed in the city/state to allow better for better access to civic amenities. With an influx of working population and migrant labours in the city, informal settlements have become unavoidable and the ULB's need to be better equipped to deal with such issues.

2.6.2 Sanitation Sector

Amid the rapid urbanization and industrial expansion of Faridabad, access to civic amenities has been a major pain point for the ULB. This is evident from the mediocre performance in the recently concluded Swach Sarvekshan[4] where the city ranked in 51 (of the 73 cities) and in the City Sanitation ratings, 2009-10, which placed the city under red category (ranked 237). It must be emphasized that over 15 percent of the urban population of Faridabad resides in the slums with no access to public or community toilets. Of the 52 reported slums in Faridabad 11 slums had community toilets (13 CTBs).

Access to amenities

According to Census 2011, of the 287848 urban households in Faridabad 24,804 resorted to open defecation and 8892 urban households were reported using insanitary latrines. These numbers represent 11.7 percent of the total household population in Faridabad with little to no access to improved sanitation facilities. The table below shows a detail of the household numbers with access to latrine facilities.

As per the City Development Plan (CDP), Faridabad, there are a 67 slum clusters in the city. As per the survey conducted in 2001 the slum population was 1,32,424, which accounted for nearly 12 per cent of the total population. However, recent Census report (2011) states that Faridabad currently has 52 slums in the city which houses 2,12,359 people.

[4]The survey, the first for the Swachh Bharat Mission, was conducted by the Quality Council of India (QCI) and was named Swachh Sarvekshan. It covered all state capitals and another 53 cities with a population of above one million.

Besides CDP and Census no other specific survey was conducted on the slums in the city. It also needs mention that Govt. of Haryana has ordered a stop vide Memo No. 439(30)/8081/G.II dated 21-07-1997 on providing any civic amenities to unauthorized jhuggi clusters residing on rehabilitation lands. This applies to majority of the slum locations in the city and hence this Government notification applies to all.

Year	Slum Population	Total population	Public toilet seats	PTBs	Per person availability of seats
2001	132,424	1,055,938	734	24	359
2011	212,359	1,414,050	1,092	645	185

Table 2 Access to PTBs in Faridabad (Census of India, 2011)

This is also the reason for absolute lacking of civic amenities in most of the slums. With respect to sanitation, of the total 734 seats of public conveniences in the city, about 410 are located in the slums as part of 24 complexes (Census of India, 2011). Table 3 draws a comparative account of the Per person availability of seats of public convenience which stood at is 359 in 2001 and 185 in 2011, which represents a far from comfortable situation. This also indicates the general inadequacy of basic services to slum dwellers in the city. The numbers in terms of public toilet seats and PTBs have shown progress; however, with the growing pressure on the city resources it will be imperative for MCF to meet goals set under Swachh Bharat Mission.

Target component	Baseline (Census 2011)	Target for 2018	Target for 2019	Cumulative Targets (2014-19)
Construction on new individual household latrines(IHL	20,164	5041	3,025	25,205
Construction of community toilets[norm:1seat/25 women and 1 seat/35men]	0	18	11	72
Construction of public Toilets[norm:1 seat/50 women and 1 seat/100 men up to specified numbers*]	0	103	62	412
Conversion of insanitary latrines into sanitary latrines	21,626	3,818	2,290	15,272
Conversion of pit latrines into sanitary latrines	15,272	3,818	2,290	15,272

Table 3 Sanitation targets for Faridabad (Swach City Plan, Faridabad, 2015)

Sewage Management

Faridabad has four sewerage zones (Zone 1, 2, 3 and 4) which the 91 sectors in the city. Under National River Conservation Directorate (NRCD) three Sewage Treatment Plants (STPs) have been setup in Zone 1, 2 and 3. As per the City development plan of Faridabad the sewerage generated in the city is understood to be 164 Million Liters per Day (MLD)(Performance Evaluation of Sewage Treatment Plan Under NRCD, Aug, 2013), which is approximately 68 percent of the water supply. To convey this sewerage to various intermediate and main pumping stations for treatment purposes, there is a sewerage network of about 638 km. covering 52 percent of the total road network of the city. In terms of population coverage, the network is understood to be covering only 50 percent of the city population implying that a large quantum

of sewerage is flowing into the open drains and ultimately into the river Yamuna untreated. Against the 16 proposed SPSs for the four zones, 13 are in place at present. The sewerage transmitted through the system is treated in three sewerage treatment plants (STP) with a combined capacity of 115 MLD.

Key Issues

1. Rapid urbanization, implementation of township policy and the pressures from NCR- related activities have put immense pressure on the existing infrastructure leading to poor sewage treatment.
2. Low system coverage with a large quantum of sewerage being allowed to flow into water bodies untreated
3. Mixing up of sewerage and storm water is a predominant issue in Faridabad. At various locations in the city, the rising level of the sewers is above that of storm water drains. This is primarily due to non-comprehensiveness and independent design of each of the systems. (City Development Plan, 2006-2012)
4. Only 50 percent of the city's area and population is covered. The present system is outdated and inadequate for the present population. It is archaic and has been mixed up with the drainage network in several areas.
5. The status of sewage treatment capacity in Faridabad well below metro cities like Delhi, Mumbai and Pune, which are well above 50 percent. In 2013, the sewage generation in Faridabad was 164 MLD while the treatment capacity was a mere 65 MLD (39 per cent treatment capacity). (Performance Evaluation of Sewage Treatment Plan Under NRCD, Aug, 2013)

Fecal Sludge Management

Estimates state that annually India loses roughly 266 million USD in tourism due to insufficient sanitation services (Fecal Sludge Management- Systems Approach for Implementation and Operation, 2014). Globally, around 2.7 billion people are forced to use on site sanitation systems and the numbers are estimated to double by year 2030. The scenario is not that different in India, Census 2011 estimates that 377 million people are currently living in urban India, which is expected to increase to 600 million by 2031. These numbers reflect a growing pressure on existing systems and the need for better technologies in safe transport, treatment and disposal of fecal sludge. Census 2011 states that roughly, 47 per cent of urban households are currently using on site pit latrines and septic tanks and the numbers are more than likely to go up with SBM attempting to reach every household with latrines.

Total HH in city	HH with latrine facility within the premises	Type of latrine facility within the premises								No. of HH. not having latrine facility within the premises	No latrine within premises	
		Flush/pour flush latrine connected to			Pit latrine			Service Latrine			Alternative source	
		Piped sewer system	Septic tank	Other system	With slab/ ventilated	Without slab/ open pit	Night soil disposed into	Night soil removed	Night soil serviced		Public latrine	Open Defecation

					improved pit		open drain	by human	by animal			
2,87,848	2,56,619	1,43,538	73,458	4,518	26,213	4,274	3,413	472	733	31,229	6,425	24,804

The table above sheds light on the current situation of latrine facilities in Faridabad. The data suggests that 41 per cent of the urban households are resorting to on site sanitation systems (septic tanks and in sanitary latrines) and 8 per cent are still defecating in the open. While 50 per cent of the households in the city were reported to be connected to piper sewer system (Census of India, 2011). These numbers follow national trends concerning the usage of onsite systems. Under AMRUT, National Policy on Fecal Sludge and Septage Management (FSSM) all states are mandated to prepare a concrete plan for fecal sludge management. Further, the Solid Waste Management (SWM) Rules, 2016 under the Environmental Protection act, 1986 provide a framework for control of effluent, sewage and septage discharge. A cursory research and analysis of Faridabad city provided no concrete information on safe collection, transport and treatment of fecal sludge. With existing policy framework and regulations, it will be paramount for a growing city like Faridabad to institutionalize a FSSM strategy. MCF will have to take prompt and proactive measures in the design, development and, implementation of a concrete FSSM strategy and ensuring operation of systems for 100 per cent safe and sustainable collection, transport, treatment and disposal of fecal sludge and septage.

2.7 SWOT Chart of Faridabad

Strengths	**Weakness**
• All national missions implementation city – Smart City, AMRUT and SBM • State water and Sanitation Mission (SWSM) Haryana, is a great example of a policy level initiative • Proximity to National Capital Delhi – Resource Mobilization • Industrial Hub of Haryana State	• City lags behind in Sanitation provisions (ranked 51 in Swachh Survekshan 2016 out of 73 Cities) • City Sanitation Plan is not prepared in the city • City Development Plan is not Upgraded • 15 percent Population is Urban Poor without adequate Infrastructure Provisions • Non-Revenue-Water very high
Opportunity • City has envisioned Recycle and Reuse of waste water and storm water in Smart City Mission • ULB is imposing Rs. 500 fine on Open Defecation practice- Willingness of ULB for SBM • Innovation demonstration already available through Accelerator	**Threats** • High Dependency on Groundwater, which is depleting at faster rate. Industrial consumption is high • 41 percent resort on OSS but No Septage Management Plan despite of having • 43 percent Sewage is untreated- ultimately disposed in waterbodies • 50 percent population not connected to Sewerage

3.0 Udaipur City

The city is famous for its palaces, lakes (*Lake Pichola, Lake Fatehsagar, Lake Govardhan Sagar and Badi Talab*) and gardens. It is the sixth largest city and one of the smart city selected from this state. It is located about 430km in south of state capital Jaipur and about 670km in south of Delhi. It is the only city of the state, which has moderate climate throughout year. Since it is important tourist attraction, the floating population in city particularly foreign tourist is high. This is increasing every year and demands adequate Sanitation facilities both public and in city. From sanitation viewpoint in 2009 city scored only 31.95 marks out of 100, which indicated red category requiring immediate attention for public health and environment. In the latest Swachh Survekshan -2016 done by MoUD for 73 cities, Udaipur was not included and therefore latest status of its Sanitation condition is not known. City has prepared CSP under NUSP.

3.1 Rajasthan State Profile

Urbanization rate

Vast stretches of Rajasthan comprise arid areas with annual rainfall averaging 25-30 cms., hilly terrains of Aravalli Mountains. This geographic set up has also influenced the urbanization process. Presently urbanization is more in the eastern side of the state due to favorable physiographic and climatic conditions. As per Census 2011, total population of the state was 68 million (5.6 percent of India). Out of that, as per the Census of India, 2011, about 25 percent (17,080,776) population lives in urban areas, which was only 16.28 percent in 1960s. There are 297 urban centers in the state. Jaipur, the capital and largest city of Rajasthan, has a population of 3 million. The urban population growth rate (CGAR) is 3.19 percent in the state, which is faster than the national average. The growth is attributed to the tourism industry, Delhi-Mumbai industrial corridor project, dedicated freight corridor initiative, setting-up of a refinery at Barmer, and the Metro & BRTS initiatives at Jaipur. These influence urbanization process as well as boost the urban economy of state. However, it also brings important challenges related to urban infrastructure especially for water supply and sanitation.

Considering the increased urbanization in the state and the challenges the state government has drafted the Urban Development Policy in the year 2015. The policy provides a road map to improve the living conditions in the cities. This Policy recommends incentivizing private sector participation for implementing innovative technologies in sanitary waste management focusing on treatment for maximum recycle and reuse of wastewater. The following section provides information on the State's plan to improve the sanitation conditions in urban areas of the state in line of with the National goals of Swachh Bharat and other missions.

State Sanitation Policy and roadmap

The Urban Development and Housing Department (UDH) is the main controlling department of all urban activities in the state. It is responsible for systematic planning of urban centres. Another important state level organization is Local Self Government Department (LSGD)/ *Directorate of Local Bodies*. Important functions of this department are approval of budget of ULBs and release of funds of Special Grant, General Grant, SFC, TFC, Grant (in Lieu of Octroi) and state/centrally sponsored schemes/programme and extension and exclusion of municipal boundary, election of

municipal boards. It also prepares DPRs related to funds from Govt. bodies. It is also implements programmes related to poverty alleviation and social responsibilities in the state.

As per Census 2011, in Rajasthan, 37 percent households had water closets and almost 18 percent did not have access to toilet facility, which was almost similar to the national average. With respect to sewage management, Rajasthan lags behind the national average. With only 25.6 percent households connected to piped sewer system and almost 17 percent disposing the sewage in open. For sewage treatment, there are 63 STPs with a total capacity of 865.92 MLD. About 11 STPs of total capacity of 149.3 MLD are under construction and 36 STPs of capacity 322.12 MLD are proposed. The total municipal solid waste generated in Rajasthan is 5,037 TPD, out of which 2,491 TPD is collected and 490 TPD is treated. As per the Annual Report (2012-13) of the Rajasthan Pollution Control Board, only two scientific landfill sites exist in the state, and primary door-to-door collection exists in one city. The sanitation management in urban areas is the responsibility of ULBs. The capital investments in sewerage and other sanitation sector is the responsibility of the State Government. The responsibility of O&M lies with respective ULBs.

Considering the grim situation of sanitation in the state, the Department of Local Self Government (LSGD) has recently prepared the State Sewerage and Waste Water Policy in 2016. It aims to provide sustainable sanitation services in urban areas of state. This policy also encourages private sector participation and acknowledges that technology in the field of wastewater management is evolving continuously. It includes guidelines for management of sewage projects through Public Private Partnership (PPP) including hybrid annuity based PPP model. The policy promotes the use of byproducts like treated water, manure, gas etc.

The important and other relevant departments in the state are Rajasthan Urban Drinking Water Sewerage & Infrastructure Corporation Ltd. (RUDSICO), Rajasthan Urban Infrastructure Development Project (RUIDP) and Town Planning Department.

3.2 Status of National Missions in Udaipur

Smart City Mission - Udaipur ranked 16th in the list of smart cities declared in January 2016. Projects worth Rs. 1,212 Cr. were proposed under the smart city mission for Udaipur that included Area Based Development projects and pan city proposals. The Area Based Development (ABD) targets service improvements in 828-acre area including a portion near Lake Pichola for which a sewerage project is proposed. The pan city proposal envisaged citywide smart utilities. Both Area Based Development (ABD) and pan city proposals have the potential to integrate the objectives IHU WASH project. For example, a public/community toilet can be placed to improve sanitation conditions around the Pichola Lake premises that is a centre for tourist attraction. The pan city proposal has the potential to include the innovative sanitation technology solutions.

A PIU has been formed in the city under the SPV named Udaipur Smart City Ltd. (USCL) and registered on 12.3.2016. Eptisa Services SL, a Spanish company is the Project Management Centre (PMC) for Udaipur city. Following Six projects are already launched in city under the smart city mission by June 2016:

1. Sewerage works in walled city Area - Rs 5.75 cr.
2. Providing and installing Open Air Gym equipment in Gulab Bagh - Rs 8,63 Lakhs

3. Conservation& Development of Heritage Facade for Historic bazaars of Walled City - RS 5.99 Cr
4. Setting up of Smart Classrooms in Govt. Schools of Walled City Area - Rs 79.21 Lakhs
5. Construction of Control & Command centre at Town Hall - Rs 1.22 Cr
6. Installation of Solar Roof Top Power Plants - RS 1.32 Cr

AMRUT Mission[5] - Cities with population greater than one lakh will be part of this mission. A total of 30 cities from Rajasthan are eligible for funding. The purpose is to ensure basic infrastructure and service delivery (Water, sanitation, urban transport, social infrastructure etc.) in every household in urban areas and achievement of the benchmarks set by the Ministry of Urban Development. The funding will be subjected to approval of empowered committee at the State level.

State Annual Action Plan (SAAP) - Rs. 3,592 cr. is an overlay under AMRUT mission for the state. The highest allocation is for the state capital, Jaipur (Rs. 270cr). For the Udaipur city, the overlay is Rs. 168.75 cr. In the Udaipur, **Sewerage and Septage management Sector** has the maximum allocation of Rs. 85 cr. The allocation for the water supply sector is Rs. 30 cr. According to the State Annual Action Plan (SAAP), the Sewerage network coverage is 45 percent and coverage of latrine (HH/community) is 95 percent. Household level coverage for the water supply is 81 percent and per capita water availability is 115 lpcd for Udaipur city.

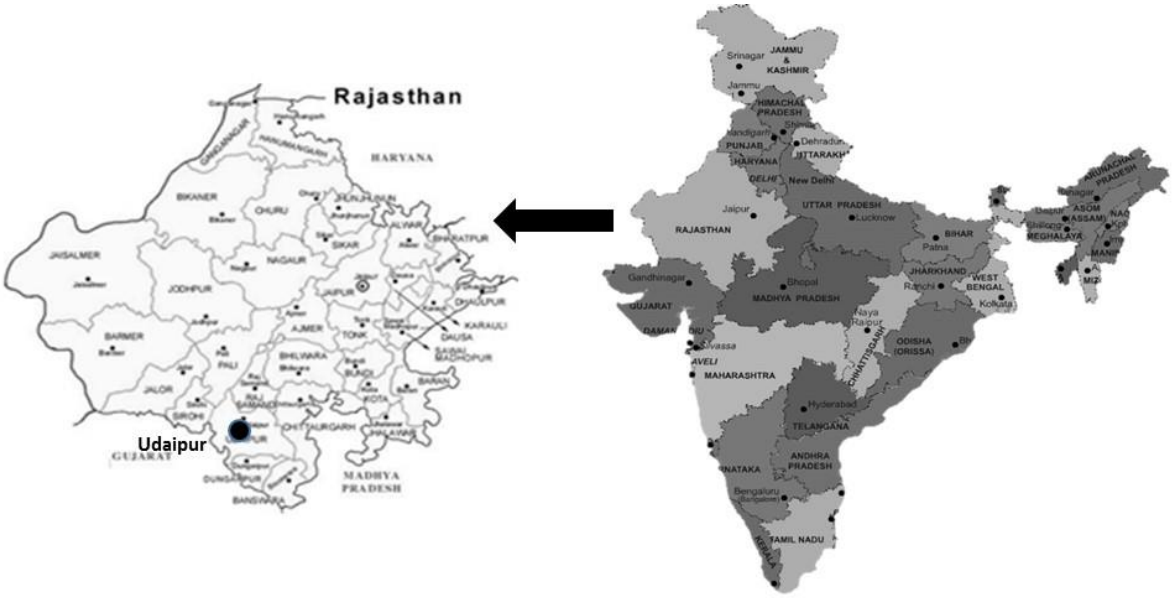
[5]AMRUT (Atal Mission of Rejuvenation & Urban Transformation) mission is initiated by Ministry of Urban Development, GoI on 25 June 2015 for next 5 Years i.e. up to March 2020. Five hundred (500) cities will be taken up having a population greater than one lakh (100,000). Under the mission MoUD, GoI will provide 50% of project fund while State & ULB will share rest 50%.

3.3 Udaipur City Profile

Udaipur (E 73.70 - N 24.59) is the sixth largest city of Rajasthan. It is situated at 578m above mean sea level. The city is famous for its palaces, lakes (Lake Pichola, Lake Fatehsagar, Lake Govardhan Sagar and Badi Talab) and gardens. It is the only city of the state, which has moderate climate throughout year. The maximum temperature is 40 degree celsius during summer. Monsoon starts in July and the city receives an average annual rainfall of 635mm. The main city is developed between hills in the eastern and western sides. The old city is mainly located on the hills. Udaipur is very close to the Gujarat and the Madhya Pradesh states in its south and east (refer figure). It is located about 430km. in south of Jaipur and about 670km south of Delhi.

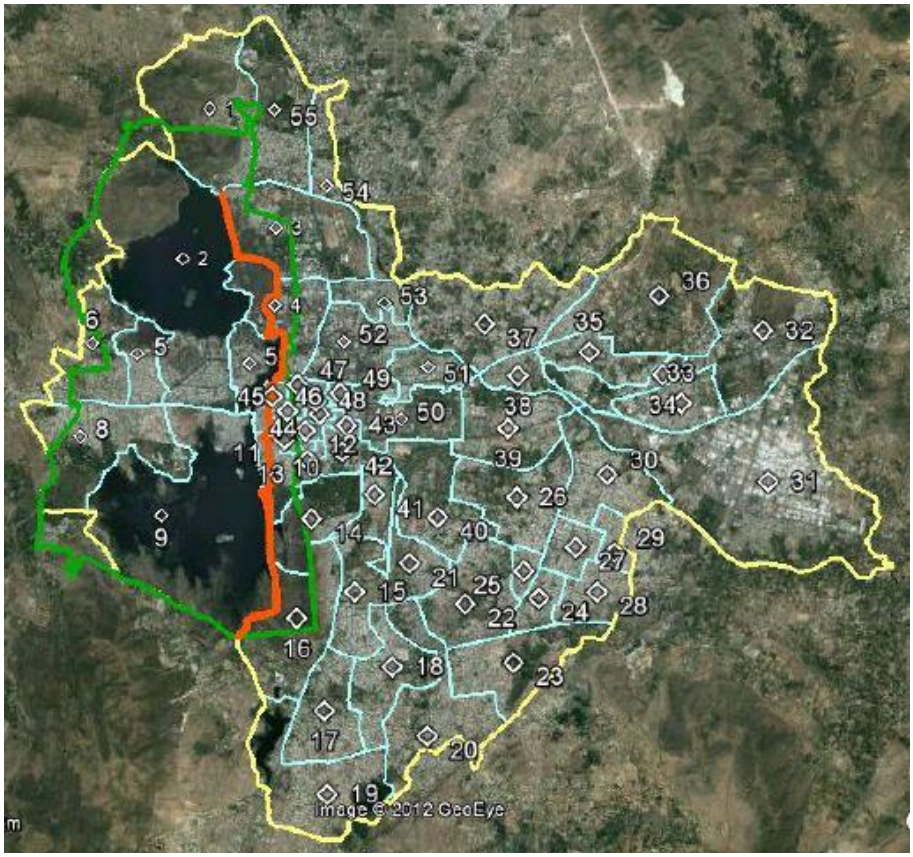
Prior to April 2013, the Udaipur Municipal Corporation (UMC) was a Municipal Council. UMC is governed under Rajasthan Municipalities Act 2009.

Following map shows its geographic position in India.



Municipal Area

In 2001, Udaipur city occupied an area of only 37 sq.km., which increased to 57 sq.km by Census 2011. As of 2016, Udaipur Municipal Corporation (UMC) covers an area of 64 sq.km. Average population density in the city is almost 8,000 persons per sq. km. UMC is divided into 55 Wards. Wards number 10, 12, 48, 49 have the highest population density. The larger slums are located in ward numbers 54, 1, 8, 10, 4 and 7. Some of the slums sprawl over two wards.



Source: CDP, 2041

City Population

In 2011, Udaipur's population was recorded at 451,100. This has increased to 495,759 in 2016. The city has approximately 95,000 households with an average of five family members. The population growth from 2001 to 2011 is nearly 16 percent. The main factors attracting people to live in the city are its growing economy and increasing tourism. The population projections are given for the city in master plan and recently published CDP. The following table provides projections for the three decades in the city.

Year	Projection
2021	594,350
2031	725,325
2041	880,946

Source: CDP, 2014

Tourists Influx: Since it is a popular tourist destination, Udaipur has a high floating population (particularly foreign tourists). The following table shows the tourist inflow in Udaipur since 2011. In 2015, about 1 million tourists visited the city, of which about 22 percent were foreigners. However, the trend indicates that foreign tourists are decreasing in numbers. Though the exact reason is not clear, better sanitation facility is always of high importance for tourists.

URBAN IMPROVEMENT TRUST, UDAIPUR

"Tourist inflow in Udaipur city from Year 2011 to Aug. 2016"

YEAR	2011		2012		2013		2014		2015		2016	
	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
JAN	41639	20447	42843	23862	43810	22733	60258	22102	66720	19100	67599	20081
FEB	39568	20479	40687	23893	41743	24840	46252	20961	45987	22446	48063	24872
MAR	37996	19390	39551	21147	40520	21246	44136	20809	45109	19631	45971	23516
APR	35629	11873	36757	12087	37273	11529	43005	11892	45954	10137	47520	10673
MAY	43854	4193	45144	4761	46217	4933	49613	4174	49947	4087	50667	4035
JUN	43855	3039	44700	2815	55850	2924	55603	2678	55296	2683	54297	2902
JULY	45958	8733	54426	8735	46845	7821	47560	6977	46560	6095	51509	8020
AUG	46628	23489	48164	14841	57025	13216	63582	12072	61717	11898	62148	13190
SEP	44740	9332	44057	9378	47695	8778	49495	8661	50046	9097		
OCT	59747	13250	56926	18424	61210	17625	71519	17053	62196	16680		
NOV	66665	24436	64026	28697	90423	25709	90812	22725	94912	24531		
DEC	69165	19038	70958	20733	93501	23959	98285	16832	102822	18336		
TOT	**575444**	**177699**	**588293**	**189373**	**662112**	**185313**	**720120**	**166936**	**727266**	**164721**		

Source – Deputy Director, Tourism, Udaipur.

14/10/2016.
(Ram Niwas Mehta)
Secterary,
U.I.T., Udaipur

Source: UIT, Udaipur Website

As per Census of India, 2011, about 5 percent households practice open defecation and 2 percent use public toilets.

3.4 Status of Urban Poor

The information on slums is derived from the District Census Handbook (Census 2011), rapid baseline assessment report published by MoUD and the latest City Development Plan (CDP) prepared for 2041. The reports are prepared by CRISIL. For the same information, the data varies from one source to another. The following table provides a summary of data on slums from difference sources.

No. of Slums	Households	Population	Source
47	9,829	42,963	Census 2011 handbook
40	9,629	48,145	Rapid Baseline Assessment Report, 2013
39	9,529	47,636	CDP 2014

From the above data, it appears that the number of households residing in slums has reduced. However, the population figures indicate the contrary. On an overall, about 10-11 percent population in the city lives in slums[6].

[6] In the Census, slums have been categorized in three types: Notified Slums (under Slum Act), Recognized Slums (not formally notified under Act) and Identified Slums (300 population or 60-0HH).

The Urban Improvement Trust (UIT) is the agency responsible for provision of housing and infrastructure in slums. The Udaipur Municipal Corporation (UMC) has a special department named "*KachiBasti Department*" that looks after slums. Two central government projects are under implementation in city in the area of slum improvements i.e. Integrated Housing and Slum Development Programme (IHSDP) and Rajiv Awas Yojna (RAY).

As per the latest CDP, the condition of basic services in slums is considerably alarming. Approximately 18 percent of the households still practice open defecation and more than 45 percent households are not connected to proper sanitation facilities. A similar percentage do not have water supply. As per Census of India 2011, only 4.57 percent households practice open defecation. The differences in the percentage of people that practice open defecation could be due to city's expansion from 57 sq.km. in 2011 to 65 sq.km in 2016. Most of the people residing in slums are involved as construction or industrial workers or are employed in commercial centres.

KacchiBasti Federation: This Federation from time to time done raised their voice against the government for the legal rights to the households' owners living in the slums in the city. As per a news article published local news channel in May 2015; there were 41 slums listed in the Udaipur municipal corporation (Nigam)[7]. During the implementation of IHUWASH project in the city especially if slum area is chosen; such organization could be an important stakeholder.

Information on households practicing open defecation and coverage of sewerage facilities in slums areas indicates that there is an immediate need for intervention for improvement of sanitation facilities. It is also clear that existing schemes launched by central government are alone not sufficient to provide adequate infrastructure to all urban slums in the city.

3.5 Institutional Setup

Udaipur city transitioned from a municipal council to municipal corporation in 2013. There are a multitude of institutions working in the city for planning, design and implementation of infrastructure. Operation and maintenance (O&M) is mainly the responsibility of UMC. As per the 74th Constitutional Amendment Act (74th CAA), the State is yet to devolve all the functions to ULB. The Town Planning Department is responsible for regional planning in the city. Following are important institutions in the city that are involved in the WASH sector.

Public Health and Engineering Department: The planning, design, construction and O&M for water supply is managed by a parastatal agency i.e. PHED. Sewerage is also managed by PHED but the urban improvement trust (UIT) supports in planning, design and implementation. O&M is the responsibility of the Udaipur Municipal Corporation (UMC). Solid waste management is fully handled by UMC. Housing for urban poor is a combined responsibility of UIT and UMC.

Urban Improvement Trust (UIT): UIT is mandated to make Udaipur safe, affordable and smart. Unlike Jaipur, Jodhpur and Ajmer, Udaipur does not have a development authority. Instead, it is responsible for formulation of various schemes for the development of the city, matters related

[7] Source: http://udaipurtimes.com/slum-free-city-uit-nigam-to-gauge-present-situation/

to preparation of master plan, land acquisition & disposal, preparation of land layout, formation of open areas, provision of infrastructure facilities & sanitary arrangements, construction of buildings, streets & other public amenities such as water supply, street lighting, drainage, etc. As per the records of UIT, there are about 24 water bodies under its jurisdiction.

Udaipur Municipal Corporation: As mentioned earlier, Udaipur city municipal council has recently been upgraded as Udaipur Municipal Corporation (UMC). Since it is a fairly new Corporation, the parastatal agencies continue to be involved in planning and design, especially for the water and sanitation Infrastructure of the city. Solid waste management (SWM) is solely managed by UMC.

Apart from these, RUDSICO and RUIDP are important state level institutions, which are involved in Infrastructure creation in city.

Udaipur Chamber of Commerce& Industry - The Udaipur Chamber of Commerce & Industry (UCCI), a multi-district apex body of trade, industry, mining & tourism and partnering industry and government alike through advisory and consultative processes, works to create and sustain an environment conducive to the growth of industry in Southern Rajasthan. UCCI is a non-government, not-for-profit industry-led and industry-managed organization. Being conscious about pollution-free environmental aspects, UCCI has developed a beautiful landscape & garden under its Environment Park Project on a piece of land measuring approx. 100,000 sq. ft.[8]

Jheel Sansarkshan Samiti- Voluntary organization working to protect city lakes

Important academic institutions and industry

The academic institutions profile and industry profile of city is important in terms of capacity building activity and harnessing potential of private key stakeholders to implement IHUWASH project. Following is a brief on the aforementioned aspects.

Institutes: - Mohanlad Sukhadia University is oldest university in city- has Envt. Science dept., City has College of technology and engineering (Civil, renewable energy, soil and water engineering departments).

Industry: - Rajasthan state is known for important mineral production. Therefore, allied industries are developed. In Udaipur city Hindustan Zinc Limited is the famous industry. Apart from this, the recently prepared city sanitation plan document indicates that there are many micro-small enterprises which has turnover of Rs. 116 Crores and Medium and large scale industries which has turnover of Rs. 1276 crores. Tourism is another important industry in the city where significant numbers of workforce is engaged. The projected cost of new tourism development is approximately Rs. 460 crores.

[8] Source: http://www.ucciudaipur.com/about_us.aspx

Voluntary organization in the city has undertaken Lake Conservation programme by Green Bridge Technology to treat domestic and industrial wastewater of 100 MLD. The details of the funding agency, implementation modality etc. needs to be collected during preliminary survey. In addition, the innovation of PHED-UIT is done in water sector to provide water supply in the slum areas of the city. The city has also installed Fiber urinals in public places which were earlier cement constructed which indicates that ULB is also keen to implement the innovative ideas. The recent CSP has provided different models of public toilets. Information needs to be collected from concerned ULB officials regarding its implementation in the city.

3.6 Water bodies / river status

Pichola, Rang Sagar, Fateh Sagar, Swaroop Sagar, Badi, Madar, and Udai Sagar. All the lakes form a chain in the saucer shaped Udaipur valley. The Ahar is the main river draining through the city. Due to presence of important lakes in the city, National Lake Conservation Plan(NLCP) provides financial assistance. RUIDP is one of the agency, which implements NLCP in the city. The city has *Jheel Sanraskshant Samiti* (Lake Conservation Committee) a voluntary organization, which works in protection of the lakes. Land use Land Cover Changes in the city as well as catchment area is affecting the lakes.

3.7 Udaipur City Profile - WASH

PHED, UIT, UMC are the main institutions responsible for the WASH sectors in Udaipur. PHED is responsible for water supply whereas in the sewerage is managed all three agencies and solid waste management is completely handled by the UMC. The lack of coordination among these departments is highlighted in the latest CDP prepared in 2014.

3.7.1 Water Sector

Both surface and groundwater sources are used to supply water. Lakes are main surface water sources and groundwater is extracted from tube wells and open wells (step wells). There are 7 water supply zones in the city. The recent data shows that total of 78 MLD water is supplied from surface sources and 5 MLD is from groundwater sources. There are 2,650 hand pumps installed across the town by the department and Urban Local Body. There are presently 180 panghats in the city from which the people are use water for domestic purposes. The
per capita water supply in Udaipur is 115 lpcd. About 81.30 percent coverage of the city is served by water supply connections. However, the cost recovery is only 18 percent. This is far below the Service Level Benchmarks (SLB) set by MoUD (which is per capita water supply of 135 lpcd and 100 percent cost recovery).

UMC claims that it is meeting 99.5 percent of the water quality standards. However, during monsoons, the F. coli was detected in Lake Pichola, which is one of the important sources of water supply to the city. The reason cited is human excreta transmitted through sewers.

The latest Service Level Benchmarks (SLIPs) submitted for the AMRUT Mission, does not have any information on water supply to slums. The CDP-2014 mentions that UIT and UMS provide services. In slums only 53 percent, households have individual taps, one percent households receive water from public taps and 5 percent households have tube wells. As per this

information, 58 percent households in the slums gets water from piped connections, tube wells and public stand post; remaining 42 percent depends on either hand pumps, tanker supply sources or any other mode of arrangements.

Prominent issues of Water Sector in the city are following

1. Old and dilapidated Infrastructure
2. Groundwater Depletion
3. Water supply at 2 to 3 days interval
4. Leakage losses are very high due to maintenance and theft issues

3.7.2 Sanitation Sector

The Ministry of Urban Development carried out a rating exercise for assessing the Sanitation situation of cities in 2009-10. Udaipur was ranked to 262 out of 423 cities ranked in the country. It scored less than 33 marks and was categorized as *red*, which meant that the city requires immediate remedial solutions to protect the health of its people. Recently, in 2016, the Swachh Bharat Mission (Urban) carried out a Swachh Survekshan. Mysuru city ranked number one in this survey. Udaipur city was not included in the survey. Presently, the sanitation conditions in the city are poor. A brief assessment of the sanitation situation is presented in two parts: first, presents a general status and latter focuses specifically on the sanitation situation of urban poor clusters (slums).

Sanitation Status in City

Approximately 65 MLD sewage is generated in Udaipur. Only 13 percent population was directly connected to the sewerage network in the city during 2012-13. The sewage collection efficiency in the city is was only 19 percent. There is a 20 MLD STP constructed by Hindustan Zinc limited in 2014 as a PPP model. However, its functionality is limited.

The first phase of the sewerage network was constructed by PHED between 1976 to 1985 in the walled city area. At present, it is managed by UMC and UIT. The second phase was implemented by UIT in 2004-05 essentially to prevent pollution of the city's lakes. Thus, since 1976 despite a two phase implementation of sewerage network in the city, only 13 percent of the population is covered with sewerage network. The remaining depend on Onsite Sanitation Systems (OSS) like septic tanks, soak pits (single/twin pit) etc. In 2012-13, 91 percent households in the city had toilets.

Sanitation Status in Slums

About 10-11 percent of the population in the city lives in slums. Difference sources of information indicate that there are 40 slums in the city. There are 9,530 households in these slums with a total population of about 47,500 (please refer to the urban poor section). As per the condition of water supply and sanitation in the slums provided in CDP-2014, most of the slum dwellers practice open defecation.

Out of 9,530 households, only 53 percent have individual tap connections. The remaining depend on public taps, tube wells and tankers. However, the sanitation scenario is very serious as not a

single household in connected to the sewerage system in slums. About 55 percent households have own septic tanks in slums.

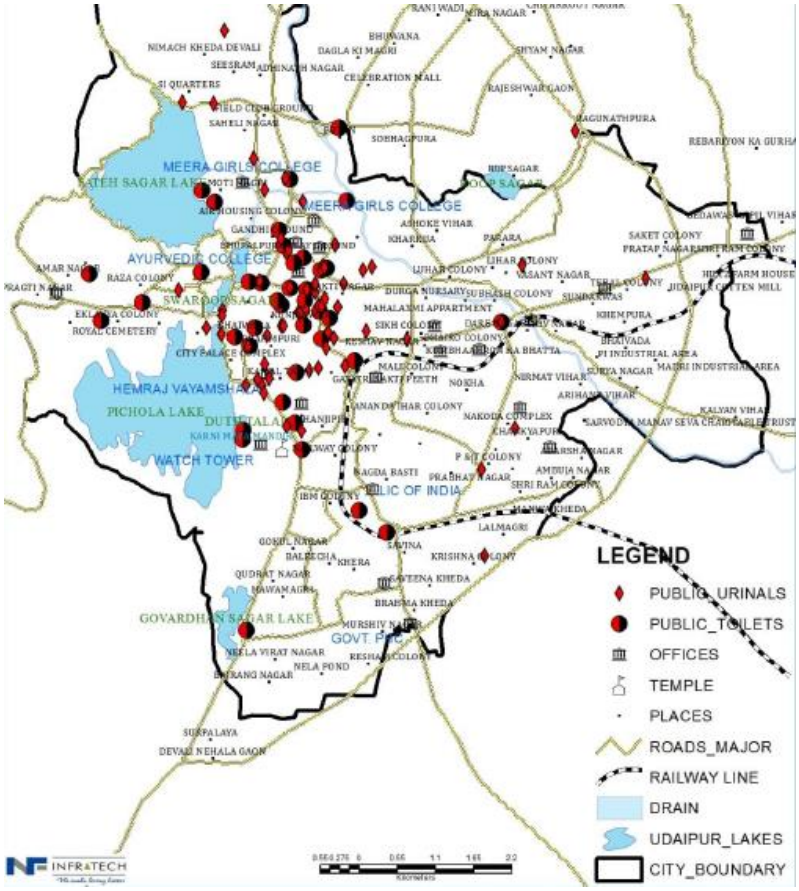
Open Defecation

The Census 2011 and recent CDP provides information on the open defecation in the city. Census indicated that 4,061 households practice open defecation in the city. The CDP 2014 indicates that 1,702 households practice open defecation out of9,530 slum HH. This indicates that merely in 4-5 years times pan significant numbers of households have stopped practicing open defecation in the city by using toilets at constructed either at individual household level or at community level. There seems to be discrepancy in this information.

Public and Community Toilets

Public toilets are installed at places with high footfalls like bus and railway stations, parking areas, and commercial complexes for use of the public. Whereas, the community toilets are shared and essentially constructed for the people who cannot afford owing individual toilet in their houses.

Public Toilets: Census 2011 indicated that 1,432 households were using public toilets (Sulabh toilets) in Udaipur city. The latest CSP indicates that there are 40-45 public toilets known as Sulabh Complexes in UMC (Sulabh International claims 40 are functional). Total numbers of toilet seats for both gents and ladies are 664 in these public toilets. Most of the public toilets are connected with Septic tanks. Water supply to the toilets is from both piped supply as well as from tube wells. The following map clearly shows that the concentration of public toilets/urinals is in the western part of the city and very few are in the east. This needs to be investigated in terms of development and requirements in the western part of the city.



Source: CSP- Udaipur

<u>Community Toilets</u>: CSP mentions that there are no community toilets in the city. It has provided the estimate for required numbers of community toilets in city. In CSP construction of 58 toilets

<u>Urinals:</u> There are 97 urinal complexes in city, majority of them are cement building and few are made up of fiber material (14 no.).

Faecal Sludge Management (FSM)

FSM – cleaning, transportation and treatment in cost effective manner is one of the areas of intervention under the AMRUT mission in cities. Udaipur is selected as an AMRUT city. The sewer network (or Underground Drains / UGD) coverage in the city is only 20 percent. This clearly indicates that majority of the population is dependent on onsite sanitation system (OSS) like Septic tanks, soak pits etc. in the city. The septic tanks require cleaning from time to time (usually 2 to 3 years). However, this depends on the efficiency of the tank. Limited information is available on economic models of FSM in the city. Some research indicates that cleaning of tanks at households, institutions, hotels etc. is done either by calling private operators or by applying for cleaning in the health department of the ULB. The charges for cleaning are higher by private contractors than ULB. However, ULB has limited resources to carry out this activity and therefore, this is mainly done by private operators in the city. The fecal sludge is discarded without any treatment to the identified dumpsite. However, this is also violated sometimes to save fuel cost and sludge is dumped in the nearby vacant lands, forested areas etc.

The public toilets in the city maintained by the Sulabh International are connected to Septic Tanks. However, the emptying and disposal mechanism is not clearly mentioned in any document. This needs to be clarified during the rapid assessment in the city for the current project. Since these are essential utilities in the city, the feacal sludge management mechanism needs to be explored as well as innovative technological interventions needs to be planned.

Hygiene - Information on water borne diseases, other disease profile in city

Not much information is available on these lines from the Secondary data analysis. This needs to be investigated from the city with latest information in line with project objectives.

3.8 City Development Plan and City Sanitation Plan

Secondary information of WASH sectors would be best available from the city documents. Master Plan, City Development Plan (CDP) and City Sanitation Plan (CSP) are three important documents for any city. Town Planning Department (TPD) under Urban Housing and Development, Govt. of Rajasthan is responsible for preparing the master plan document of Udaipur city. Master Plan document along with maps is available at the web portal of the TPD however; it is in regional language (Hindi).

a. City Development Plans

Two CDPs have been prepared for the city infrastructure improvement. First was prepared in year 2006-07 under JnNURM programme and latest in 2014 under CBUD project supported by MoUD and the World Bank. The latest CDP is prepared considering requirements for year 2041.

City Development Plan (CDP) prepared under the JnNURM programme of MoUD provides baseline information of Water, Sanitation Sectors of 65 cities of India. First CDP of Udaipur was prepared in 2006-07; it was prepared in consultation with UMC, UIT, PHED and PWD. NGOs, chamber of commerce, hotel association etc. were other important stakeholders. The vision of Udaipur was to have *a city of lakes that provides for its residents an environmentally friendly, economically vibrant ambience, providing large amounts and a variety of opportunities along with a sustainable infrastructure that takes care of all of its citizens giving equal importance to urban poor of the city*.

The CDP highlighted the need to conserve lakes, promote tourism and the heritage conservation. In the first CDP investment, emphasis was given on Water Sector followed by sewerage. The baseline information of first CDP indicated 74 lpcd water availability which has improved to 115 lpcd now. However, for Sanitation management not much improvement has occurred except construction of 20MLD STP with support from Hindustan Zinc Limited (PPP model).

During the first CDP preparation there were 58 slums identified in the city which has now reduced to 40 slums in city. There were 10, 572 HH during first CDP assessment and now it has reduced to 9,530 HH. Slums are either under the UMC or UIT administrative territory.

The Udaipur Municipality and the PHED have developed an innovation regarding water supply, which is not found in the other two cities. They have applied the 'Panghat' scheme to slums, normally offered by the PHED only in rural areas Up to 50 families can apply jointly for access to piped water supply on approval. Source- CDP, 2014

The comparison of first CDP and Second CDP clearly shows that the City has progressed from its previous status. This shows willingness of city officials as well as citizens' participation. However, Sewage management in the city is still not much improved.

b. City Sanitation Plan

Under the NUSP requirement CSP were prepared as strategic planning document for citywide sanitation improvement. Timeline for CSP is 30 years which has immediate (2013-16), short term (2016-18), mid-term (2019-28) and long term planning. The Udaipur city has prepared a sanitation plan. The plan is available on web portal of UMC and is prepared by NF Infratech Private Services Pvt. Ltd., New Delhi. However, the year of publication of the report is not available. It provides details on water, sewage, solid waste management and storm water drainage sectors in the city.

Various documents indicate that Udaipur city had public toilets between 15 to 19 and 3 urinals, which are now 40 to 45 and 6 respectively. Numbers of seats in these public toilets have increased from 406 to 664 in the last 10 years. This growth needs to be analyzed in terms of population increase and floating population changes in the city. In addition, it needs to be verified with national standards given under BIS/ CPHEEO for number of public toilets and seats requirements.

The CSP has, provided the framework of the community toilet which includes following: For the construction, O&M of public toilets is proposed with BOT (Built-Operate-Transfer) model.

- Need for a community toilet facility on self-sustaining basis.
- What should constitute community toilet facility
- The locations for establishing such facility
- How community toilet facility should be established and operated / maintained.

This background will be very much useful to implement the IHUWASH project with value addition in consultation with the city stakeholders.

3.9 SWOT Chart of Udaipur

Strengths	Weakness
• All National Missions – Smart City, AMRUT and SBM implemented in city • SPV already formed – Smart City Projects on Sewerage Management Started. PMC and PIU formed • State has Sewerage and Waste Water Policy recently rolled out (2016) • Active participation of Private industries, Udaipur Chamber of Commerce, other voluntary organization in Environmental movement in city • Latest CDP and CSP available for city providing recent data	• Udaipur Municipal Corporation formed recently 2013. Involvement of Para-Statal Agencies in city for Water and Sanitation (e.g. PHED) • City do not have Development Authority, but has Urban Improvement Trust • Service Level Benchmarks given not met

Opportunity	**Threats**
• Baseline Information is latest which makes easy to identify interventions • Innovation, Public Private Partnership (PPP) including hybrid annuity based PPP model encouraged in State Sanitation Policy • Tourism revenue can sustain the innovative start ups • City do not have any Community Toilet	• Eco-Sensitive (lakes and waterbodies) region in heart of city with high floating population in the city • 45 public toilets in city are managed by Sulabh International - Completion may affect Startups • 70 percent sewage is untreated in city which is alarmingly high • High dependency on OSS (septic tanks) • 18 percent open defecation reported in city

4.0 Mysore (Mysuru) City

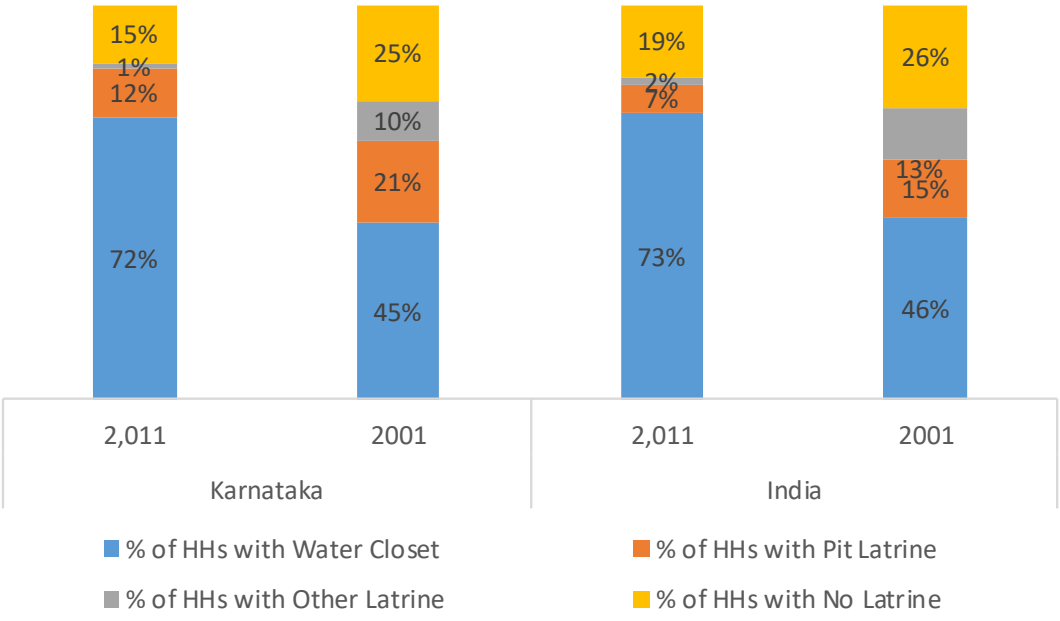
This city is educational, commercial and administrative centre of the state. It is the second largest city of state and an important tourist and heritage centre located only ~ 135km from capital city Bengaluru. City is located in foothills of Chamundi hills and is stretched in 128.42 sq. km area. As per census 2011, city has 893,062 population and there were 209,527 households in city. City is not included in the recent smart city mission but is part of AMURT mission.

4.1 Karnataka State - Urbanization

Earlier named as the State of Mysore, the south-west of Karnataka is the 9thmost populous state in India with a total population of 6,11,30,704 (representing 5 percent of India's population)[9]. The state covers 1.9 lakh sq. km. of area and is the 8thlargest state in the country in terms of area[10]. Its population density is about 300 sq. km. However, due to increased urbanization over the last decade (present urban population is ~39% and has increased by 31% between 2001 and 2011)[11], its towns require upgradation of basic water and sanitation infrastructure.

As per the last census (Census 2011), almost half (49 percent) of the state's population do not have access to latrines. Although in urban areas, the situation has improved over the period, about 15% of its population do not have access to latrines.

Access of Households to Toilets in urban Karnataka vis-à-vis India



Source: Census of India, 2011

Close to 14 percent of state's total urban population lives in slums. The percentage of urban slum population has increased to 5.0 percent from 4.5 percent of the total urban population between

[9] Source: Census of India, 2011
[10] Source: State Annual Action Plan, 2015-16
[11] Source: Census of India, 2011

the period 2011 and 2001, respectively. This reflects the need for improved sanitation services for people at the bottom of the pyramid.

Slum Types	Population	percent of Total Population
Total Population	3,291,434	14
In Notified slums[12]	2,271,790	10
In Recognized slums[13]	445,899	2
In Identified slums[14]	573,745	2

Source: Census of India, 2011

4.2 Status of National Programmes

Recognizing the need for urban development, government of Karnataka came out with two guiding documents, which determine the framework for its long-term planning and implementation, these are:

- State Water Policy (SWP)
- Karnataka Urban Drinking Water and Sanitation Policy and;

The State Water Policy guides on how to maintain, use and develop state's water resources and formulate strategies around it. The Karnataka Urban Drinking Water and Sanitation Policy ensures people's access to necessary water and sanitation services.

Atal Mission for Rejuvenation and Urban Transformation (AMRUT)

To actualize the spirit of cooperative federalism through making States and ULBs equal partners in planning & implementation of projects, Atal Mission for Rejuvenation and Urban Transformation (AMRUT) was launched by the Ministry of Urban Development, Government of India on 25thJune 2015. The purpose of this program is to:

- ensure that every household has access to a tap with assured supply of water and a sewerage connection;
- increase the amenity value of cities by developing greenery and well maintained open spaces (e.g. parks); and
- reduce pollution by switching to public transport or constructing facilities for non-motorized transport (e.g. walking and cycling).

Karnataka notified 27 of its cities[15] for implementation of AMRUT. One of the thrust area for the state under AMRUT has been sewerage development. Out of the total amount budgeted under

[12] Notified slums refer to all notified areas in a town or city notified as 'Slum' by State, UT Administration or Local Government under any Act including a 'Slum Act'

[13] Recognized slums refer to all areas recognised as 'Slum' by State, UT Administration or Local Government, Housing and Slum Boards, which may have not been formally notified as slum under any act

[14] Identified slums refer to a compact area of at least 300 population or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities.

[15]Bellary, Bidar, Gulbarga, Gangavathy, Raichur, Hospet, Belgaum, Dharwad, Bijapura, Gadag-Betageri, Bagalkote, Rannebennur, Tumkur city, Shimoga city, Bhadravathi, Chitradurga, Davanagere, Kolar, Robersonpet, Mangalore, Mandya, ***Mysore***, Hassan, Udupi, Chickamagalur, Bangalore and Badami

AMRUT (i.e. Rs 4,323 crores over 5 years ending 2019-20), 52 percent (Rs 2,266 crores) represents sewerage projects[16]. As per the State's Annual Action Plan for 2015-16, its focus within sewerage would include:

Sewerage

i. Decentralised, networked underground sewerage systems, including augmentation of existing sewerage systems and sewage treatment plants.
ii. Rehabilitation of old sewerage system and treatment plants.
iii. Recycling of water for beneficial purposes and reuse of wastewater.

Septage

i. Fecal Sludge Management- cleaning, transportation and treatment in a cost-effective manner.
ii. Mechanical and biological cleaning of sewers, septic tanks, and recovery of operational cost in full.

With the above effort, the state endeavors to achieve 100 percent (presently 75 percent) coverage of latrines (individual or community); 87 percent (presently 45 percent) coverage of sewerage network services; 87 percent (presently 37 percent) efficiency of Collection of Sewerage and 93 percent (presently 40 percent) efficiency in treatment by the end of 5 years[17]. As of January 2017, state has a total 49 UGD schemes, out of which 8 were scheduled to be completed in 2016-17. A total of 27 projects (including 14 water supply and 13 UGD projects) costing Rs 865.41 Crore is targeted for commissioning during 2017-18[18].

Swachh Bharat Mission

With the vision to ensure hygiene, waste management and sanitation across the nation, the "Swachh Bharat Mission" (SBM) was launched by the Government of India. The core objectives of SBM include:

- To eliminate open defecation
- To eradicate manual scavenging
- To modernize Scientific Municipal Solid Waste Management
- To effect behavioral change regarding healthy sanitation practices
- To generate awareness about sanitation and its linkage with public health
- To augment capacity for ULB's
- To create an enabling environment for private sector participation in Capex (capital expenditure) and Opex (operation and maintenance)

The mission endeavors to implement its objectives by constructing household toilets (including conversion of insanitary latrines into pour-flush), latrines, community toilets, public toilets, etc. In Karnataka, under SBM, applications for 297,923 Individual Household Latrine (IHHL) has been received, leading to construction of 1,617 PTBs, 1,933 CTBs and 52,419 toilets[19].

[16] Source: State Annual Action Plan 2015-16
[17] Source: State Annual Action Plan 2015-16
[18] Source: MPIC January 2017
[19] Source: Swachh Bharat Mission website as on 21-Mar-2017

Smart Cities Mission: Mysore is not Smart City. Six cities of Karnataka namely, Belagavi, Davanagere, Hubli-Dharwad, Mangaluru, Shivamogga and Tumakuru have been selected under Smart Cities Mission.

Select ongoing State Government Sewerage Projects

North Karnataka Urban Sector Investment Programme (NKUSIP)

NKUSIP was conceived to reduce economic imbalance between different regions and boost economic growth for the geographies that has traditionally lagged behind (especially focusing on Northern Karnataka). One of the key component of the project included provision for environmental sanitation infrastructure including sewerage, sanitation and urban drainage. As of January 2017, 76 contracts amounting to Rs 1,404 Crores has been completed, out of 130 contracts are worth Rs 2,266 cr[20].

JALASIRI

The aim of this program is to develop infrastructure, which can cater 24x7 water supply; and expansion of sewerage system (including treatment and safe re-use). Out of the three towns covered under this program (Davanagere, Harihara and Byadgi), the progress achieved so far are:

S.N.	Name of the town	Name of Work	Physical Progress	Financial Progress
1	Davanagere	Expansion of sewerage system	24 percent	20 percent
2	Davanagere	DBO of two STPs (20 MLD &5 MLD)	43 percent	34 percent
3	Harihara	Expansion of sewerage network & construction of 18 MLD STP	43 percent	40 percent
4	Byadgi	DBO comprehensive sewerage system & construction of 5 MLD STP	10 percent	9 percent

Source: KUIDFC

Institutional Structure

In order to operationalize above policies and various projects / schemes under them, state has following parastatal bodies and departments:

- Karnataka Urban Water Supply and Drainage Board (KUWS&DB): responsible for helping all ULBs (except Bengaluru) in the state in implementing water and sanitation projects.
- Bangalore Water Supply & Sewerage Board (BWSSB): responsible for implementation of all the water and sanitation projects in Bengaluru.
- Urban Development Department, Government of Karnataka (UDD): responsible for overall planning and monitoring of urban infrastructure projects in Karnataka.
- Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC): a public limited company responsible for preparing, formulating and implementing projects, schemes and programmes relating to infrastructure development in the urban areas of the state and to provide technical, financial, consultancy and other assistance to urban bodies for development, schemes, including implementation of master plans.

[20] Source: KUIDFC

- Karnataka Municipal Data Society (Municipal Reforms Cell): responsible for maintaining databases and support implementation of reforms.

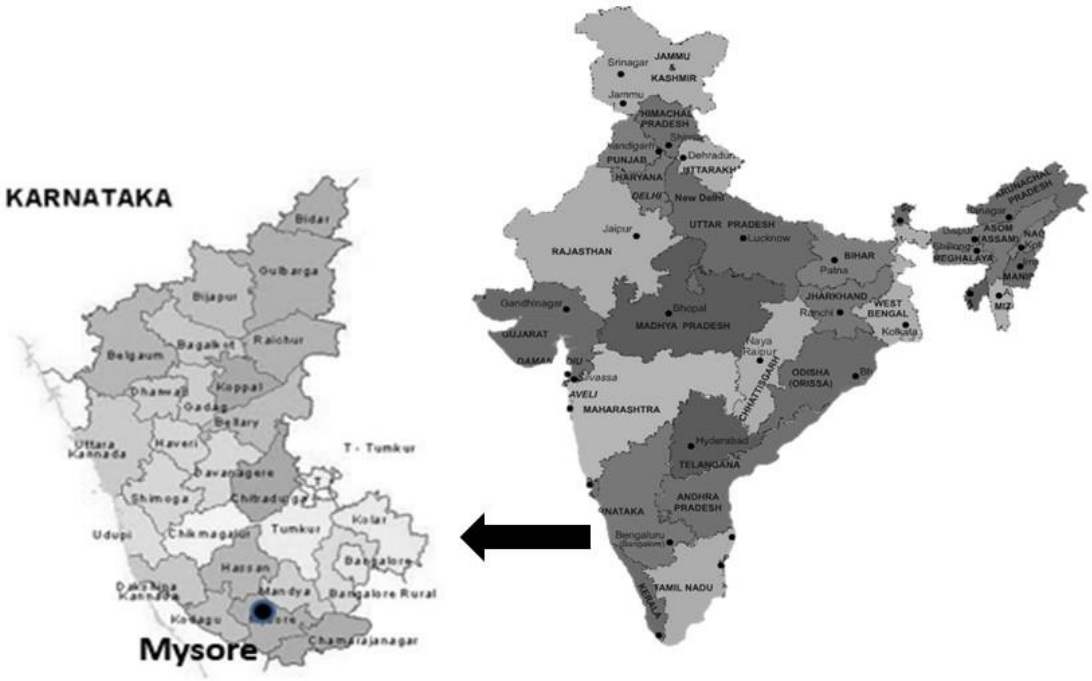
4.3 Mysore City Profile - General

Population

With a total population of 3,001,127, Mysore (E 76.60 - N 12.26) is the third largest district in Karnataka (4.9 percent of the state) in terms of population and second largest in terms of urban population (41.5 percent), after Bengaluru. Mysore is situated in the south of Karnataka at the base of Chamundi Hills with an area spanning 6,307 km^2 and a density of 476 / km^2. A brief profile of Mysore district and city is presented in the table below.

Parameter	Mysore District	Mysore City
Total Population	3,001,127	893,062
Total Households	700,968	209,527
Urban Population	1,245,413	
Urban Households	294,016	
Urban population	41.5 percent	
Decadal growth	13.6 percent	13.7 percent
Sex ratio total	985	997
Sex ratio urban	996	
Total area km^2	6,307	128
Urban area km^2	207	
Population density total	476	6,977
Urban population density	6,016	
Total towns	19	

Source: Census of India, 2011



Spread over 65 wards, Mysore city is the headquarters of the district and the Revenue Division. Moreover, more than 1/4th of total district's population and close to 3/4th of district's urban population resides in Mysore city. Consequently, Mysore city, which is situated at the northeast of the district, is the center of all economic activities. As it houses the famous Mysore Palace, it attracts a number of tourists also. As per the last reported Domestic Tourism Statistics for the state of Karnataka over 1.4 million-visit Mysore annually (including over 43,000 foreign tourists). Following map shows the geographic location of Mysore city in India.

Economy

There are many interesting tourist places in the city including pilgrimages, sculptures, reserved forests, etc. A number of tourists visit the city during its 10-day Dasara Habba celebrated with pomp and gaiety every Navaratri (in September-October). Mysore is also famous for its silk industry, sandalwood and Mallige (Jasmine flower). In addition to its multiple industrial zones such as Hebbal, Metagalli, Belagola, Belavadi and Hootagalli, Mysore is being developed as second IT city in the state after Bengaluru. Such development has resulted in increase in its urban population.

4.4 Urban Poor Status

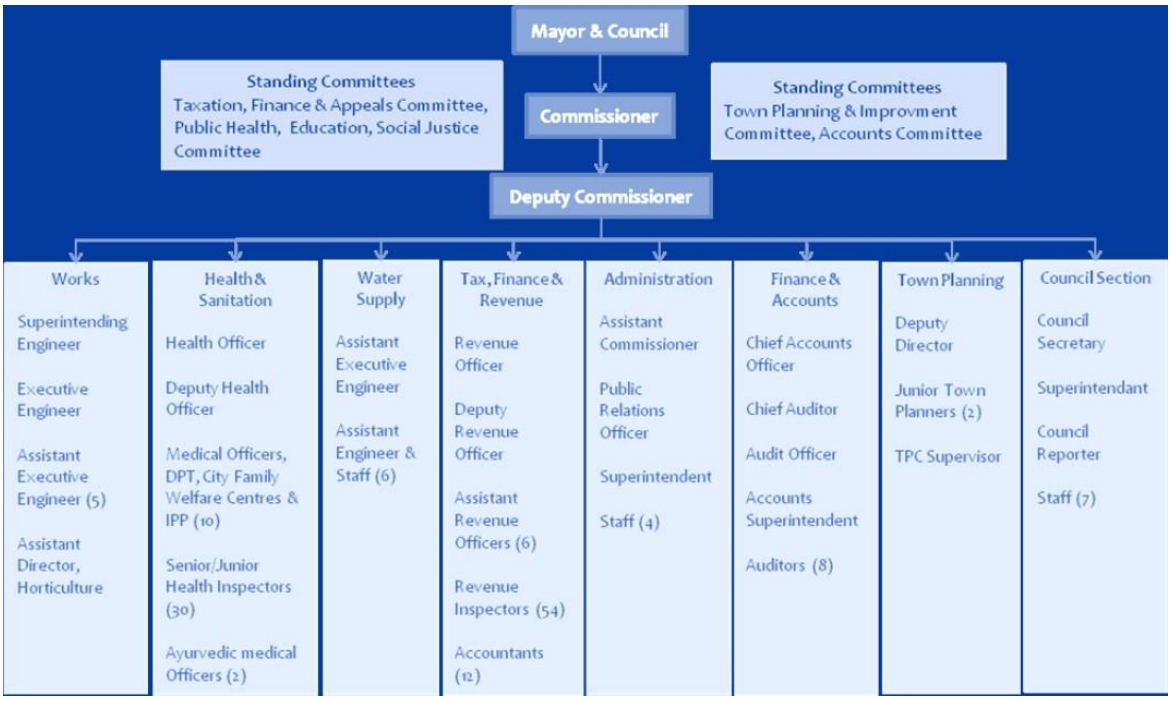
As per the Slum data received from District Census Handbook, 2011, Mysore city has 70 slums with 10,375 households comprising a population of 51,224. Sixteen of these slums are non-notified and remaining 54 are notified. Provision of basic water and sanitation facilities to these slums have been discussed separately in sections below (WASH PROFILE).

Institutional Set up–Mysore

Mysore City Corporation (MCC)

Mysore city is governed by the Mysore City Corporation forming the city legislative branch, headed by a Mayor. The Commissioner, Health Officer and Engineers in charge for efficient of water supply and sanitation, solid waste management and health issues form part of the executive branch.

MCC is a local-self-government institution constituted under the Karnataka Municipal Corporation Act, 1976. It was converted as MCC on 10th June 1977. A combination of civic and parastatal organizations caters to the basic needs of Mysore. MCC is responsible to provide and maintain roads, water supply, sewerage system, street lighting, establishing markets and shopping areas, development of parks and water bodies, solid waste management. However, planning, design and construction work relating to water supply and sewerage are managed by KUWSDB; and their O&M managed by MCC. The organizational structure of the MCC is depicted below. [21]



Mysore Urban Development Authority

Mysore had a City Improvement Trust Board(CITB)set up in1903, which was amalgamated with Local Planning Authority of Mysore to form Mysore Urban Development Authority (MUDA) on 16th May 1988. MUDA is responsible for planning and implementation of development activities in Mysore city. It has seven departments – engineering, town planning, land acquisition, finance, law, general administration and auction.

[21] Source: Mysore City Sanitation Plan 2011

List of Select Projects in Mysore

Mysore has been one of the cities, which has worked closely with international donor agencies and tried new business models to execute its projects. Some of the key projects executed at Mysore have been:

- Development of three Sewerage treatment plant (STP) of 157.7 MLD capacity with ADB assistance (part of KUIDP). STP A&D is located in Rayanakere, H.D. Kote road having a capacity of 60 MLD. The STP- B is located in Vidyaranyapuram having a capacity of 67.5 MLD and the STP - C is in Kesare village having a capacity of 30 MLD.
- Development of 24/7 Water Supply with Jamshedpur Utilities and Services Company on PPP. Although the project envisaged to provide all households 24/7 water, but due to challenges relating to billing the project could not move as planned.
- 200-250 TPD Solid Waste Management (SWM) O&M of Processing facilities on PPP: The project is under operation and is for 3 years and has been awarded to IL&FS.
- Some of the other PPP projects which are under pre-feasibility stage or are under construction are[22]:
    - Development of Commercial Complex at Makkaji chowka, Mysore on PPP
    - Development of 90-125 TPD Sanitary Landfill on PPP
    - Development of Commercial Complex at Gadi chowk in Mysore City on PPP

As can be observed from the above list that Mysore is no short of private sector investment, if the project risks are balanced properly. This could help explore PPP options under different IHUWASH project components.

Academic Institutions and Industries

Karnataka is the hub of some of the prestigious institutes and universities of India. Indian Institute of Sciences, Bengaluru; Manipal University; Visvesvaraya Technological University, Belgaum; Bangalore University; University of Mysore, etc. to name a few. Due to emergence of Karnataka as a leader of Indian IT industry, technological innovations have been at forefront of research in these institutes. Mysore which is in proximity to Bengaluru (143 km), is easily accessible to some of these prestigious institutions.

One of the important components of the IHUWASH project is incubation of innovative ideas in the guidance of established research institutes. Mysore being one of the earliest cities to try innovations (one of the earliest city to have underground drains, try 24/7 water supply on PPP), and due to its locational advantage (proximity to renowned technological institutions), could lead the innovation amongst all the three cities. Moreover, learning from Mysore's early experiments can be used for cross-learning in other cities.

Although Mysore is famous for its silk industry, sandalwood and Mallige (Jasmine flower), the city is also home of manufacturing units of some of the leading companies in India. Some of them are:

- Automotive Axles Ltd. - Manufacturer of axles
- Bharat Earth Movers Ltd. (BEML) - Manufacturer of heavy machinery

[22] Source: Infrastructure Development Department, Karnataka (23-March-2017)

- Karnataka Silk Industries Corporation (KSIC) - Manufacturer of silk garments
- TVS Limited - Manufacturer of motor vehicles and parts (Near Nanjangud, Mysore Taluk)
- L&T Ltd. (Manufacturer of medical equipment and Electronic meters)

Some of the other national and international names which have their plants in Mysore district (around Mysore city) are:

- Nestle India Ltd
- Reid & Taylor
- AT&S India Pvt Ltd.
- Brakes (India)

Off late, Mysore has emerged as the next IT hub in Karnataka, after Bengaluru. Some of the leading IT companies have set up their offices in Mysore. These are:

- Infosys Technologies
- Larsen & Toubro
- Wipro Infotech
- Quantum Infotech
- IBM
- Tata Consultancy Services
- HCL

Some of these organizations could be partnered for supporting in promoting WASH Innovations in the city.

4.5 City Profile - WASH

4.5.1 Water Supply

Mysore, being close to rivers Cauveri and Kabini, never had to worry about its water supply. At present the city draws water from Cauvery River. The head works are located at various locations down stream of Krishnarajasagara Reservoir (KRS). The sources of water from where city draws water are Hongally Water Supply Scheme (I, II & III stage), Belgola Water Supply Scheme and Melapur Water Supply Scheme. The current installed capacity of all these plants are 311 MLD. In 2012, another water supply scheme, with capacity of 60 MLD, was commissioned from Kabini River with head works located near Bidagudu village. However, the ultimate design capacity of later scheme is 184 MLD.

The service levels of water supply in Mysore are summarized in below table:

SN	Indicators	Present status	MOUD Benchmark
1	Coverage of water supply connections	71	100 percent
2	Per capita supply of water	122	135 LPCD
3	Extent of metering of water connections	34	100 percent
4	Extent of non-revenue water	66	20 percent
5	Quality of water supplied	100	100 percent
6	Cost recovery in water supply services	40	100 percent
7	Efficiency in collection of water supply related charges	70	90 percent

Source: Mysore Service Level Improvement Plan

City's CSP mentions that in 2011 there were around 25 wards (in west zone) namely, ward No. 5, 22, 23, 24, 40, 41, 42, 43, 44, 45, 46, 48, 49, 50, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63 and 65 which used to get water supply every alternate day, but at present city claims to have 71 percent connections.

***Water quality*:** Although, city's sanitation plan also reports high instances of gastroenteritis and diarrhea in Mysore, which could be due to water quality, at present city claims to have 100 percent water quality.

The above claims may be examined in detail during rapid assessment at the field.

***Water Supply in Slums**:* Presently, Vani Villas Water Works supplies piped drinking water in slum areas. As per CSP, majority slum population (56 percent households) access water from public taps. However, some (31 percent) households have individual connections. The balance households rely on tube well and open well.

The key issue of city's Water Supply remains the self-sustainability of the system as it lacks metered connections, has high non-revenue water and poor cost recovery.

4.5.2 Sanitation[23]

Ministry of Urban Development carried our rating exercise of cities for Sanitation in 2009-10. Mysore was ranked number 2 out of 423 cities ranked in the country. It scored 70.65 marks and was categorized Blue, which means city is "Recovering but still diseased". Recently Swachh Bharat Mission (Urban) did Swachh Survekshan in year 2016. Mysore city ranked number one in this survey. Presently, the sanitation conditions in the city is much better compared to other cities in India. As per 2011 Census, Mysore had expanded and developed its sanitation infrastructure to provide network sewerage connectivity. In fact, Mysore is one of the earliest city to have underground drainage. Summary of Mysore's sanitation infrastructure are provided in the table below:

Mysore City	Data (%)
HHs with Flush / Pour Latrines connected to piped sewer system	201,652 (96.24)
HHs with Flush / Pour Latrines connected to septic tank	1,257 (1.60)
HHs with Flush / Pour Latrines – other systems	671 (0.32)
HHs using pit latrine with slab / ventilated improved pit	1,466 (0.70)
HHs using pit latrine without slab / open pit	344 (0.16)
HHs using service latrines: Night soil serviced by animals	190 (0.09)
HHs with no latrine, using public latrines	2,126 (1.01)
HHs with no latrine, open defecating	1,742 (0.83)
HHs whose waste water outlet is connected to closed drains	197,017 (94.03)
HHs whose waste water outlet is connected to open drains	9,477 (4.52)
HHs whose waste water outlet is connected to no drains	3,033 (1.45)

Source: Census of India, 2011

[23] Source: Census of India, 2011

However, as per the latest baseline reported by the state government under its annual action plan (2015-16) under AMRUT, Mysore city has 97 percent coverage of latrines, 70 percent efficiency in collection of sewerage and 100 percent efficiency in sewerage treatment. Hence, in AMRUT, Mysore does not have any project focusing on sanitation and sewerage.

Although, Mysore seems to have a developed infrastructure, their actual condition and use could be determined after detailed rapid assessment at field. Even the CSP recognizes the gap between actual scenario and secondary data.

Excerpts from CSP

Other than UGD, few are connected to septic tank with/without soak pit amounting to 12679 (6820 in non-slums and 5859 in slums) and the household toilets connected to the open nala are 1270. However, field investigations indicated that many resort to open defecation despite they have UGD facility as toilets are not used and many converted them to some other use. Even SLB indicators present different picture. This shows a lack of information base and regular updation pertaining to sanitation.

Sanitation in Slums

As per the Slum data received from District Census Handbook, 2011, Mysore city has 70 slums with 10,375 households comprising a population of 51,224. Sixteen of these slums are non-notified and remaining 54 are notified. However, the analysis of data used in CSP and that in Census, 2011 presents two different pictures. As per CSP (which is based on information obtained from Karnataka Municipal Reforms Cell, DMA, GoK), "*Approximately 9,164 of the total slum households are having sewerage connections, septic tanks and pits for their toilets. However, according to Asha Kiran Mahiti details, around 1,216 (12 percent) of the total slum households practice defecating in open areas.*"

Sanitation facility	Households	Percentage
Public pit	515	5.0
Shared septic tank	710	6.8
Shared pit	1,011	9.7
Public septic tank	1,096	10.6
Own pit	1,779	17.1
Own septic tank	4,053	39.0
Open defecation	1,216	11.7
Total	**10,380**	**100.0**

Source: Mysore CSP, Karnataka Municipal Reforms Cell, DMA, GoK

As per Census, there are 52 private latrines-pit latrines, 3,556 private latrines-flush/pour flush latrines, three other private latrines and 559 private community latrines, serving 10,375 households of 70 slums.

As per the CSP, there were no community toilets in Mysore then and it required at least 87 seats spanning various slum areas to be ODF. The details of which are summarized in the table below.

S.N.	Slum Category	Ward no	Population for community toilets	Estimate of toilets seats of community toilets		
				Required	Existing	Balance Required
1	Slums with low OD	23, 30, 32, 33, 34, 35, 42, 46, 59, 10, 11 and 29	5 percent population	7 seats	No	7 seats
2	Slums with high OD	4, 9, 12, 28, 44, 45, 47 and 48	20 percent population (1,200 people)	30 seats	No	30 seats
3	Non Slums with moderate OD	5, 13, 31, 39, 49, 50, 51, 52, 54, 55 and 61	10 Blocks (5 seats each)	50 seats	No	50 seats
	Total					**87 seats**

Source: Mysore City Sanitation Plan, 2011

However, as per Census 2011 data, close to 35 percent households in slum areas have access to private flush or pit latrine and a large majority of households have to rely on private community latrines. Since both the above data relates back to 2011 and in the meantime, Mysore has developed 702 community toilets and 68 more community toilet are under construction, under Swachh Bharat Mission[24], the actual conditions of such toilets, their use, actual need at ground (as per standards) and the respective change in community behavior can only be gauged after detailed rapid assessment at the field.

In addition to the requirements of community toilets, analysis of the Census data also reflects that the majority (3/4th) of the toilets in slums are still not connected to closed drains. This may lead to serious health hazards. The same will be confirmed during rapid assessment.

Open Defecation

Although, at present based on Swachh Sarvekshan, city claims to have ODF status, as per its last reported data in CSP, it had close to 1,216 households which defecate in open areas. Some of the wards (Ramachandra Agrahara, Ashokapuram, J.P. Nagara, Kumbara koppalu, Bannimantapa, Bannimantapa Hudco badavane, Subhash nagara and Rajendra nagara) where high percentage (over 20 percent HHs engaged in OD) of OD was observed during previous studies, will be taken up for field investigation to assess actual situation during rapid assessment.

Public Toilets

Mysore being a tourist destination and an emerging IT hub, needs a good network of public conveniences. At the time of developing its sanitation plan, Mysore had 33 public toilets comprising 200-235 seats. These public toilets in Mysore are being maintained by MCC, private agencies and NGOs. The CSP envisaged a need to construct an additional 17 public toilets. Off late, the city has added 73 public toilets and another 28 public toilets are under construction, under

[24]Source: Swachh Bharat Mission website (as of March 21, 2017)

Swachh Bharat Mission[25]. The data from SBM is substantially higher than the need determined under CSP. Therefore, such gaps will be delved in detail during rapid assessment.

Sewage Management[26]

Mysore was one of the earliest cities to have underground drainage in India with a system in place back during 1904. The comprehensive UGD scheme was taken up in 1955 with 11.3 lakhs sanctioned by the government under National Water Supply & Sanitation Scheme. Three sewage treatment plants with total capacity of 157.65 MLD were constructed through ADB funds in 2002. Details of these plants are presented in the table below:

Drainage district serving and location	Plant Capacity in MLD	Wet Wells	Drainage area covered (km^2)	Length of trunk sewers (km)	Areas	Flows to
Drainage A & D at Rayankere	60.0	• STP Campus • Besides drainage district D	54	20.4	RMP Nagar, Quarters and Aravind, VV Mohalla and Janatha Nagar	Daily flow of 38-44 MLD on an average and output flows to Yannehole kere.
Drainage B at Nanjangud Road, Vidyaranyapuram	67.7	• J. P. Nagar • STP Campus	34	16.2	Surrounding areas of Kabeer road, Ashokpuram, Dhanavanthri Road, CFTRI, Chamaraja Double Road, JSS, Kanakagirinagar and Gundu Rao Nagar	Daily flow 45-48 MLD on an average and output flows to Dalavai kere.
Drainage C at Kesare	30.0	• Hebbal • Siddiquinagar • STP Campus	30	16.8	Surrounding areas of Yadavagiri, Kumbara Koppalu, B.M.Shree Nagar, Metagalli, Pulikeshi road, C.V Road, Subash Nagar, Kesare, Hebbal 1st stage, Adhidravada Paurakarmika Colony, CFTRI Quarters, Rajivnangar 3rd stage, V.V. Mohalla, Gokulam, Gandhinagar,	Daily flow 14-16 MLD on an average and output flows to Mirza channel.

[25]Source: Swachh Bharat Mission website (as of March 21, 2017)

[26] Source: Mysore City Sanitation Plan 2011

					Sathyanagar, Hebbal	
	157.7		**118**	**53.4**		

Source: Mysore City Sanitation Plan, 2011

4.6 Assessment of important City Documents

City Sanitation Plan

The National Urban Sanitation Policy (NUSP) 2008 envisaged "*All Indian cities and towns become totally sanitized, healthy and livable with a special focus on hygienic and affordable sanitation facilities for the urban poor and women.*" NUSM mandated ULBs to have a City Sanitation Plan (CSP) and consequently, Mysore City developed its CSP with the following objectives:

- To achieve better sanitation, addressing the issues of spatial imbalances especially in slums and peri-urban areas in access, treatment of wastewater, solid waste management, etc.
- To carry out consultations with all concerned stakeholders and bring consensus on the strategic approach to safe and environmental sanitation practices and adopt locally suitable methods, technology and materials.
- To work out the institutional and financial implications of managing urban sanitation and ensure an optimum use of funds allocated under various schemes so that the agencies may align their plans on similar lines.
- To encourage community and private participation and define their role in creation and maintenance of sanitation infrastructure, thereby ensuring a sense of ownership and behavior change.

Some of the key findings of the CSP (based on data of Census 2001) were:

- City's population to increase three-fold by in next 20 years (by 2045) to 2,426,461.
- The city's development is highly slanted towards south, including the industrial areas located in Nanjangud. The Northwestern part of the city is developing as the Industrial area mainly Hebbal Industrial Area with major industries like JK Tyres, Infosys, Wipro, etc., coming with their campus.
- There are totally 69 identified slums in Mysore comprising 53 notified and 16 non-notified slums. The total population of these slums in the city is 46,776 (5 percent of total population) with 10,380families (5 percent of total households). *However, as per 2011 Census, the city has 70 slums (54 notified and 16 non-notified) comprising a 10,375 households (5 percent of the total households) and a population of 51,224 (6 percent of the total population)*.
- Majority of the public toilets in use are not maintained properly due to the non-capability or the mindset of slum dwellers to pay and use concept which is a successful practice in the areas having floating population (Source: DPR, BSUP).

City Development Plan (CDP)

In order to conceptualize the city's development under Jawaharlal Nehru National Urban Renewal Mission (JNNURM), the city developed its CDP. Amongst many things, CDP lays out the roadmap for improvement in water supply and sanitation in city, including its slum areas.

As per the CDP, Mysore's STP capacity was 157.65 MLD, which was designed as per requirements of the city in 2011. Its STP in district B had a capacity to cater the population until 2036, whereas STPs in other part of city needs augmentation in capacity. There was a pre-feasibility conducted to set up a Tertiary Treatment Plant (15 MLD) to further treat secondary treated sewage water from the Kesare STP on PPP. The status of same needs to be verified during the rapid assessment. At present, in AMRUT, Mysore does not have any project focusing on sanitation and sewerage. The two projects it endeavors to complete relates to Water Supply, details of which are:

- Rehabilitation of water supply distribution systems in balance 22 DMAs, providing SCADA and IMIS – Rs 167.75 Crore
- Construction of 2 no. of 15 LL capacity RCC Overhead tank on 15 meter staging at Yadavagiri (HLR) and CSR, Vijayanagara – Rs 3.45 Crores

4.7 SWOT Chart of Mysore

Strengths	**Weakness**
• State has Urban Drinking Water and Sanitation Policy • Municipal Corporation status achieved in 1977, minimum involvement of para-statal agencies • City is in proximity of Bangalore city and important academic institutes are nearby. • Despite of high numbers of slums in city (70), open defecation is very less	• City could not be in the list of Smart City list only AMRUT and SBM implemented in city • High numbers of Slums in the city • Dependency on the OSS system in poor colonies • No Community toilets in the city only Public toilets are constructed
Opportunity • Potential to experiment innovations in the city due to high awareness level at all level. City ranked 1st in Swachh Survekshan list 2016. • High potential for active involvement of government agencies both at State and City level for WASH Park and WASH lab • Presence of many private famous industries (e.g. TVS motors, L&T) which could be potential candidate for CSR	**Threats** • City has already achieved Sanitation targets and might not show interest • High tourist influx in the city • No financial resource allocation for Septage management plan indicated in the AMRUT SAAP

List of documents referred to prepare this document

1. Dept. of Local Self-Govt. (2016): State Sewerage and Wastewater Policy. Govt. of Rajasthan
2. MoUD (2014): City Development Plan for Udaipur -2014; Capacity Building for Urban Development Project.
3. Census of India (2011): District Census Handbook
4. Draft - Rajasthan Urban Development Policy (2015)
5. Draft - Rajasthan Urban Water Policy (2016)
6. NF Infratech Services Pvt. Ltd. Draft – City Sanitation Plan of Udaipur City
7. Dept. of Local Self-Govt. (2015): State Annual Action Plan (SAAP), Rajasthan State; Govt. of Rajasthan
8. District Census Hand Book, Mysore
9. Mysore City Sanitation Plan 2011
10. Census of India, 2011
11. Mysore City Development Plan
12. State Annual Action Plan, 2015-16
13. MPIC January 2017
14. City Development Plan (2006-2012) of Faridabad.
15. State Annual Action Plan, Haryana. Haryana – 2014
16. Swach City Plan, Faridabad