



ISSUES FOR DISCUSSION

CASE STUDY OF SANITATION IN SATARA NAGAR PALIKA



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TOWARDS CITY WIDE SANITATION

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POLICY BRIEFS



Satara, a small city of about one lakh thirty thousand in Maharashtra, holds key lessons for managing sanitation in other small and medium sized towns in India. It provides examples of both success stories as well as unexplored opportunities that should have significant bearing on policy and planning in the sector.



INTRODUCTION

Satara is the district capital of Satara District in Maharashtra. The district is located in the western part of the state, bounded by the districts of Pune in the north, Raigarh and Ratnagiri in the west, Sangli in the south and Sholapur on the east. The city is 2320 ft. above sea-level, near the confluence of the major Deccan river Krishna and its tributary, Venna. The city was established in the 16th century, and was the capital of the Maratha empire. The city itself is bounded on the north by the Pune-Satara road, on the west by the hilly terrain of the western ghats, on the south by the Ajinkya fort and on the east by an extension of the hill fort.



SOCIO-ECONOMIC PROFILE

Satara is a trade and commerce centre catering to the trading of agricultural produce of the region. The district lies in the economically rich western sugarcane belt of the state. There is also a small industrial estate developed by MIDC close to the city limits.

The region is a political stronghold of the Nationalist Congress Party (NCP) and the Indian National Congress; all 39 municipal councillors in Satara city are currently from the NCP and it also lies in the constituency of the current Chief Minister of the state. This has implications for the financial health of the municipal body of the city and the state government schemes operational in the region.

DEMOGRAPHICS

Satara city had a population of 1,20,195 as per Census 2011 which has increased to 1,27,684 according to current Nagar Palika estimates. Decadal growth of the city has been around 10% during the last two decades, largely due to birth/ natural growth with minor migration element.

There are 14 main slum pockets with 1025 slum households out of a total of 27,056 city households as per Census 2011(3.8 %). However the National Urban Health Mission PIP (2013-14) for which a city wide survey was carried out estimates the slum population to be approximately 23,350 (19.5 %). The two figures thus are difficult to reconcile. A possible explanation for the discrepancy is the different definition of slums used by the two teams- the census and the Nagar Palika.

SATARA NAGAR PALIKA

The Satara Nagar Palika has 10 electoral wards divided into 39 zones. The legislature has 39 councillors, 4 from each zone except one from which there are three. The executive branch is headed by the Chief Officer who is an officer of the Maharashtra municipal services. He is assisted by qualified engineers, town planners, sanitary inspectors, accountants and clerical staff in carrying out the functions. The total staff strength of the Nagar Palika is 506. The field staff today is largely contractual.

SATARA CITY PROFILE

AREA	8 SQ. KM
DENSITY	14925 PERSONS PER SQ. KM.
TOTAL POPULATION	127684
NUMBER OF SLUM SETTLEMENTS	14
SLUM POPULATION	23349 (19.5 %)
TOTAL HOUSEHOLDS	27056
SLUM HOUSEHOLDS	1025 (3.8 %) (CENSUS 2011)

Source: Satara Nagar Palika, 2013

OVERVIEW OF BASIC SERVICES PROVISION BY ULB

The basic services provided by the Nagar Palika for the total and the slum populations as per Census 2011 are as follows-

	Total	Slums
Coverage of water supply connections	93.7 %	59.1 %
Household level coverage of solid waste management services (2012-13 ULB data)	98.9 %	58.9
Intra-household Latrines	77.7%	19.1%
Public Toilets	20.3%	43.5%
Open Defecation	2.0%	37.4%

WATER SUPPLY

Water supply in Satara is managed by two institutions- one is Maharashtra Jeevan Pradhikaran (MJP), which is a para-statal agency under the state government water and sanitation department and the other is the Satara Nagar Palika. More than 98% of the total population have access to water supply connections. MJP supplies water to about 30% of the city area, while the Satara Nagar Palika serves about 60-70% of the city's area. In the future, the entire city is planned to be covered by the Nagar Palika, transferring the function from the MJP. Also, there is a trishanku peri-urban area having a population of about an estimated 30000 people that is outside the municipal boundary and is served by the MJP. There are three sources of drinking water supply for the Satara city- (1) Kas dam (2) Shahapur dam on Urmudi River (3) Krishna river. Among these three sources, Kas dam and Shahapur dam is managed by the Satara Nagar Palika and Krishna river source is managed by the MJP.

The quality of services however leaves much to be desired. At present the supply is only there for one hour per day. The extent of metering is also very limited leading to a low-cost recovery for the Nagar Palika and the MJP. (PAS, 2013)



Satara Water Supply

70% city population (within municipal limits)	Source Kas Dam and Shahapur Dam (Urmudi river) Agency Satara Nagar Palika
30% city population (within municipal limits)	Source Krishna River Agency MJP
~ 30000 peri-urban Trishanku population (outside municipal limits)	Source Krishna River Agency MJP

SANITATION

SOLID WASTE MANAGEMENT

Before 2004 solid waste management was done by the Nagar Palika itself using its regular staff. Since 2004 it has outsourced these services to private contractors on a zonal basis. Thus there is one contractor for each of the 39 electoral zones. The services are provided on a door to door basis in the both non-slum and slum areas via 'ghanta-gadis'. The collection of garbage in the slums is less efficient than the non-slum areas but nevertheless the fact that the arrangement is successful is evidenced by the surface cleanliness of the city.

There are no user charges for the service. There is also no segregation at the household or shop level. The solid waste is transported to an open dump site in Songaon, about 11 kms from the city limits. The site has been enclosed by a wall. There is also no formal arrangement for segregation at the dump yard itself. However there are informal rag-pickers who segregate various materials like plastic, glass etc. and burn the remaining waste after.

The PPP model works on a collection and transportation basis. The rate of monthly payment in the yearly contracts

depends upon the distance each contractor has to transport the garbage from his zone to Songaon, the dumping site. The rates vary between Rs. 12000 to 15000 per month.

Street cleaning - This is undertaken by the Nagar Palika directly, either by its regular workers or those directly contracted by it.

BIOMEDICAL WASTE MANAGEMENT

Since 2008, the biomedical waste management from most hospitals, health centres and clinics, both public and private, in the district has been outsourced to a private contractor. The service covers 75% of Satara district and includes 20 hospitals and clinics within the city. The waste is collected daily from the healthcare facilities and transported to the treatment facility which is co-located at the main 'kachra depot' (garbage dump) of the city at Songaon, about 6 kms outside the municipality limits. A total of approximate 25-27 tonnes of waste is treated at this plant every month. The plant is functioning as per CPCB guidelines.

SEWERAGE AND SEPTAGE MANAGEMENT

The table below shows the 2011 census figures for Satara city.

The census data on several indicators was not in consonance with the findings in this study. The figures

	Total	Slums
Total Population	120195	4570
Total households	27056	1025
In-House Latrines %	77.7%	19.1%
Sewerage %	13.3%	0.8%
Septic Tanks %	61.3%	18.2%
Public Toilets %	20.3%	43.5%
Open Defecation %	2.0%	37.4%

for sewerage in Satara was one such indicator. There is no piped sewerage network in the city as per the Nagar Palika officials or the records even as census gives a 13% figure for this. The error may be due to self reporting nature of the census data.

Another major discrepancy was found in the data on slum population as indicated earlier. But even by census figures themselves, although slums do not form a high proportion of the total population, the sanitation conditions in these areas is deplorable. Less than 20% of slum households have toilets within the houses while almost 38% are forced to defecate in the open. These open defecation sites are spread throughout the city with greater concentration in the fringe areas and some inner city localities.

As is the case throughout urban India, about 61% of the total households in Satara city have septic tanks. These should ideally be regularly managed with a formal arrangement between the households and the Nagar Palika. In Satara though, as in most Indian cities, there is no formal septage management by the municipality. There is no routine monitoring of the septic tanks being done as recommended by the MoUD's septage management advisory. Instead an informal mechanism exists whereby the Nagar Palika uses its single vacuum emptier truck to de-sludge the individual household septic tanks as and when called upon by the households. It charges Rs. 350 per tank for this service within the municipal boundaries and Rs. 1050 per tank outside it. There are certain private emptiers too that also provide similar services but these charge much more, close to Rs. 4000 to Rs. 5000. The faecal sludge (septage) once removed is dumped by the municipal trucks at the same enclosure as the solid waste dumping site at Songaon, next to the solid waste. Here it is allowed to decompose on its own. After a few weeks, the decomposed material that turns into part- manure is picked up by farmers from the neighbouring areas with the help of JCBs to use as fertilizer in their farms. There is no formal arrangement between the Nagar Palika and the farmers for the same. The manure is given free of charge to them.

OPERATION AND MAINTENANCE OF PUBLIC TOILETS

There are 122 public / community toilet blocks in Satara municipal limits which are used by about 20% of the total households the city. Their routine upkeep is outsourced to two contractors This is in the form of a management contract. The Nagar Palika policy requires the contract to be given to either a berojgar sanstha or a mahila bachat ghar or a self-help group. Any repairs needed are undertaken by the Nagar Palika itself. Schemes for Households without toilets.

The Maharashtra Sujal Nirmal Abhiyan that was launched in 2010 by the Water Supply and Sanitation Department aimed to achieve open defecation free cities and towns. It provided for construction of new public/community toilets and rehabilitation of the existing facilities. It also provided incentives for individual in-house latrines. In Satara city 1641 individual toilets have so far been constructed under this scheme.

The Government of India scheme, Integrated Housing and Slum Development Programme (IHSDP) initiated in 2005 as part of JNNURM targeting the urban poor, provides them with housing and basic services. There are eight ongoing IHSDP projects in Satara city where 1473 dwellings are being constructed. The future beneficiaries during this period have been shifted to transit camps but not been provided any sanitation facilities. Lack of any public toilets has therefore forced people to defecate in the open.

- SW collection and transport via PPP model running successfully, but only informal SW disposal/ segregation by ragpickers
- Lack of public toilet provisioning for IHSDP beneficiaries during construction phase leading to forced OD
- 61% households have septic tanks. No formal septage management plans
- Sludge emptied from septic tanks is dumped outside municipal limits within an enclosed area. Informal unpaid arrangement with farmers for pick up of decomposed sludge/ semi-manure



DISCUSSION

Despite the official low figures for open defecation in the city this study found that a large proportion of slum population does not have any toilet facilities. In fact the problem of open defecation has temporarily increased due to the displacement of poor families from their homes during the period of reconstruction. The lack of a regular mechanism for septic tank management also implies that the effluent overflow from these is likely to be flowing into the open drains along with the grey water. The irregular septic tank emptying that takes place is also not managed properly. But Satara Nagar Palika has the benefits of strong political and financial support from the state government. It is also staffed by qualified technical employees. It should therefore be possible for the municipality to develop and implement a regular technically and environmentally advisable sanitation management mechanism for the city. Its own success in solid waste and biomedical waste management should also serve as impetus and provide valuable lessons as well. The MoUD's advisory note on Septage Management in Urban India can be a guideline based on which such a mechanism can be developed.

The following recommendations are suggested as an initial step in finding sustainable sanitation solutions for the city -

- There should be regular monitoring of the septic tanks in the city by qualified Nagar Palika personnel. A schedule for desludging septic tanks after a period of one to three years or when the tank is one-third full should be developed.
- The faecal sludge should be disposed in a much more scientific manner. It can be dumped as it is now at a site far from the city, close to the solid waste dump site but it should then be mixed with a bulking agent (that removes moisture from the sludge- such as sawdust or dry leaves, branches) and can be allowed to naturally decompose under assured aerobic conditions (as it is today). Co-composting with the organic fraction of solid waste (for example kitchen waste, vegetable waste from mandis, paper etc.) as the bulking agent is also possible. The resulting material after about 4 weeks of decomposition is suitable as a soil conditioner/ fertilizer.

- The manure resulting from this process should to be tested regularly in a laboratory for the presence of pathogens and heavy metals. Such a laboratory can be developed as an extension of the water quality testing laboratory where pathogen testing on some scale is already being done.
- A formal arrangement should be created between the farmers and the Nagar Palika for reuse of the waste.

Other more difficult issues that will need to be addressed as such solutions move forward will include inspection of designs of existing septic tanks, ensuring corrections where required, ensuring safe sustained transport, sorting tariff issues regarding septage management including monitoring, penalties for untreated effluent overflows or late/ no desludging and developing implementable and acceptable systems for private sector participation.

KEY POINTS FOR DISCUSSION

- Why has septage management not received the same attention as solid waste in Satara despite some obvious strengths in the Nagar Palika to plan for it
- What constraints does the Nagar Palika expect in planning and implementing septage management
- How can these challenges be realistically expected to be met
- What lessons in sanitation services including solid waste management does Satara hold for other small and medium sized towns and cities

ABOUT SCI-FI SANITATION

Through research, SCI-FI: Sanitation aims to inform and support the formulation and implementation of the Government of India's urban sanitation programmes and investments. The research program will study two cities in two different states to understand the reasons for poor sanitation and inform and support the state and city governments in modifying their urban sanitation programs so that they are supportive of alternative technology and service delivery models, with the goal of increasing access to safe and sustainable sanitation in urban areas.

ABOUT THE SERIES

ISSUES FOR DISCUSSION: This series presents case studies and other research work that raises questions as well as provides lessons for policy makers, administrators, managers and technocrats tackling similar challenges in urban areas. By promoting discussion among all stakeholders, the series hopes to inform the evolution of solutions to these obstacles.

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