Performance Improvement Plan for Yavatmal

Prepared by:

CEPT University and AIILSG in consultation with Yavatmal Municipal Council

2012

pas performance assessment system

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Prepared by:

Centre for Environmental Planning and Technology (CEPT) University, Ahmedabad
and
All India Institute of Local Self Government (AIILSG), Mumbai
in consultation with
Yavatmal Municipal Council (YMC), Yavatmal

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ABBREVATION

AIILSG	All India Institute of Local Self Government
BHP	Break Horse Power
CAGR	Compounded Annual Growth Rate
CEPT	Center for Environment Planning and Technology
CO	Chief Office
DMA	Directorate of Municipal Administration
DPR	Detail Project Report
FGD	Focus Group Discussion
FSM	Fecal Sludge Management
GIS	Geographic Information System
IEC	Information Education and Communication
IHSDP	Integrated Housing and Slum Development Program
KPIs	Key Performance Indicators
LCS	Low Cost Sanitation
LPS	Liters per Second
MJP	Maharashtra Jeeven Pradhikaran
MoA	Memorandum of Agreement
MSNA	Maharashtra Sujal Nirmal Abhiyan
NEERI	National Environmental Engineering Research Institute
O & M	Operation and Maintenance
ODF	Open Defecation Free
PIP	Performance Improvement Plan
SIP	Slum Improvement Program
SJSRY	Suvarna Jayanti Shahari Rojgar Yojana
SLB	Service Level Benchmarking
UIDSSMT	Urban Infrastructure Development Scheme for Small and Medium Town
ULBs	Urban Local Bodies
VAMBAY	Valmiki Ambedkar Awas Yojana
YMC	Yavatmal Municipal Council

EXECUTIVE SUMMARY

The preparation of this Performance Improvement Plan (PIP) for water supply and sanitation has been led by the Yavatmal Municipal Council (YMC) with support from the PAS Project through teams from All India Institute of Local Self Government (AIILSG), Mumbai and the CEPT University, Ahmedabad.

The preparation of PIP has been done in response to a request from the Government of Maharashtra. The two focus areas of '**making cities Open Defecation Free**' and '**moving towards 24x7 water supply**' were suggested by the Chief Secretary, Government of Maharashtra in an inception meeting, for launching the Government of India's Service Level Benchmarking (SLB) process in Maharashtra. In addition to that the inherent theme for PIPs is improving coverage and service levels for un-served poor (slum dwellers) and improving financial sustainability. This PIP exercise uses a set of indicators given by the Govt. of India's Service Level Benchmark Initiative as a baseline to assess past performance and identify priorities.

City Profile: Yavatmal Municipal Council (YMC) is a class A city having population of 1.17 lakh. It is located in the Vidarbha region in Eastern Maharashtra. YMC was constituted in 1869 but was dissolved shortly thereafter. It was again established in 1894 and thus forms one of the oldest municipal councils in the district. The city is also a chief trading centre in the district and is known as "Cotton City". There was a substantial increase in population between 1991 and 2001 and then a decrease in the next decade due to shift of population from city limits to adjoining villages. Discussions with local officials suggest that this may be due to shift from city limits to adjoining villages; residence in these villages has the benefit of lower property tax and water rates.

An estimated 39% of population lives in slum settlements in Yavatmal occupying roughly 10% of the area in YMC. Of the total 27 slum settlements, 19 are notified slums settlements. The remaining 7 non notified slum settlements accommodate only 7% of the total slum population. There are 15 slum settlements on government lands of which 10 are notified settlements. The slum settlements are spread throughout the city.

Water supply: The water supply system in Yavatmal city is operated and maintained by the Maharashtra Jeeven Pradhikaran (MJP). The water supply scheme also covers surrounding six villages of YMC. YMC is dependent on surface sources for its water supply through the Nilona dam and Chapdoh dam on River Waghadhi.. MJP draws 29.9 MLD of water from these two sources. The city has a total treatment capacity of 33.74 MLD with two conventional water treatment plants (WTP) having capacities of 16.34 MLD at Nilona WTP and 17.4 MLD at Chapdoh WTP. There are 5 water distribution stations (WDS) to distribute the treated water to the consumers.

The coverage of household level connections is only 35%, though the entire inhabitated city area is covered by the distribution network. Per capita availability of water at consumer end is 82 lpcd. While availability of water is not seen as an issue, due to design of distribution network, the city is able to supply water only once in 2 days for 1.5 hours. Water quality records 100%, however records are not maintained properly and therefore has low reliability.Yavatmal exhibits high extent of consumer metering at 88%. However, extent of non revenue water is still 30%, pointing to possible issues in network. On the financial sustainability, MJP shows good performance with O & M cost recovery at 191% and collection efficiency at 75%. Though the efficiency of consumer redressal is 100%, it still needs

improvement. Presently the only means of registering complaints is through personal visits to the MJP office.

As part of the reforms under Maharashtra Sunjal Nirmal Abhiyan (MSNA) and Urban Infrastructure Development Scheme for Small and Medium Town (UIDSSMT), MJP has carried out augmentation of storage capacity and distribution network in old city, GIS mapping and hydraulic modelling, installation of bulk flow meters, consumer survey, energy audit, water audit and leak detection survey. MJP has also prepared draft Detailed Project Report (DPR) for implementing 24x7 water supply system in YMC.

Sanitiation: Coverage of individual toilet is 71% whereas coverage of individual and community toilet in the city is 88%. During the field study, the team had observed that some of the public toilets were not functional. Of the total 53 blocks, about 76% are functional; all pay and used toilets located in slum areas are functional. Under the Valmiki Ambedkar Awas Yojana (VAMBAY) scheme, efforts have been made to construct 783 individual toilets in the year 2001 to 2006. Currently around 15% of the city population resorts to open defecation.

Yavatmal does not have an underground sewerage system. Toilets in the cities are connected to septic tanks and soak pits. The grey water is collected through the drainage network. The entire habitat area of the city is covered by the drainage network. The drains are cleaned regularly and maintained by private contractors. Outfalls of these drains are diverted into the existing lakes without any treatment. Therefore YMC has proposed to treat this wastewater through phytoride technology developed by NEERI, feasibility study has been under preparation.

Services to slum settlements: The coverage of HH level water supply connections in slum settlement is 21%, much lower than city coverage. About 76% of slum settlements have internal water supply network. In addition to the individual water connections provided by MJP to slums, the council also supplies water through stand posts, hand pumps and tube wells. The connection procedure for slum dwellers is same as non slum HHS and should be eased by eliminating the initial deposit, and connection cost can borne by the city along with simplified procedures. The coverage of individual toilets in slum settlement is only 33% which is very low as compared with city level coverage; and coverage of individual and community toilet in slum settlement is 55%.

Municipal finance of YMC[1]: The municipal finances of the Yavatmal Municipal Council have been reviewed for the last seven years, from 2005-06 to 2011-12. The revenue income is increasing at a rate slower than the rate of increase in revenue expenditure. The revenue surplus for Yavatmal has decreased at a Compounded Annual Growth Rate (CAGR) of 3.4% for last five financial years. Own sources contribute 87% of the total revenue. Property tax forms the other major part of the revenue income contributing to an average of 12% of the total revenue income while grants and contributions contribute to another 11% of the total revenue income. The average collection efficiency of property tax is around 95% over a period of 5 years but assessment of properties and revision of tax is not carried out since long time. Recently MJP has carried out 100% consumer survey and linked with GIS, this datasets will be useful for property tax assessment. The basic services in the form of water supply, sewerage and sanitation form about 40% of the total revenue expenditure, while general administration and tax collection department formed about 29% of the total revenue expenditure in YMC. The revenue

[1] Source: CRISIL Advisory Services. *(2012). Yavatmal: Assessment of Municipal Finances. Draft Report for PAS Project. CEPT University.*

expenditure on water supply, sewerage and sanitation services have increased at a CAGR of 19% for last 5 years, whereas YMC does not levy any user charges for the sanitation and SWM services.

The capital income has increased substantially from the level of Rs. 2.9 crore during 2005-06 to Rs. 12.8 crore in 2009-10. This increase is primarily due to the UIDSSMT and Integrated Housing and Slum Development Programme (IHSDP) grants made available to YMC for the purpose of the water supply project and housing respectively. About 24% of the total capital expenditure has been towards benefitting urban poor through either housing or provision of basic services. The capital expenditure has increased over a period of time, and the maximum capital that YMC has been able to utilize in a year is Rs.7.0 crore as against the capital income of Rs 3.5 crore in 2008-09. The utilisation levels have been irregular and do not follow a specific trend. Average utilisation of funds has been over100%; with minimum 26% of capital income utilised in 2009-10 and maximum 184% utilisation in 2007-08 over a period of 7 years. However the utilisation of funds has been delayed in almost every major scheme implemented in YMC.

Investible surplus was calculated considering the year – on – year surplus after considering the revenue surplus and the committed and routine capital expenditure. Here, the opening balance has not been considered for calculations as only the year-on-year surplus from the annual incomes and expenditures have been considered. From the assessment it was observed that YMC have an investible surplus to consider improvements in the performance of service delivery in the FY 2015-16 in the Business As Usual (BAU) scenario.

Summary of Performance Improvement Plan for YMC: The proposals suggested are focused on two key areas of establishing 24X7 water supply system and moving towards open defecation free YMC, as well as improvements in key processes and operations related to these two focal areas. Based on the analysis of the water and sanitation sectors in Yavatmal, the Performance Improvement Plan for YMC has been summarized in table 1.

Table 1: Summary of Performance Improvement Plan for YMC

Categories	Action	Estimated Cost (Rs in crore)	Current status
Water supply			
Low cost action			
Access & coverage	Convert stand post into group connection	0.05	Needs to be done
	Subsidize the connection charges and simplify the connection procedure for slum dwellers	0.4	Needs to be done
Efficiency in service operation	Introduce appropriate complain redressal system	0.1	Needs to be done
Capital intensive			
Service level & Quality	24 x 7 water supply implementation cost (according to draft DPR)	40.2	Awaiting finalization and sanction of DPR
Total Water supply improvement cost		**40.77**	

Sanitation			
Low cost action			
Toilet coverage	Refurbishment of community toilets	0.1	Needs to be done
Fecal sludge management	Procurement of vacuum trucks	0.6	Needs to be done
Capital intensive			
Toilet coverage	Toilet construction cost & IEC activities	5.7	Preparation of DPR is required
Service level & Quality	Treatment plant construction	4.8	Feasibility study completed
Total Sanitation improvement cost		**11.2**	
Total cost for performance improvement		**51.2**	

The Council and MJP have to undertake improvement actions related to processes followed in the water supply and sanitation operations. These actions being no or low cost can be immediately taken up. These include revision of 'new connection' format for slum settlement, levy drainage tax, carry out property tax assessment, revision in property tax and improve complain redressal system.

Based on the revenue enhancement measures mentioned above, YMC will generate investible surplus after 2014. Therefore, process change related actions and low cost actions are proposed in the immediate intervention and according to availability of surplus, phasing of capital investment projects for sanitation is done. Water supply is operated and maintained by MJP and therefore it is suggested that the proposed improvement actions for water supply that are not capital intensive can be borne by MJP while implementation of the 24x7 water supply project can be proposed under UIDSSMT and/or Nagarothan.

The improvements for YMC have been proposed in three phases: 1) Immediate interventions (from 2013 - 2014), 2) Short term interventions (from 2014 - 2018) and 3) Long term intervention (from 2018-19). The interventions mentioned above to augment revenue as well as process improvements are proposed to begin in 2013. The costs shown in figure 1 are inflated at 7 % for each year.

Phase 1: Immediate interventions (from 2013 - 2014)

- It is proposed that YMC will begin with interventions related to process and policy changes that will not require capital investment such as conversion of stand post into group connection, subsidizing connection costs for slum dwellers and establishment of complaint redressal system. Other activities that can be immediately followed up by YMC include finalization and approval of the DPR for 24x7 water supply , revision in drain cleaning and O & M of public toilet contractual arrangements, identifying beneficiaries for individual toilets, etc.

Table 2: Phasing of PIP for YMC (2013-2019)

Activities	2014	2015	2016	2017	2018	2019
Water supply						
Phase 1						
Convert stand post into group connection						
Subsidize the connection cost for slum settlement						
Establish the complain redressal system						
24x7 WS DPR approval						
Phase 2						
24 x 7 water supply implementation *(Major component in DPR will be construction of mass balance reservoir, rehabilitation of pipelines, replacement of service connections and customer meters, installation of pressure reducing valves, monitoring and then reducing leakages in each DMA)*						
Sanitation						
Phase 1						
Refurbishment of community toilets						
Phase 2						
Procurement of vacuum trucks						
Construction of individual toilet						
Construction of community toilet						
Phase 3						
Treatment plant construction						

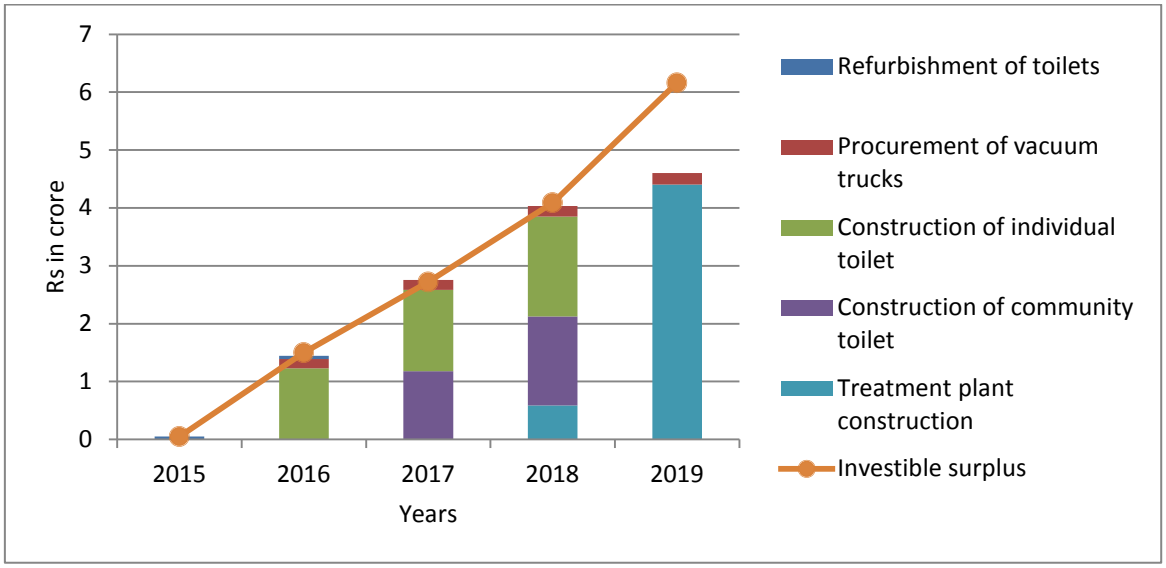
Phase 2: Short term interventions (from 2014- 2018)

Once the revenue augmentation measures and process improvements are in place, YMC can begin its capital intensive projects from 2014.

- Once approval of 24x7 water supply DPR is obtained, implementation of project should be carried out in four years. Major component in DPR will be construction of mass balance reservoir, rehabilitation of pipelines, replacement of service connections and customer meters, installation of pressure reducing valves, monitoring and then reducing leakages in each DMA, etc.
- Starting from 2015, YMC can begin construction of individual and community toilets. As issues in existing community toilets were observed in terms of operation and maintenance, it is proposed that YMC refurbishes these toilets before initiating construction of new community toilets. Following this, YMC can begin construction of individual toilets. This activity is planned to be completed in a period of 3 years considering the investments that will be available with YMC. While the maintenance of all the pay-n-use toilets has been contracted out, similar arrangements with CBOs can be looked at with respect to community toilets. Campaigns to bring about awareness related to cleanliness and hygiene practices, safe sanitation practices, and negative health impacts due to open defecation needs to be conducted by the Council. Local CBOs need to be roped into this exercise to ensure participation by all communities. The campaigns should begin by triggering initiation in the slum settlements and undertaking transect walk to the open defecation sites to highlight the above issues.

- It is proposed that YMC simultaneously strengthen its septage management activities. YMC needs to augment its current suction emptier capacity by procuring 4 additional vehicles. Subsequently YMC will begin construction of the septage treatment facility and start operations in a year. The land required for the septage treatment plant is available near to the solid waste dumping site. The operation and maintenance of the plant can be carried out by a private operator.

Figure 1: Implementation of sanitation projects after revenue improvement measures



Phase 3: Long term intervention (from 2018-19)

- Once the above measures are in place, YMC can begin construction of sullage treatment plant.

After implementation of revenue improvement measures, YMC will be able to generate investible surplus. ODF related activities can be funded from YMC's internal surplus whereas for implementing 24x7 water supply, MJP has to depend on external funding.

In order to realise the targets set for improving water supply and sanitation in YMC, the existing institutional framework must be enhanced to enable better operation and management of these services. While in certain areas, it is the lack of a defined policy restricting provision of services, in other instances it is the improper regulation of the existing policies. YMC has to focus its attention on improving policies related to services, financial sustainability, and accountability to the consumers.

Finally, the implementation of the above processes and proposals requires a dedicated PIP review committee which will integrate the roles and responsibilities of the various stakeholders in the PIP.

1. INTRODUCTION

The preparation of this Performance Improvement Plan (PIP) for water supply and sanitation has been led by the Yavatmal Municipal Council (YMC) with support from the Performance Assessmnt System (PAS) Project through teams from All India Institute of Local Self Government (AIILSG), Mumbai and the CEPT University, Ahmedabad.

The preparation of PIP has been done in response to a request from the Government of Maharashtra. The two focus areas of '**making cities Open Defecation Free**' and '**moving towards 24x7 water supply**' were suggested by the Chief Secretary, Government of Maharashtra in an inception meeting, for starting the Government of India's Service Level Benchmarking (SLB) process in Maharashtra. In addition, PIPs also focus on improving coverage and service levels for un-served poor (slum dwellers) and improving financial sustainability. This PIP exercise uses the set of indicators given by the Service Level Benchmark Initiative of the Government of India. These are used as a baseline to assess past performance and identify priorities.
During the preparation of this PIP several dialogues, periodic consultations and meetings were held with the Chief Officer of YMC and officials from respective departments.

Preparation of the PIP has been done in following stages:

Initial Performance Assessment: Based on the data from YMC, an initial assessment of all SLB indicators for the past three years was done by the PAS team. The YMC teams were assisted to generate comparative performance assessment for YMC for last three years. This involved past trends based on their data in PAS Benchmarking system as well as comparison with other Class A Municipal Councils in Maharashtra. The existing service levels were assessed against service level benchmarks to be achieved.

The AIILSG/CEPT team visited Yavatmal from 17th July to 23rd July 2011 for further exploration of ground realities in UWSS. The preparatory work and the city profile of Yavatmal were discussed with YMC officials at the first meeting on 17th July '11. The meeting was attended by the YMC Chief Officer (CO), along with officials from Sanitation Dept. Water supply system were discussed with MJP officials. Preliminary priorities were identified at this meeting. Particular focus was also placed on the issues around making the city open defecation free and exploring the possibility of introducing 24x7 water supply. ULB officials shared their views about pressing issues and barriers in improving performance of UWSS in Yavatmal

Detailed Diagnostics and Identification of Key Issues: The diagnostic assessment was prepared by detailed data collection and taking local ground realities into consideration. This was based on a detailed field guide developed for purpose of PIP preparation which included data templates, survey formats, transect walks, schedules of interviews, FGD guidelines, areas for digital documentation, dimensions of stakeholder consultations etc.

A rapid assessment of demographic /physical characteristics, institutional arrangements, key processes, municipal finances and private sector participation was also undertaken to build appropriate context for city performance. The emphasis was also placed on understanding the current data record systems and measures to improve the performance data reliability.
Detailed discussions with ULB engineers and support staff were held to assess water and sanitation situation. City level reconnaissance surveys and dedicated field visits were undertaken by teams to facilities including the source of water as well as treatment and distribution/ collection systems for water supply, sanitation and solid waste management to validate secondary data and identify performance

issues. Wherever applicable, appropriate consultations were also undertaken with MJP officials and private service providers to help assess and validate issues from different perspectives.

For detailed qualitative insights the teams visited all slums and conducted focus group discussions (FGDs) with slum dwellers. Transect walks in slum settlements and along city roads helped in mapping slum locations, open defection sites, public and community toilets, solid waste dumping sites etc. In addition key person interviews, FGDs and consultations were held with safai karamcharis, contractors and private parties to identify service delivery issues from consumers' perspectives.

Action Planning and Preliminary Costing: Consultations with sector experts were also held in August 2011 for proposing actions and estimating the required capital cost/ investment based on identified improvement areas. At the end of the expert consultations the options for improving water supply, sanitation and SWM scenario were discussed with concerned YMC officials and Chief Officer. The diagnostic study, detailed assessment and preliminary strategies for improvement were shared with YMC officials during second PIP consultative workshop in September 2011 at Yavatmal. The suggestions by YMC officials were taken and incorporated in the PIP.

Based on the identification of city priorities, consultations were held with the Chief Officer, opinion leaders, Municipal councillors, YMC officers, and representatives of water and sanitation committees to discuss priorities for municipal water supply and sanitation.

While proposing strategies and actions for improvement the assessment of ongoing projects was done. The actions for improvement were identified, prioritised and streamlined in consultation with YMC officials to achieve both priority/ focal areas - 'Open Defecation Free YMC' and '24 X 7' water supply.

The identified interventions have been classified as those requiring substantial capital expenditure and others that are more process and policy related. Actions to improve reliability of performance indicators are also identified. Preliminary cost estimates have been developed for all actions identified. The proposed strategies and actions for improvement and estimated capital cost required to implement actions was discussed with YMC officials during the third PIP consultative workshop in November 2011 at Yavatmal.

Preliminary validation of Draft Performance Improvement Plan by YMC: The proposed draft PIP was shared with YMC. It has been finalised by incorporating the revisions suggested. This report has been validated by Yavatmal CO and relevant YMC officials. The PIP describes improvement actions and related costs. The proposals have been reviewed by technical teams at the AIILSG and CEPT University. This PIP report will be submitted to the state government for review and guidance. It is anticipated that the YMC will identify low-cost actions that can be taken up immediately and provide funds for these actions from their budget. For actions that require significant capital expenditure, the YMC will need to prepare detailed project reports and seek assistance under appropriate state and national programmes.

2. CITY PROFILE

This section of report gives a profile of the city as well as characteristics of slum settlements. This also captures staffing pattern of YMC and MJP and its overall financial scenario.

2.1 LOCATION AND DEMOGRAPHY

The city of Yavatmal is headquarters of Yavatmal District. The Yavatmal Municipal Council (YMC) was constituted in 1869 but was dissolved shortly thereafter. It was again established in 1894 and thus forms one of the oldest municipal council in the district. The city is also a chief trading centre in the district and is known as "Cotton City".

It is located in the Vidarbha region in Eastern Maharashtra. The city is situated on an altitude of 450 meters above mean sea level. The general topography is cone shaped sloping towards central Yavatmal. A number of seasonal streams originate from ridge of Yavatmal and flow away from the town.

Total municipal area of YMC is 11.7 km² and habitated area is 9.1 km² (80%). Gross density of town is 9950 person per sq. km and net density is 12756 persons per sq. km. The city is divided into 40 electoral wards. The population of Yavatmal constantly increased between 1951 (35980) to 1991 (108591). Figure 3 shows population growth in the city area for the last two decades. There was a substantial increase between 1991 and 2001 and then a decrease in the next decade. Discussions with local officials suggest that this may be due to shift from city limits to adjoining villages; residence in these villages has the benefit of lower property tax and water rates.

Figure 2: Location map of Yavatmal Municipal Council

Table 3: Demographic Details

General Details	2001	2011
Area	10.17 km²	11.73 km²
Population	1,20,676	1,16,714
No. of HHs	25,079	25,857
Gross density (per/ sq. km)	11866	9950
No of properties	23,432	26,704
No. of Slums	25	27 (Notified 19)
Population in slums	43,238	45,667
% of Slum pop to total	35.8%	39.1%

Figure 3: Population trend of city

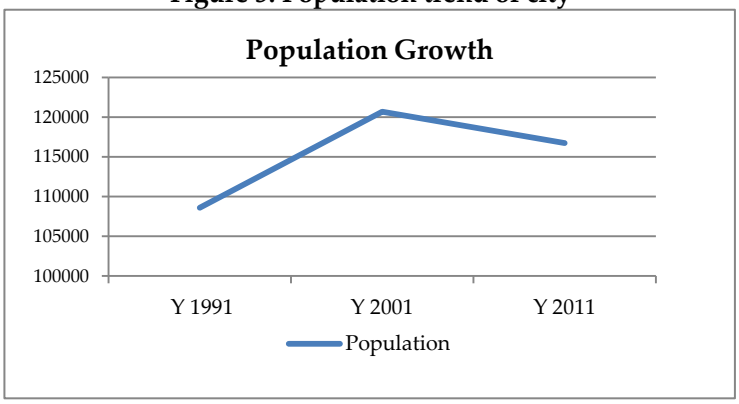
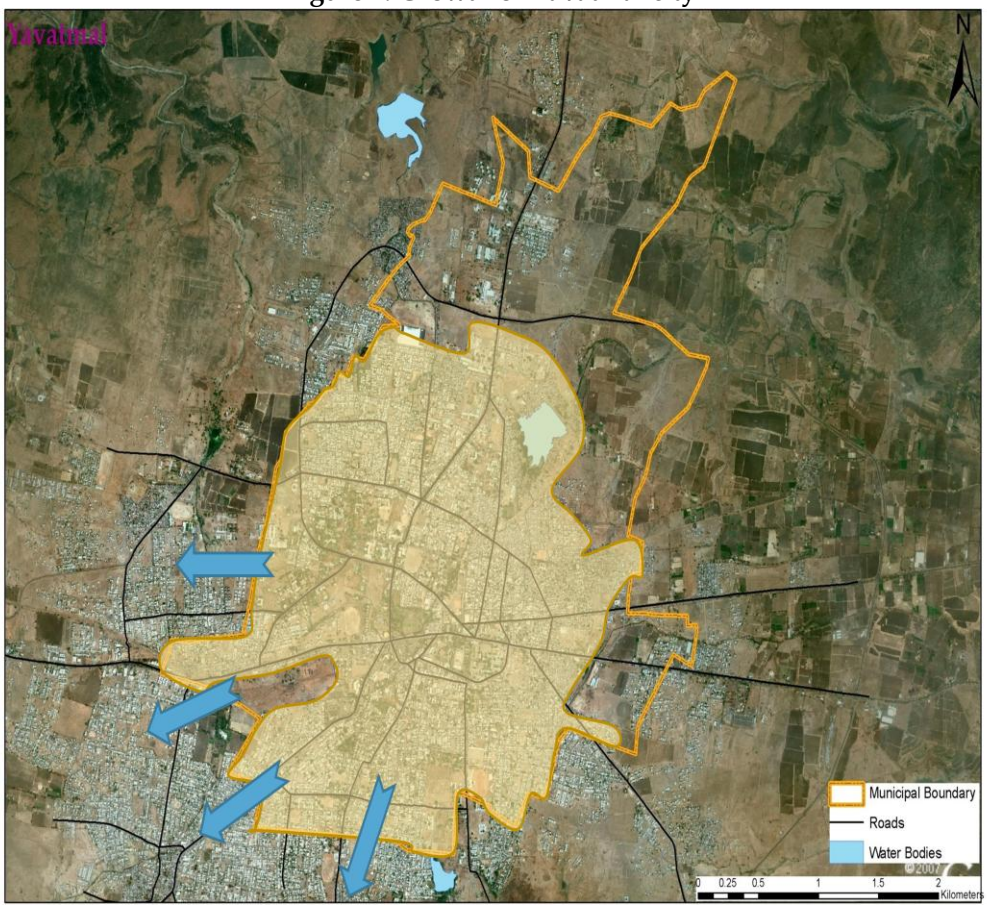


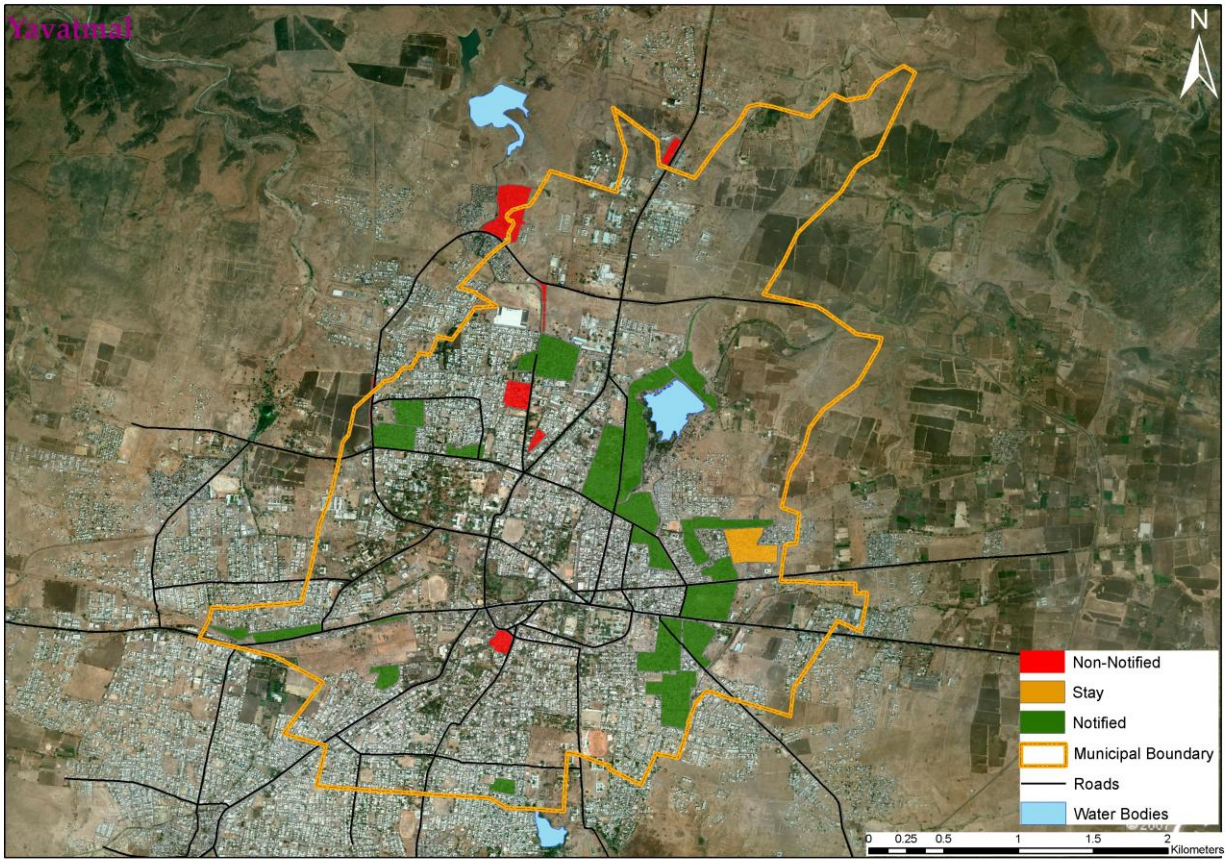
Figure 4: Growth of Yavatmal city



2.2 SERVICES IN SLUMS IN YAVATMAL

Yavatmal city has about 39% of population residing in 27 slum settlements. There are 19 notified slums. The 7 non notified slums accommodate only 7% of the total slum population. There are 15 slum settlements on government lands of which 10 slums are notified; slum settlement details are given in Annex 1. The slums occupy about 10% of the total inhabited area in Yavatmal. Most of the slum settlements are located along the major roads in the city (See Figure 5). YMC provides services to notified as well as non-notified slums.

Figure 5: Location of Slum Settlements



Source: (CEPT University, 2011)

YMC has internally earmarked for the urban poor in its annual budgets to the extent of 5 %. This is based on a Directorate of Municipal Administration (DMA) circular issued in 1998 directing all ULBs to allocate 5% of their annual budget for welfare of backward classes. Average 24% of the total capital expenditure has been utilised or allocated for the urban poor from FY 2005-06 to FY 2011-12, various components of capital expenditure and income directed towards the urban poor are give in annexe no 2. In addition, reforms have also been promoted under Urban Infrastructure Development Services for Small & Medium Town (UIDSSMT) and Maharashtra Sujal Nirmal Abhiyan (MSNA).

Housing constructed under IHSDP in Yavatmal Municipality

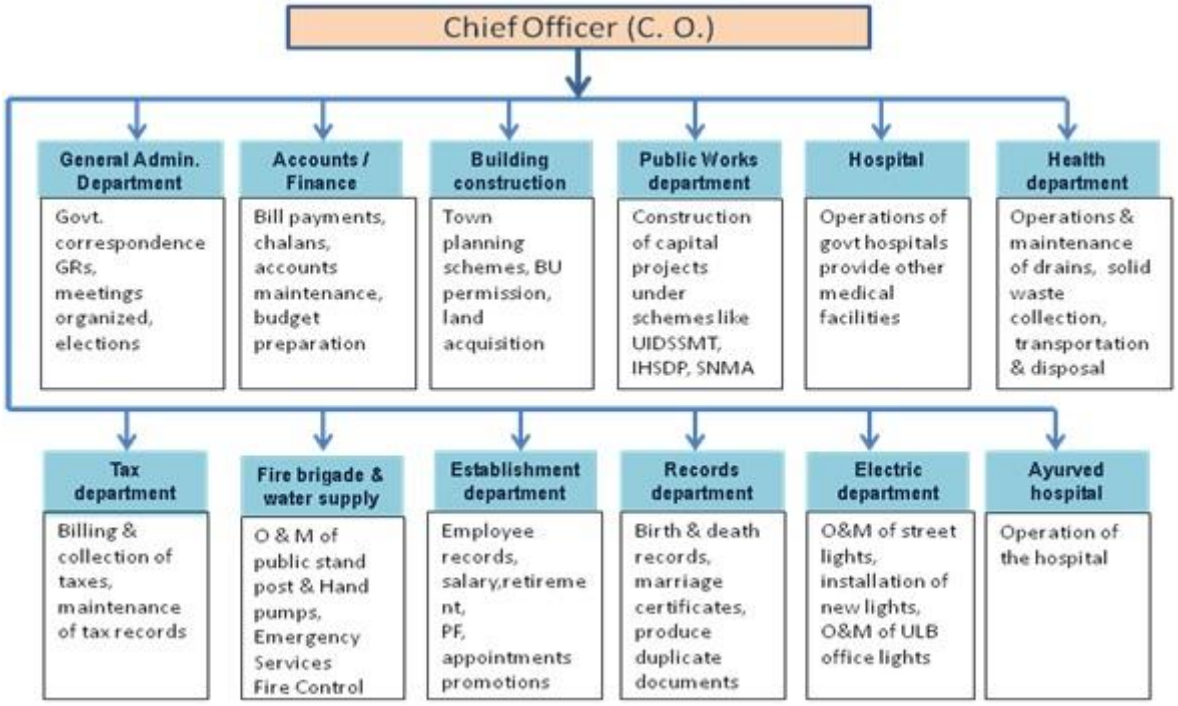
YMC has been proactive in taking up and implementing various schemes for slum improvement, including: Slum Improvement Programme (SIP) ,Valmiki Ambedkar Awas Yojana (VAMBAY), Dalit Vasti Developemnt Scheme, Suvarna Jayanti Shahari Rojgar Yojana (SJSRY), Low Cost Sanitation (LCS) Scheme and Integrated Housing and Slum Development Program (IHSDP). Under VAMBAY scheme, it has constructed 783 toilets in 13 slum pockets in the year 2001 to 2006. YMC has constructed housing units for 4 slum settlements (Patipura/ Dolipura, Netaji nagar, Talavfail and Indira nagar) under the IHSDP scheme. However it has been difficult for YMC to convince the beneficiaries for cluster

development schemes and this is iterated by the fact that some of the housing units constructed for rehabilitation are still lying vacant.

2.3 STAFFING OF YMC AND MJP

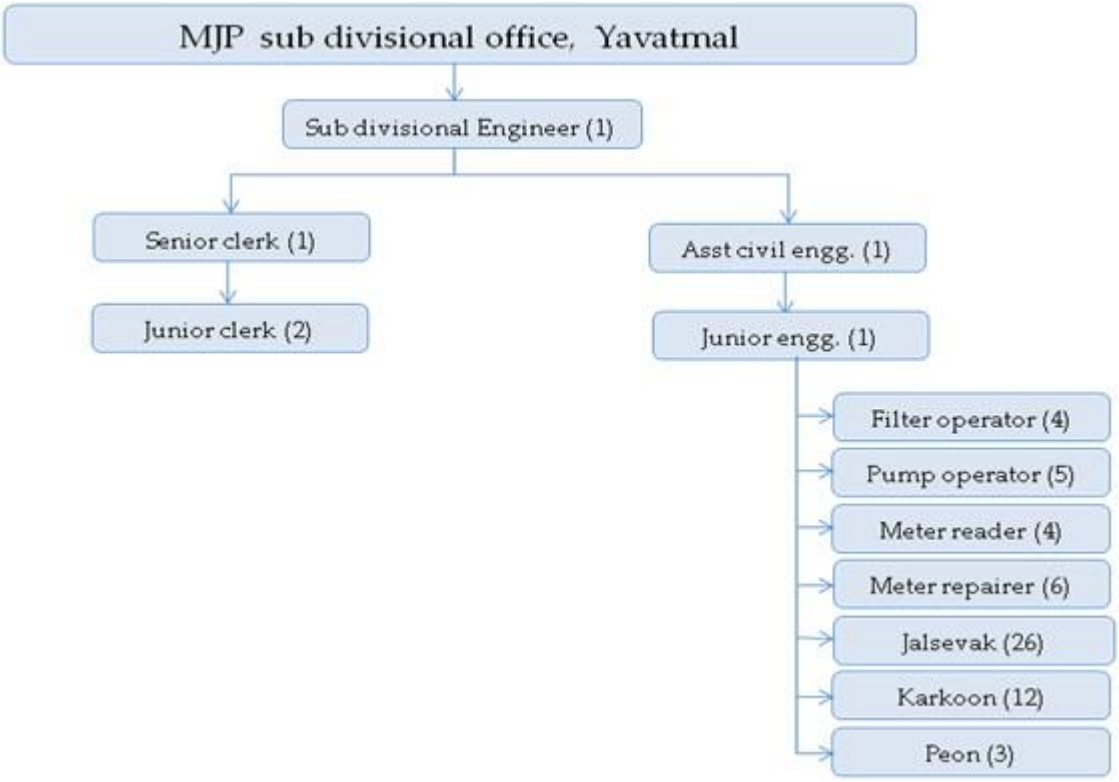
The civic affairs of the town are managed by YMC. Figure 6 shows the organizational structure with details of the 13 functional departments. The executive wing is headed by the Chief Officer (CO) who supervises functions of all the departments.

Figure 6: Organization Chart of Yavatmal Municipal Council



The water supply department is combined with fire brigade department as water supply service is provided by Maharastra Jeeven Pradikaran (MJP) in the city. The MJP raises water bill based on fixed tariff charges for stand post category users to the municipality for providing water supply through public stand posts and hand pumps which is then supplied free of cost to all slums. However operation and maintenance of stand post and hand pumps is carried out by YMC. The MJP sub divisional office at Yavatmal has a total of 66 staff including 3 technical staff.

Figure 7: Organisation chart of MJP sub divisional office



The functions pertaining to sanitation (viz. cleaning and maintenance of drains and solid waste management) are carried out by the Health Department of YMC. The Municipal Council has outsourced the door to door collection, street sweeping, cleaning of drains and operation & maintenance of pay and used toilets. A quick comparison of sanctioned and working staff status across main sectors is given in figure 8. Though water supply in slums is provided by MJP through stand posts and bore wells, the YMC staff is responsible for its operation and maintenance. MJP has separate staff that works for water supply operations. Figure 8 compares sanctioned versus working staff for YMC. Sanitation department has recruited entire sanction staff including technical staff also. Details of technical and non technical staff for UWSS details are given in table no 4.

Figure 8: Staffing (Sanctioned vs. Recruited) in Yavatmal

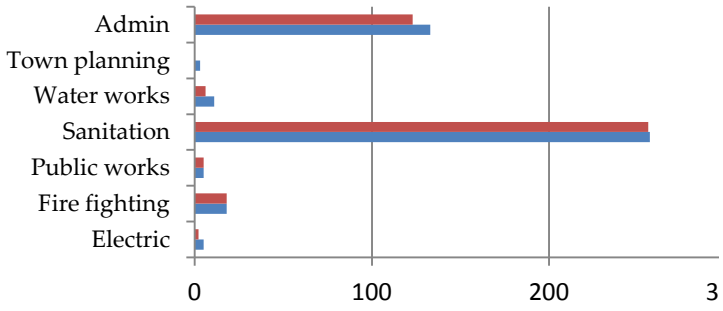


Table 4: Technical and Non technical staff in UWSS

Department	Technical staff	Non technical staff
Water supply (MJP)	3	66
Sanitation (YMC)	6	256

Source: (Yavatmal Council, Table of sanctioned post for establishment, 2006)

2.4 OVERVIEW OF YMC FINANCES

YMC uses a cash-based accounting system. All expenses towards regular operation and maintenance are treated as revenue expenditure, while expenditure on new projects is treated as capital expenditure.

The municipal finances of the YMC have been reviewed for last five financial years and budgeted estimates for the next two years, thus spanning a total period of seven financial years starting from year 2005-06. The total revenue income has increased to a level of Rs. 16.2 crore in 2009-2010 from Rs. 11.9 crore in 2005-06. This represents an actual CAGR of 8 %. On the other hand, the revenue expenditure has increased to a level of Rs. 13.4 crore in 2009-10 from Rs. 8.6 crore in 2005-06. This represents a CAGR of 12 % over a five-year period. The fact that the revenue income is increasing at a rate slower than the rate of increase in revenue expenditure, this does not indicate a healthy trend for the YMC.

YMC maintains a consolidated general budget that includes all the functions of the council. Thus accounts related to slums and urban poor, water supply and sewerage etc. have not been budgeted separately. Few budget items have been recast to be included into the capital account from revenue account due to incorrect allocation of the items. Table 5 gives the consolidated status of municipal finances after the recasting exercise.

The revenue surplus for Yavatmal has decreased at a CAGR of 3.4% for last five financial years. Average revenue surplus has remained at 20% of the revenue income for the period between 2005-06 and 2009-10.

Table 5: Municipal Finances (Recast budget figure) at a glance (Rs in crore)

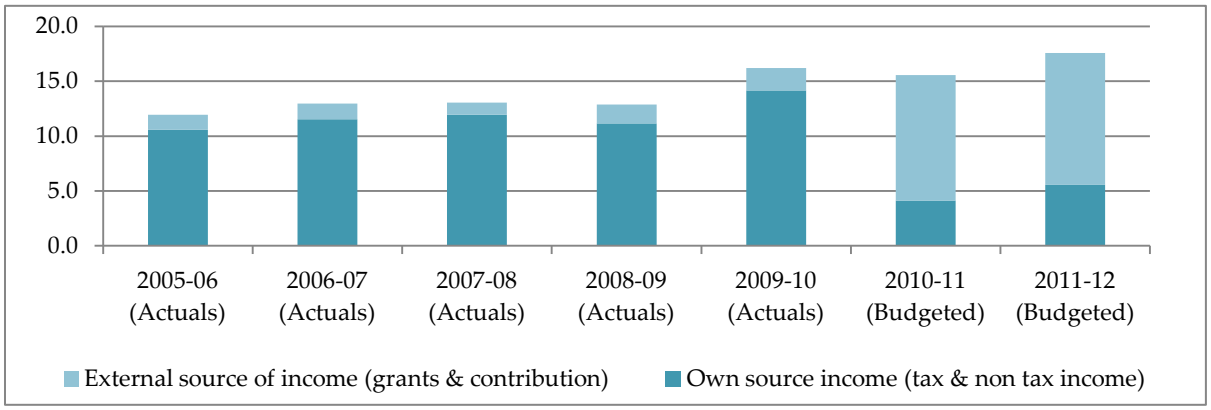
Item	2005-06 (Actuals)	2006-07 (Actuals)	2007-08 (Actuals)	2008-09 (Actuals)	2009-10 (Actuals)	2010-11 (Budgeted)	2011-12 (Budgeted)
Revenue Income	11.95	12.96	13.06	12.88	16.21	15.55	17.57
Revenue Expenditure	8.67	9.30	9.98	9.67	13.41	18.44	17.58
Revenue surplus / Deficit	3.28	3.66	3.08	3.22	2.80	(2.89)	(0.02)
Operating Ratio	73%	72%	76%	75%	83%	119%	100%
Capital Income	2.69	6.40	2.54	3.47	12.88	6.24	6.25
Capital Expenditure	4.66	3.63	4.67	7.08	3.42	17.98	10.58
Capital Surplus / Deficit	(1.96)	2.77	(2.13)	(3.61)	9.46	(11.74)	(4.33)
Extra-ordinary income	1.22	4.22	2.04	1.16	1.23	0.94	0.94
Extra-ordinary Expenditure	2.34	2.93	2.38	1.54	1.93	1.57	1.44

Source: (Yavatmal council budget book , 2005-06 to 2011-12)

The capital income for the Yavatmal Municipal Council includes grant and disbursements against various schemes like UIDSSMT, IHSDP, Finance commission grants among others. It is observed that the capital expenditure mainly consists of expenditure against the grants under various state and central government schemes. The financial analysis of YMC showed that overall capital utilisation is very uncertain, with minimum 26% of capital income utilised in 2009-10 and maximum 184% utilisation in 2007-08 over a period of 7 years.

Revenue Account: The total budgeted revenue income for YMC in 2011-12 was Rs. 17.5 crore. The revenue incomes of YMC can be broadly classified into own sources and external sources. The revenue income in the last five financial years has increased at a CAGR of 8 %. The incidental decrease in revenue income in 2008-09 mentioned previously is due to reduction in octroi collections in the city. Own sources contribute 87% of the total revenue income of the Yavatmal Municipal Council as per the actuals of last five financial years External source of revenue income like external grants and contribution contributes a relatively modest share of 11.3% of the total revenue income over the period of 2007-08 to 2009–10; however it is budgeted to increase to 71 % of the total revenue income on account of transfer of octroi from municipal collections to recurring assigned revenues. Most of these are recurring grants, which can be assumed to be a secured source of income in the present scheme of things.

Figure 9: Trend of own and external sources of revenue income of YMC (in Rs. Crore)



Source: (Budget books of Yavatmal Municipal council, 2005 - 06 to 2011 - 12)

Own sources can be further subdivided into tax revenue and non-tax revenue. Non tax revenue, specifically octroi, accounts for 76% of the total revenue income of Yavatmal Municipal Council. Property tax forms the other major part of own ources contributing to 12% of the total revenue income.

Figure 10: Composition of own sources of revenue income (%) (2009-10)

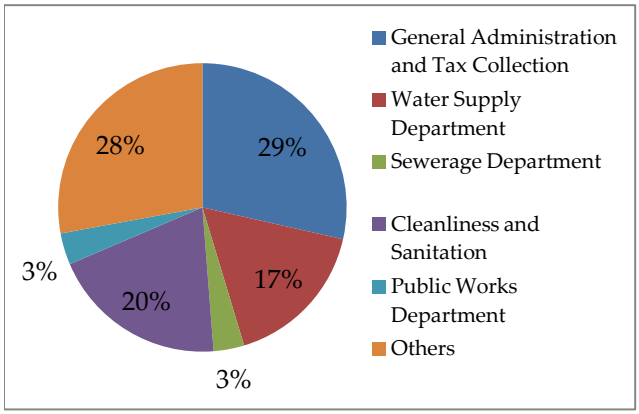
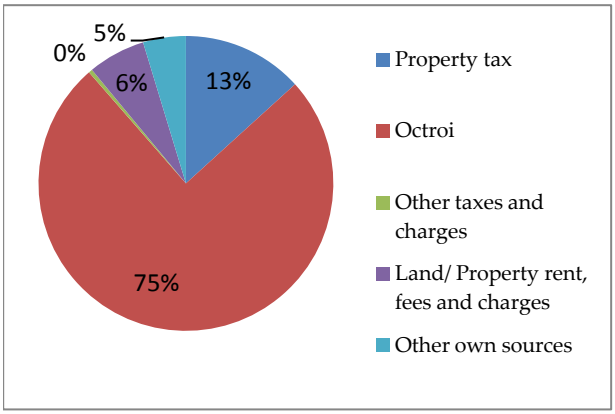


Figure 11: Composition of revenue expenditure (%) (2009-10)



Property tax income has registered a CAGR of 6% over the period under consideration. Non Tax Revenue consists of rents from municipal property, charges of various services and fees for issue of licenses and approvals.

The basic services such as water supply, sewerage and sanitation form about 40% of the total revenue expenditure, while general administration and tax collection department formed about 29% of the total revenue expenditure in YMC. Water supply services are provided by MJP whereas sanitation and SWM services are provided by YMC. YMC does not levy any user charges for the sanitation and SWM services. The revenue expenditure on water supply, sewerage and sanitation services have increased at a CAGR of 19% for last 5 years, while expenditure on general administration and tax collection has increased at a CAGR of 12%.

Capital Account: The capital income has increased substantially from the level of Rs. 2.9 Crore during 2005-06 to Rs. 12.8 Crore in 2009-10.This increase is primarily due to the UIDSSMT and IHSDP Grants made available to YMC for the purpose of the water supply project and housing respectively, starting 2009-10. For this purpose it will not be correct to define a trend in the capital income. The following table presents the categorization of capital income under various heads:

Table 6: Sources of capital income for YMC (in Rs. Crore)

Items	2005-06 (Actuals)	2006-07 (Actuals)	2007-08 (Actuals)	2008-09 (Actuals)	2009-10 (Actuals)	2010-11 (Budgeted)	2011-12 (Budgeted)
Urban Poor	0.99	1.25	1.09	0.65	1.34	0.52	0.65
Water supply and sanitation	0.03	0.15	0.43	0.21	0.63	0.91	2
UIDSSMT	-	-	-	-	4.38	2	1
IHSDP	-	-	-	-	417	-	-
Others	1.68	4.99	1.02	2.61	2.35	2.81	2.6
Total	**2.69**	**6.40**	**2.54**	**3.47**	**12.88**	**6.24**	**6.25**

Source: (Budget books of Yavatmal Municipal council, 2005 - 06 to 2011 - 12)

The following table presents the categorization of capital expenditure under various heads.

Table 7: Capital expenditure for YMC (in Rs. Crore)

Items	2005-06 (Actuals)	2006-07 (Actuals)	2007-08 (Actuals)	2008-09 (Actuals)	2009-10 (Actuals)	2010-11 (Budgeted)	2011-12 (Budgeted)
Urban Poor	**0.94**	**0.39**	**0.89**	**2.27**	**1.07**	**2.08**	**1.4**
Water supply and sanitation	**0.38**	**0.32**	**0.81**	**1.1**	**0.62**	**1.2**	**0.9**
UIDSSMT	**-**	**-**	**0.1**	**-**	**0.2**	**6**	**1.2**
IHSDP	**-**	**-**	**-**	**-**	**0**	**2.15**	**2.20**
Others	**3.33**	**2.92**	**2.87**	**3.7**	**1.53**	**6.55**	**4.88**
Total	**4.66**	**3.63**	**4.67**	**7.08**	**3.42**	**17.98**	**10.58**
% Utilization of Capital Income	**173%**	**57%**	**184%**	**204%**	**27%**	**288%**	**169%**

Source: (Budget books of Yavatmal Municipal council, 2005 - 06 to 2011 - 12)

The capital expenditure has increased over a period of time, and the maximum capital that YMC has been able to utilize in a year is Rs.7.1 Crore as against the capital income of Rs 3.5 Crore in 2008-09. However the utilisation of funds has been delayed in almost every major scheme implemented in YMC. The reasons for this delay are difficult to comment from the available information.

An increase in capital expenditure has been projected in the water supply and sanitation segment under the UIDSSMT funds, which are being utilized for the installation of a city-level water supply system.

Key Inferences: Revenue expenditure is increasing at a higher rate than revenue income. As a result of which the revenue surplus has followed a decreasing trend. Average revenue surplus was 20% for last five financial years. Property tax (12%) and Octroi (67%) form the major revenue income sources for YMC. Collection efficiency for property tax in last five financial years has been at an average of 95 %. However the coverage of properties is found to be inadequate with 18319 residential properties covered in the tax assessments against 26000 households in the city. UWSS services account for 33% of the total revenue expenditure and as against there is no special taxes are levied; only sanitation charges are levied for septic tank cleaning.

2.5 PRIVATE SECTOR PARTICIPATION IN YAVATMAL

Yavatmal Municipal Council has utilized services of private agencies in sanitation and SWM. The initiation of private sector involvement in sanitation occurred with the handing over of drainage cleaning and O & M of pay and use toilets. This was further extended to include door to door collection of solid waste. Initially, all these three activities were separately contracted to one company. In the next year, YMC combined all the three activities into one contract for ease of monitoring and cost effectiveness. For managing the SWM contracts, city is divided into 3 zones wherein zone 1 & 3 is maintained by Shivkrupa construction and zone 2 contracts by Triveni construction. The operation and maintenance of the vermin composting plant is also outsourced to another private agency.

Table 8: Private sector participation in Yavatmal

Sector	Scope of Contract	Duration	Type of Contract	Value of Contract	Procurement Process
Waste Water & Sanitation	Cleaning of drain line, door to door collection and cleaning & maintenance of Sulabh shauchalaya	1 Year	Annual Rate Tender	Zone 1: Rs. 21,99,996 Zone 2: Rs. 24,80,000 Zone 3: Rs. 22,99,956	Through competitive bidding with bid selection
Solid waste management	O & M of vermi composting plant	3 Year	Annual Rate Tender	Year 1: Rs. 1,20,000 Year 2: Rs. 1,35,000 Year 3: Rs. 1,48,000	Through competitive bidding with bid selection

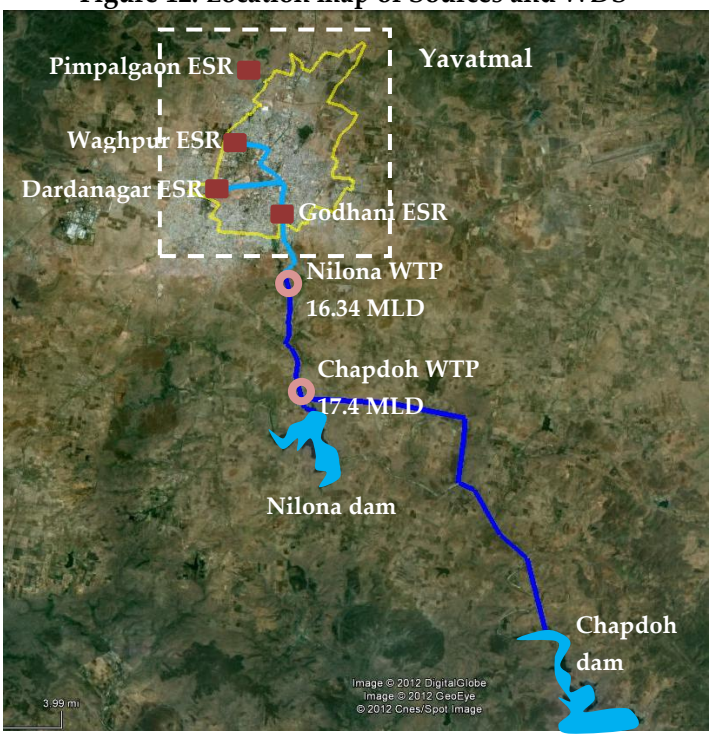
3. ASSESSMENT AND PROPOSALS FOR WATER SUPPLY

This section of report provides an overview and assessment of water supply system, along with issues and proposed improvement actions. This section also captures interventions required by MJP to move towards 24x7 water supply system

3.1 ASSESSMENT OF CURRENT WATER SUPPLY SYSTEM

The water supply system in Yavatmal city is operated and maintained by the Maharastra Jeeven Pradhikaran (MJP). The water supply scheme also covers (Wadgapm, Umarsara, Bhosa, Moha, Dorli and Waghapur) surrounding six villages of YMC. The current scheme was commissioned in 1972. It was designed for the intermediate stage capacity of 8.4 MLD and ultimate capacity of 13.6 MLD. The phase II of the scheme was commissioned in 1984 wherein capacity of the filtration plant and pumping machinery was augmented.

Figure 12: Location map of Sources and WDS



The main sources of water supply for YMC are the dams on River Waghadhi: Nilona dam and Chapdoh dam. Chapdoh dam is situated 25 km and Nilona dam is 7 km from the city respectively as shown on in Figure 12. MJP actually draws a total of 29.9 MLD of water from these two sources.

The city has two conventional water treatment plants with capacities of 16.34 MLD at Nilona WTP and 17.4 MLD at Chapdoh WTP. There are 5 water distribution stations (WDS) from that treated water is distributed to the consumers. The schematic diagram of water supply scheme is shown in figure 13. In addition to the individual water connections provided by MJP to slums, the council also supplies water through stand posts, hand pumps

Figure 13: Schematic flow diagram of water supply scheme

Source: 29.9 MLD	WTP: 29.3 MLD	WDS: 23.8 MLD	Consumer end: 22.1 MLD
•Chapdoh dam: 15.9 MLD •Nilona dam: 14 MLD	•Chapdoh WTP: 15.6 MLD •Nilona WTP: 13.7 MLD	• Godhani ESR: 5.56 MLD •Godhani new ESR: 6.93 MLD •Darda nagar ESR: 5.24 MLD •Waghapura ESR: 5.56 MLD •Pimpal gaon ESR: 0.5 MLD	•Billed metered consumption: 22.1 MLD

and tube wells. There are 215 public taps, 493 hand pumps and 8 borewells in slum areas across city. However the borewells are operated by the community itself at their own timings, water being supplied to the slum dwellers only.

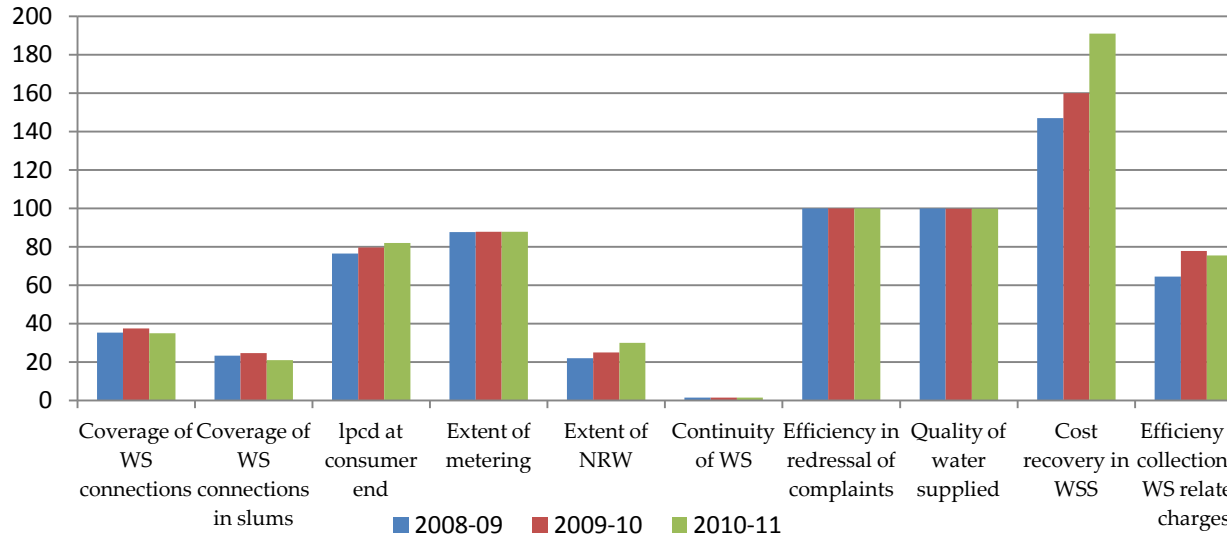
3.2 ASSESSMENT OF SERVICE DELIVERY

The overview of comparative performance indicators of water supply system over a period of three years are shown in the figure 14. The coverage of household level connections is only 35%, though the entire inhabitated city area is covered by the distribution network. This indicates that there are possibilities to increase HH level coverage within the existing network.

Per capita availability of water at consumer end in 2010 – 11 was 82 lpcd. While availability of water is not seen as an issue, due to design of distribution network, the city is able to supply water only once in 2 days for 1.5 hours. The daily water supply operations still involves manual procedures to operate the water supply network, such as controlling the 70 valves through manual mode on a daily basis.

As metering is mandatory in all MJP operated water supply scheme, Yavatmal exhibits high extent of consumer metering at 88%. However, extent of non revenue water is still 30%, pointing to possible issues in network.

Figure 14: Key Performance Indicators of Water supply system



Source: (PAS Project, 2008 to 2011)

On the financial sustainability, MJP shows good on O & M cost recovery at 191% and collection efficiency is 75%, which is close to the benchmark value of 80%. The billing cycle in MJP is bimonthly with bill printing and distribution outsourced to a private agency. It is important to note here that Yavatmal's water tariff is comparable to that of any other MJP city. The city levies a volumetric charge on the basis of consumption. The residential tariff of Rs. 10.2 per KL. Over the last seven years, tariff has been revised three times, with 5% increase in 2006-07 and 10% in 2009-10.

Table 9: Water tariff of YMC

Year	2005-2006	2006-2007	2009-2010
Domestic Rs/KL	8.80	9.25	10.20
Non-Domestic Rs./KL	17.00	18.20	19.65
Commercial Rs./KL	40.00	42.00	46.20
Industrial Rs./KL	0	0	0

Source: (Yavatmal MJP tariff structure)

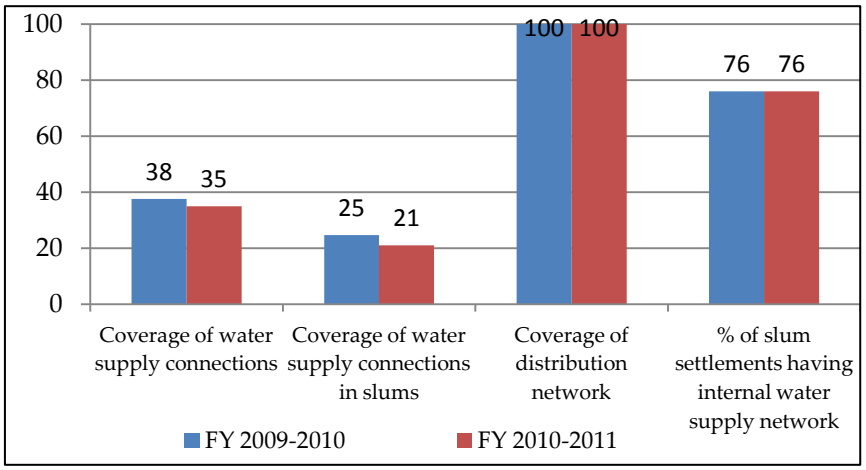
As part of the reforms under MSNA, MJP has carried out consumer survey for entire city therefore HH level coverage of water supply scheme has higher reliability. Quality related data are not maintained properly and therefore have low reliability.

The issues and priorities are analysed based on the themes of access and coverage including slums, service level and quality, financial sustainability & efficiency in service operation.

3.2.1 ACCESS AND COVERAGE

Coverage of individual water connection: Though 100% of the area is covered by the distribution network, individual HH level coverage is only 35% which is very low. These can be attributed to many reasons eg. high connection fees , lengthy connection procedure etc. From the focused group discussions with citizens, it was found that approximate costs for water connection was around Rs. 10,000. According to MJP's citizen charter, water connection will be provided within 3 months. However during group discussions it is reveled that there is no specified time period within which the consumer will be provided the connection.

Figure 15: Access and coverage in city level and slums



Source: (PAS Project, 2008 to 2011)

Coverage of individual water connections in slum settlements: The coverage of individual water supply connections in slum settlement is 21%, further lower than city coverage even though 76% of slum settlements have internal water supply network. Additional sources of water supply in slum settlement are hand pumps, public taps and borewells, hence 48.4 % of the population have access to shared water services in slums. However, field observations reveals that most of the public taps do not have tap, due to which water flows continuously during supply periods and therefore registering wastage in water supply. The adminsitration should covert the exisiting stand posts into group connections on an immediate basis.

Public tap without Stop cock

Bore wells operated by the community

People using electric pump to draw water

Inadequate pressure in water mains

The number of water connections have not increased in pace with the increase in households in city and slums, and therefore coverage of water supply connections show a decreasing trend in both cases over the period study. While there is a policy provision for providing water connections in slum settlements, the connection procedure is the same for slum and non slum dwellers. There is no special scheme or procedure for providing connections in slum settlements. The documentation required is similar to non slum HHs and this may include sale deed of property, tax receipt from municipality etc. The application can be filed as authenticated owner of tenant of the said property to obtain water supply connection from MJP. Consumers have to pay 3 months advance water bill as deposit along with the cost of installing the connection.

Proposals for Improvement: . It is proposed to ease the connection procedure for slum dwellers. Connection procedure should be eased by eliminating the initial deposit and connection cost can borne by the city along with simplified procedures to ensure more consumers from the 27 slum settlements are connected to the water supply system. MJP can look at possibilities to improve the internal infrastructure in the slum settlements.

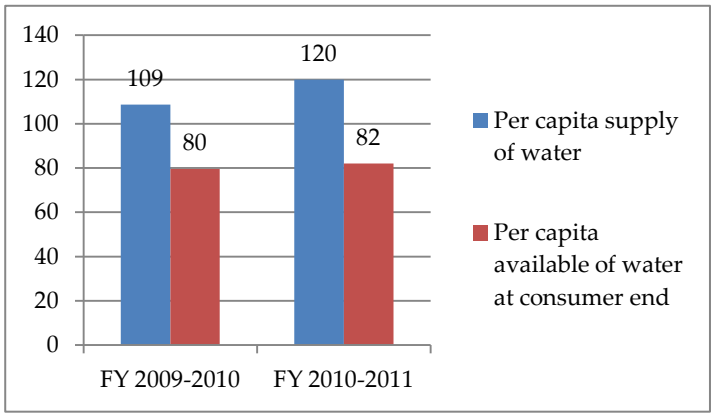
Under MSNA, MJP has already carried out consumer survey and identified that around 1175 water connections are illegal. Regularising these illegal connections will increase coverage of individual connection with almost no cost incurred to MJP

3.2.2 SERVICE LEVEL AND QUALITY

Per capita supply: The MJP withdraws 29.9 MLD from the two surface sources of which 14 MLD is provided to YMC. There is a substantial increase in supply at source from 109 lpcd to 120 lpcd, as compared to increase in lpcd at consumer end from 80 lpcd to 82 lpcd.

Field observations reveal low pressure levels in slum settlements with water available only at 3 - 4 meters below the ground level at certain instances. In such cases, it is common to observe consumers removing the meter from pipe/ tap and withdrawing water directly from the distribution network, using electric pumps.

Figure 16: LPCD at source and consumer end



Source: (PAS Project, 2008 to 2011)

Continuity of duration: Though the water quantity at source is considered adequate, MJP provides water for a period of only 1.5 hrs every alternate day. However, MJP is keen to augment the distribution network in order to increase the duration of supply. The distribution network in the city was laid down in 1972 and designed for a population of 60,000. Under UIDSSMT, MJP is laying down distribution network of 97 km currently.

Quality of water supplied: Quality of water supplied by MJP is 100% but has a D reliabilty. MJP is carried out water testing regularly at WTP, WDS and at consumer end. Quality data are recorded manually.

3.2.3 FINANCIAL SUSTAINABILITY

There has been impressive performance from MJP in O & M cost recovery and collection efficiency of water supply charges. As mentioned previously, YMC provides free supply to slum settlements, apart from MJP, through public stand post, bore wells etc. MJP charges YMC Rs. 90 lakh annually for the usage of the public stand post, bills are raised on the fixed rate for stand post. Also, the electricity costs of operating these borewells amount to Rs. 2 lakh per annum and is borne by YMC. The table below details the revenue capital and revenue expenditure towards the provision of water supply services by both MJP and YMC.

Table 10: Revenue income & expenditure for water supply system in YMC area (Rs. lakhs)

Budget Head	2008-2009	2009-2010	2010-2011
Revenue Expenditure			
MJP (For supplying most of the water demand, from raw water intake to distribution through water supply network, billing and collection)			
Salaries and Establishment costs	*127.95*	*125.36*	*135.34*
Fuel, electricity and related charges	*218.35*	*248.69*	*256.93*
Chemicals	*7.86*	*6.11*	*4.9*
Raw water	*0*	*0*	*0*
Repair and Maintenance	*54.19*	*42.32*	*53.27*

Budget Head	2008-2009	2009-2010	2010-2011
Others	*0.24*	*0*	*0.6*
Total Revenue Expenditure(MJP)	***408.59***	***422.48***	***451.04***
YMC (For servicing a part of the balance water demand through borewells and hand pumps)			
Salaries and Establishment costs	*7.71*	*9.28*	*10.85*
Raw Water	*57.59*	*181.37*	*80.00*
Repair and Maintenance	*19.81*	*22.43*	*26.00*
Others	*9.86*	*13.95*	*15.00*
Total Revenue Expenditure(YMC)	***94.97***	***227.02***	***131.85***
Revenue Income			
MJP	511.77	646.77	675.94
YMC	22.77	23.73	24.83
Revenue Surplus / (deficit)			
Revenue surplus / deficit (MJP)	***103.18***	***224.29***	***224.9***
Revenue surplus / deficit (YMC)	***(72.20)***	***(203.29)***	***(107.02)***

(Budget books of Yavatmal Municipal council, 2005 - 06 to 2011 - 12)

The revenue expenditure by YMC towards water supply services has increased by a CAGR of 45% in the last five financial years. The increase in expenditure is attributed to the increase in expenditure towards raw water charges. The sudden increase in expenditure could also be due to the charges paid to MJP for public taps and outstanding water dues.

However the increase in revenue income from water supply service is less in comparison to the revenue expenditure incurred. The revenue account of water supply services by YMC has thus been in deficit for the last three financial years. The revenue sources for YMC include 15% contribution from the consolidated property tax and the income from the sale of water supplied through tankers.

Revenue expenditure by MJP towards water supply services has increased at a CAGR of 5.5 % during the last three financial years. In comparison, the revenue income has increased at a CAGR of 14.9 % during last three financial years, thus enabling MJP to maintain a healthy surplus towards the revenue account.

The average per capita expenditure towards water supply services in the city (considering both MJP and YMC) was Rs. 502 during last three financial years. This is more than that recommended by HPEC (Rs. 302) and the Zakaria Committee (Rs. 491), respectively, in 2009-10.

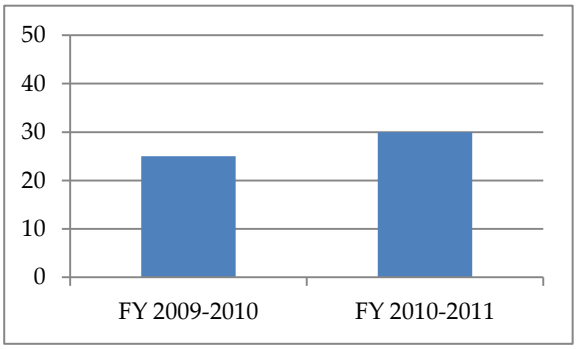
MJP has a cost recovery of more than 100% at a collection efficiency ranging from 75 percent to 78 percent (during the last three financial years).

Proposals for improvement

It is proposed to convert stand post into group connections; this will reduce burden on YMC. MJP has already completed energy audit study, implementation of energy audit study measures will reduce the operation and maintenance cost of water supply.

3.2.4 EFFICIENCY IN SERVICE OPERATION

Figure 17: NRW of water supply



Extent of NRW: As mentioned above, the per capita supply at consumer end is less than per capita supply at source due to losses in the water supply system. Extent of non revenue water has increased from 25% to 30% in year 2009 – 10 to 2010- 11. Due to absence of metering at sources, WTPs & WDSs, LPCD and extent of NRW have low reliabilty. NRW will comprise of apparent losses and real losses, apparent losses is reduced by regularizing illegal connections and real losses is reduced by replacing service line connections and repairing leaked pipelines.

Proposals for improvement: Under MSNA, MJP has already carried out consumer survey and identified that around 1175 water connections are illegal. Regularising these illegal connections will increase the water supply revenue and coverage of individual connection with almost no cost incurred to MJP.

MJP is installing bulk meters at various sources, WTPs and WDSs under MSNA. This will not only improve the data reliability of indicator but also help to monitor and manage losses more efficiently.

Efficiency of complaint redressal: Though the efficiency of consumer redressal is 100%, it still needs improvement. Presently the only means of registering complaints is through personal visits to the MJP office.

Proposals for improvement: MJP can look at other complaint registering systems such as through telephone, SMS, web based technology etc. This will ensure effective addressing of customer complaints and also help in faster tracking and monitoring of the issues related to water services.

3.3 PROPOSED ACTIONS AND INTERVENTIONS

Based on the issues identified above, indicators are prioritized for the improvement actions. As the coverage is quite low, this along with continuity and extent of non revenue water will be taken on high priority basis. This will be followed by establishment of complain redressal system.

Under UIDSSMT, capital intensive works are already being carried out. Besides several water reform measures are underway in MSNA. Thus the proposed actions for Yavatmal essentially include additional low cost actions that can be done in sync with capital actions under implementation. Based on above analysis, summary of improvement actions that can be proposed for Yavatmal are mentioned below:

Table 11: Interventions with minimal capital expenditure

Categories	Action	Improvement of KPIs	Estimated Cost
Access and coverage	Subsidize the connection cost for slum area and ease the connection procedure	Coverage of WS Connections	42 lakh*
	Convert stand post into group connection	Coverage of WS connections and Non revenue water	5.4 lakh**
Efficiency in service operation	Establish the complaint redressal system	Complaint redressal	10 lakh***
Total			57.4 lakh

* *Assuming average connection charge of Rs. 2000 and 2100 beneficaries in slum settlements*

** *Assuming average cost for converting standpost into group connection is Rs 2500 per stand post*

*** *Including mobile application, software and hardware*

Average cost for converting standpost into group connection will be around 5.4 lakh.

3.4 MOVING TOWARDS 24 X 7

Govt. of Maharashtra's major focus in performance improvement has been the planning and implementation of 24X7 water supply system in all Class A cities in the state. Given that MJP provides water supply services to YMC, planning and implementation of the 24X7 system has to be carried out by MJP.

While steps towards achieving 24X7 water supply requires substantial efforts, certain actions related to skill up gradation of human resources and improved management information systems are easier to implement. The technical guidelines suggested by MoUD towards 24X7 systems provide an approach based on the institutional, technical and commercial improvements required. Efficient and effective operation of urban water supply services is impossible without having these improvement.

Technical: Current water supply systems are operated in constrained conditions and shortcomings have to be rectified for the conversion from intermittent to a continuous supply system. A summary of key technical shortcomings are:

- Reliable data on distribution networks and customers do not exist
- There is virtually no metering of bulk water produced, its transmission or distribution at any point in the network;
- Pipelines within the distribution system are totally interlinked;
- Control of leakage on a routine, planned basis is impossible;
- It is unusual for a water utility to routinely measure or assess adequacy of system pressure; and
- Customer meters do not function with any predictable accuracy under intermittent supply conditions.

In YMC, the distribution network is very old and laid down in 1972 for a population of 60,000. The current population has increased to 2, 10,000. Therefore the existing distribution network is not able to

fulfill the demand with adequate pressure. There is also no metering at source, WTP and WDS level. As the distribution network is interlinked, there are no clear operational zones that exist in the present distribution network. Though the metering at consumer end is 88%, meter accuracy is unknown. To implement 24x7 water supply, therefore the current water supply system should be improved.

- In order to fulfill the existing water demand along with adequate pressure, a DPR was prepared and approved for improving the distribution network under UIDSSMT. As per the DPR, the distribution network of 97.5 kms in the old city and construction of ESR of 20 lac lts capacity is going on. The total approved project cost is Rs 10.96 crore.

Reliable data on distribution network and customers is achieved through:

- To generate reliable data on distribution network and consumers, MJP has already procurred satellite image of Yavatmal city. This has been overlaid with existing water network along type of pipe line, diameter, length, location of valves, etc. Around 50,000 properties have been surveyed and the results are integrated into GIS, along with network details.

Interlinked distribution network can be restructured through:

- Based on the digital maps prepared , five operational zones within the network is demarcated using Bentley software for hydraulic modelling. This will help in removing issues of interlinked pipelines in the network.

Metering at bulk production and distribution points:

- To measure the water quantity at various sources, WTPs and at inlet of each operational zones, bulk flow meters have been installed and around 80% of the work is completed.

Control of leakage on a routine, planned basis

- To minimise leakage in water supply system, water audit and leak detection study will be carried, after completion of the installaion of bulk flow meters at all points. Energy audit will also be carried out to ensure optimum use of electricity for water supply services.

The above activities will help in removing technical shortcomings of the existing water supply system. Once this stage is completed, zonewise population is generated using density method and pipe wise water quantity demand is calculated. For implentation of 24x7 water supply system, the hydraulic model study is completed and DPR is under preparation. These reforms are funded under MSNA and costs of these are given in table no 12. MSNA was launched, as reform linked programme to improve water supply and sanitation in ULBs in Maharashtra. The DPR for the 24 x 7 water supply in Yavatmal is currently under preparation.

Table 12: Approved cost for Water reform activities under MSNA in July 2009

Sr No	Component	Cost (Rs in crore)	Current Status
Approved cost for water reforms activities under MSNA			
1	Consumer survey	0.11	Completed
2	Water audit	0.45	Under progress
3	Energy audit	0.15	Completed
4	Flow meters	0.55	Under progress
5	Hydraulic modelling	0.34	Completed
6	GIS mapping	0.25	Completed
7	Computerised water billing and collection system	0.18	Under progress
Total approved cost for water supply reforms		2.03	
Cost for 24x7 water supply (According to draft DPR) Major component in DPR will be construction of mass balance reservoir, rehabilitation of pipelines, replacement of service connections and customer meters, installation of pressure reducing valves, monitoring and then reducing leakages in each DMA .		40.23	Draft DPR is prepared
Total cost for 24 x 7 water supply		**42.26**	

Commercial: The conversion to 24x7 will also require more sophisticated commercial systems and procedures along with technical improvements. Continuous supply is likely to result in significant changes in the way the customer interacts with the water supply authority. Billing and payment arrangements may be revised and expectations with respect to payment discipline will be different.

In YMC, MJP is establishing computerised water billing and revenue collection system. This is funded under MSNA programme, cost of these reform is given in table 12.

Institutional: Planning, implementing and operating a water service under 24x7 supply conditions also require technical skills and a higher degree of managerial control. A good institutional framework can ensure that a 24-7 conversion program is successful and sustainable

In Yavatmal, water supply system is operated and maintained by MJP and as discussed previously MJP has a different staff organogram. Yavatmal water supply system is handled by team of MJP with prior experience of implementating 24 x 7 WS in the nearby town of Amravati. Also MJP has the technical and managerial skill to plan, design, implement, operate and maintain a 24x7 water supply system in YMC.

A summary of the actions already carried out and cost implications towards achieving 24X7 water systems is given below:

Table 13: Summary of improvement actions to implement 24X7 systems

Activity	Description	Status
Network and Customer database	GIS mapping and hydraulic modeling for entire city	Carried out under MSNA
	100% Consumer end survey, including identifying and regularizing illegal connections	
Network Restructuring	Creation of DMAs and installation of bulk flow meters	Carried out under MSNA
Water audit and Leakage detection	Conduct water audits and leak detection studies, and repair existing leakages in the system	Carried out under MSNA
Implementation of 24X7 in whole city	Augmentation of entire network in the city	Draft DPR is prepared

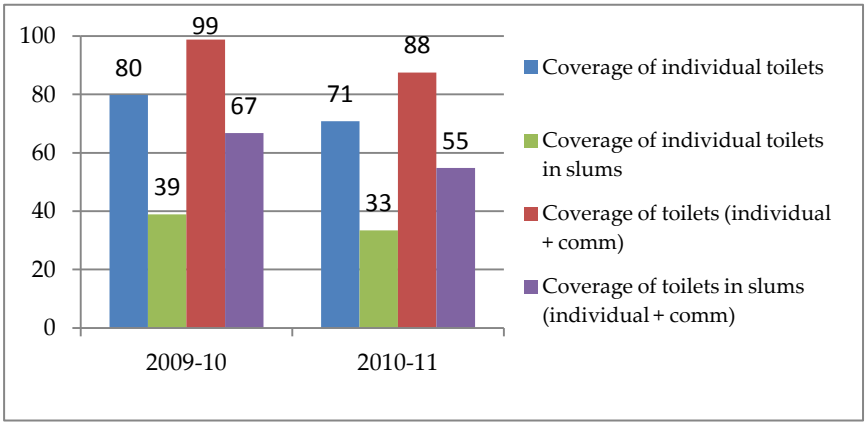
4. ASSESSMENT AND PROPOSALS FOR SANITATION

This section of report provides details of coverage of toilets in city and in slum settlements with improvement options focused on making YMC open defecation free city. This section also captures current practice and improvements for fecal sludge and septage management.

4.1 COVERAGE OF TOILETS

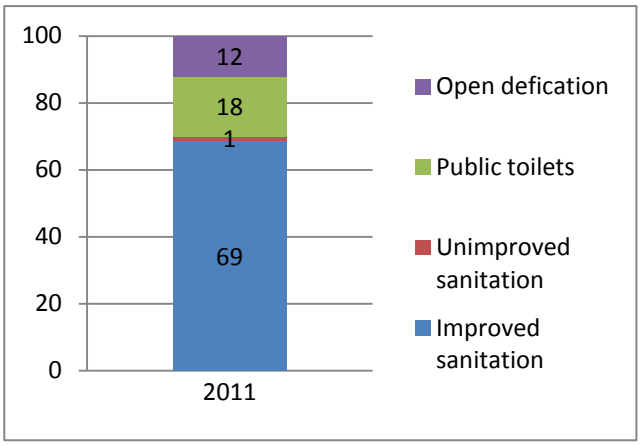
In Yavatmal around 19,000 HHs have individual toilet and approximately 5,000 HHs have access to community toilets. There are 34 public toilet blocks and 19 pay & use toilet blocks in the city area. Coverage of individual toilet is 71% whereas in slum areas coverage is only 33% which is very low as compared with city level coverage; coverage of individual and community toilet in city area is 88% and at slum level is 55%. Coverage of toilets is decreasing in the last two years as evident from fig. 17.

Figure 18: Coverage of toilets in city and slums across the years



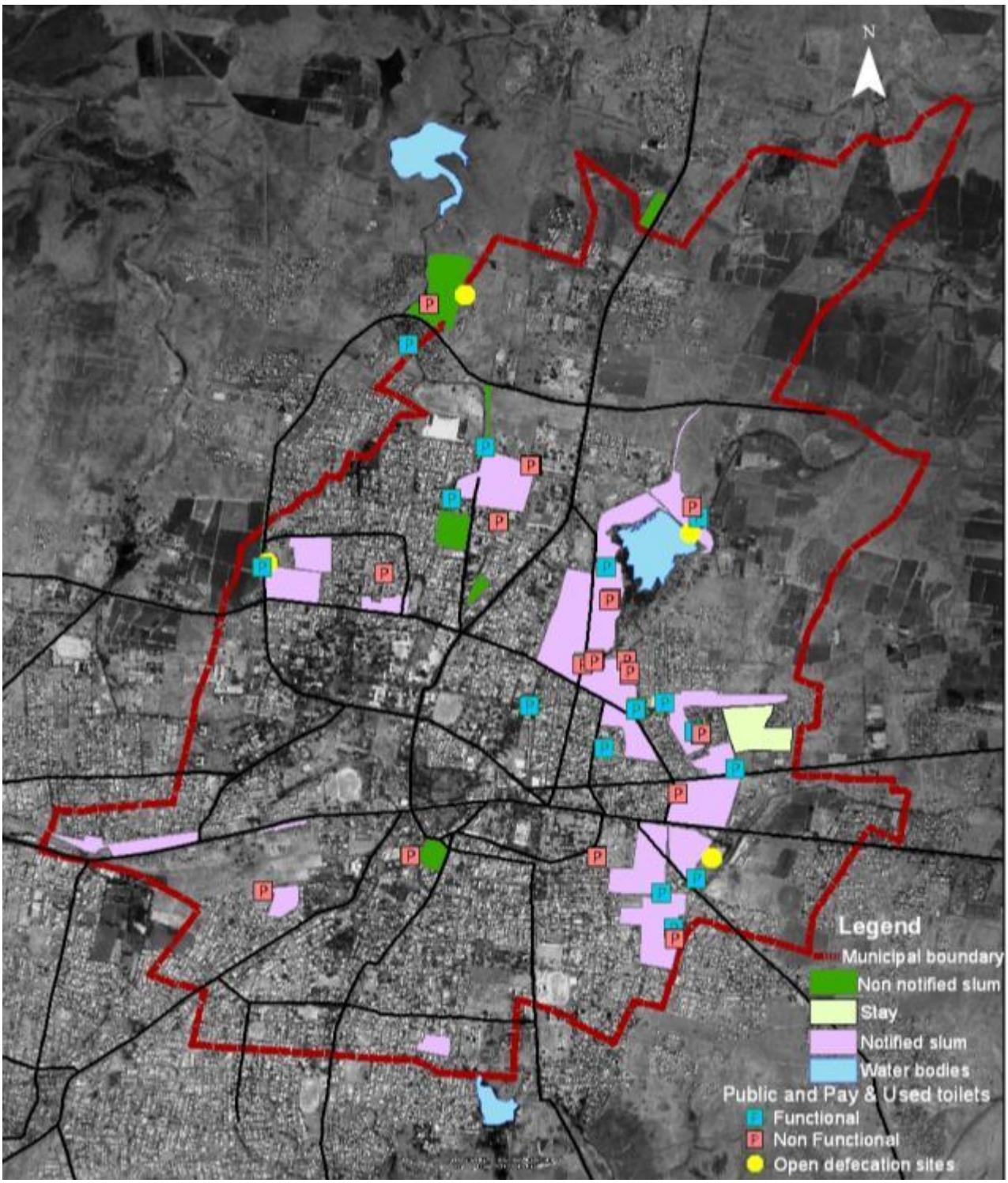
As per the recent figures from census 2011, 69% of the households have access to safe sanitation implying latrine facilities within premises connected to septic tank and ventilated improved pit latrine. 1% of the households have access to unimproved sanitation like pit latrine without slab/pit and where night soil is disposed into open drains. 18% households are depending on the public toilets. However, 12% of the households in Yavatmal do not have access to any sanitation (improved/unimproved/shared) and thus resort to open defecation practices.

Figure 19: Access to sanitation in YMC (Source: Census 2011)



Coverage of toilets in slum areas is abysmally low as compared to overall coverage at city level. Under the VAMBAY scheme, efforts have been done to add 783 individual toilets from year 2001 to 2006. As per YMC officials, there are around 4120 individual toilets in the slum settlements. However this is very less as compared against total requirement of 10,213 individual toilets. There are 53 public and pay & use toilet blocks. 70% of these toilets blocks are located within slum areas (see Figure 20). Out of 19 notified slum settlements, 14 settlements have access to either public or pay & use toilets. However of the 7 non notified slum settlements, only 2 settlements (Amraipura & Pimpal gaon) have access to either public or pay & used toilets. Refer Annex 3 for details for public and pay & used toilet seats in slum settlements in Yavatmal.

Figure 20: Map showing notified and non-notified slum settlements and sanitation facilities



Source: (CEPT University, 2011)

During the field study, the team observed that some of the toilet blocks and seats are not functional. The team has mapped location of functional

Table 14: Status of Public and Pay & Use toilets

Toilets	Number of block	Number of seats	Number of functional block	Number of functional seats
Public Toilets	34	347	17	173
Pay & Use Toilets	19	310	19	310
Total	53	657	36	483

Source: (CEPT University, 2011)

and non functional toilets as shown in Figure no 20. Of the total 53 blocks, about 76% are functional. 50% of the public toilets are non functional while all pay & use toilets are in functional condition.

Condition of Public and Pay & Use toilets in Yavatmal Municipality



There are several reasons behind non functionality of public toilet blocks. First hand field interactions reveal that some of the toilets are non functional due to improper usage or maintenance by the user groups. The ULB has contracted out cleaning of pay & used toilet blocks. Though this cleaning happens on regular basis, due to improper usage of toilets, the conditions are found to be unhygienic and improper. Awareness campaigns need to be conducted by the Council to ensure proper usage.

Some of the toilet blocks are non functional due to non availability of water and absence of doors. In one of instances, it was observed that the toilet block was fenced as part of their property by the individual family and used for their personal purposes. Slum wise details of non functional toilets are given in the table 15.

Table 15: Details of non functional seats for refurbishment

Slum settlement	Non functional toilet seats
Godown Phail	5
Kumbhar Pura	12
Malipura	10
Patipura Dorli pura	14
Shinde Nagar	19
Talav Phail - I	10
Vanjari Phail	13
Amrai Pura	9
Pimpal Gaon	5
Total	**97**

Source: (CEPT University, 2011)

Efforts to renovate or repair non functional toilets can help reduce instances of OD in Yavatmal. During the field study, the team has mapped the location of existing open defecation (OD) sites and these were found in proximity to the slum locations in the city (Refer figure 20). Based on the analysis of the existing toilet facilities, both individual and shared, 17,969 people in Yavatmal do not have access to any kind of sanitation/ toilet facilities, which is around 15.4% of city population. This is close to census figure of 12% of city population resorting to OD.

Based on the above analysis, first priority is to refurbish the existing non functional toilets and afterwards various options have been worked out based on provision of individual toilets, community toilets or individual and community toilets where constraints for providing individual toilets exist.

Based on the analysis of existing toilets, there are 97 toilet seats which are non function and can be refurbished by YMC. Refurbishment cost is assumed to be Rs. 10,000 per seat. 25 persons per toilet seat are assumed for construction of new toilets. The total costs for refurbishment amounts to Rs. 10 lakh. YMC should ensure that these seats should be spatially distributed properly. All slum dwellers should have access to public or pay and use toilets. To cover the gap in toilet provision for the remaining population, three options are considered for YMC. The first is to achieve the gap through 100% provision of individual toilets, second being combination of individual and community toilets and last option is construction of only community toilets. These options are discussed below.

Table 16: Cost calculation for refurbishment of non functional community toilets

Estimated Population resorting to OD	17969
No. of non-functional seats (that needs to be refurbished)	97
Population shift after refurbishment of non functional public seats	2425
Estimated population resorting to OD after refurbishment of non functional public seats	15544
Refurbishment cost of existing Non-Functional toilets (Rs. Lakh)	10

Source: (CEPT University, 2011)

Option 1: Achieving Open defecation free status through 100% provision of individual toilets: After refurbishing the non functional toilets, a gap of 3454 no of individual toilets still exists and need to be covered to ensure OD free status. The total cost works out to be Rs 1209 lakh, assuming a construction cost of Rs 35,000 per individual toilet. 10% beneficiary share is taken into consideration. Total cost for making Yavatmal OD free by refurbishment of non functional seats and provision of individual toilets thus amounts to Rs. 1098 lakh. To identify and motivate the users for construction of individual toilet, there is a need to create awareness among users through an IEC campaign. Budget of IEC cost is consider as 5% of construction cost of individual toilet.

Table 17: Cost calculation for construction of individual toilets

No of HHs required toilet	**3454**
Total cost for construction of new individual toilets (Rs Lakh)	1209
10% beneficiary share (Rs Lakh)	121
Fund required (Rs Lakh)	1088
IEC activity (Rs Lakh)	60

Source: (CEPT University, 2011)

Option 2: Achieving Open Defecation Free status through provision of individual and community toilets: Based on this option, the YMC would have to construct about 1036 individual toilets and 44 community toilet blocks having 10 seats per block. Assuming similar costs for individual toilet as in Option 1 and Rs. 50,000 per seat (including connection to septic tank), the total cost works out to be Rs. 580 lakh. From this 10% beneficiary share is taken into consideration. To identify and motivate the users for construction of individual or community toilet, there is a need to create awareness among users through an IEC campaign. Budget of IEC cost is consider as 5% of construction cost.

Option 3: Achieving Open Defecation Free status through provision of only community toilets: Alternatively, the YMC can also look at the option to make the city OD free through provision of community toilets. Under this scenario, there is a need for construction of 622 additional new toilet seats after refurbishing the non functional toilets. Cost for construction of new community toilet is assumed as Rs 50,000 per toilet seat. Total cost for making Yavatmal OD free by refurbishment of non functional seats and constructing the community toilet blocks amounts to Rs. 321 lakh.

Table 19: Cost calculation for construction of individual & community toilets

Number of individual toilet need to be constructed	**1036**
Number of seats need to be constructed for community toilet	435
10% beneficiary share for individual toilet (Rs Lakh)	36
Cost for construction of toilets (Rs in Lakh)	544
IEC activity (Rs in Lakh)	29

Source: (CEPT University, 2011)

Table 18: Cost calculation for construction of community toilet

Number of seats need to be constructed	**622**
Cost for constructing new community toilet seats (Rs. Lakh)	311
IEC activity (Rs Lakh)	16

Source: (CEPT University, 2011)

Considering the field realities, there is an urgent need to create awareness among users through an IEC campaign on proper usage of common toilet facilities. Budget of IEC cost is consider as 5% of construction cost of community toilet.

Table 20: Summary of options to make YMC Open Defecation Free (in Rs. lakhs)

Strategies for ODF	Option 1	Option 2	Option 3
Refurbishment cost	10	10	10
Number of individual toilets	3454	1036	0
Number of additional seats in community toilets / public toilets	0	435	622
Toilet construction cost	1088	544	311
IEC Activities at 5% of construction cost	60	29	16
10% beneficiary share for individual toilet	121	36	0
Total cost (in Rs. Lakh)	**1158**	**583**	**336**

Source: (CEPT University, 2011)

Considering YMC's current financial position, achieving 100% toilet coverage through option 1 does not seem to be financially sustainable. On the other hand, while option 3 is the least costly of all options, operation and maintenance of the community blocks will remain an issue as similar issues can be seen in the existing community and pay-n-use toilets. Option 2 is most feasible both in terms of cost as well as management of community toilet blocks.

4.2 SEPTAGE AND SULLAGE MANAGEMENT

Yavatmal does not have underground sewerage system. Toilets in the cities are connected to septic tanks and soak pits. The grey water is collected through the drainage network. The city has 100% habituated area covered under drainage network through open and closed drains. The drains are cleaned regularly by private contractors and hence do not give rise to foul smell even during the peak operating hours.

Cleaned open drains in city

Waste left along sides of the drain

Open drain network in Slums

Field visit revels that most of the city drains are clean and well maintained. However in few slum pockets where there are narrow streets and drains, drains are clogged, the cleaning is not carried out regularly. In some areas drains are cleaned but waste is left along sides of the drain.

Outfalls of these drains are diverted into the existing lakes. At present, wastewater is not treated and disposed off in natural water bodies. City has one vacuum machine to clean the septic tank. Within city limit 750 Rs per trip and outside city limit 1000 Rs per trip is the septic tank cleaning charge. The septage is dumped near the solid waste dumping place without any treatment.

Proposal for improvement:

Treatment of septage:

Table 21: Cost calculation for Fecal sludge managment

Collection of septage	Number of emptier available at present	1
	Needed for full service by Municipality	5
	Supply gap	4
	Cost of septic tank emptier (Rs in Lakh)	60
Treatment of septage	No of septic tanks	17815
	Average volume of FS reaching at composting site	1.25 m^3 per septic tank
	No of compost pit needed (Assuming annually 2 composting cycle per pit)	93
	Area of compost pits	3488 sq. m

Field study revealed lack of septage treatment and disposal facility. YMC needs to treat fecal sludge; treated fecal sludge can be sold to farmers since Yavatmal is surrounded by good agricultural hinterland. YMC also has to procure additional suction emptiers. Considering the estimated number of 17815 septic tanks and cleaning interval of 5 years, a total of 5 suction emptiers would be required for YMC. This is assuming that one emptier cleans 700 tanks annually. As YMC already has one emptier, it will need to procure an additional four emptiers with each costing about Rs. 15 lakhs.

Composting of fecal sludge can be carried out at adjacent to the dumping place located near to the vermi composting plant. The compost plant will have 93 dump pits excavated of dimension of 30 x 10 x 3 feet. The fecal sludge will be dumped into these pits and used for producing compost. Compost thus produced every year is dug out, sold to farmers and the pits are reused. O & M of the fecal sludge treatment plant can be outsourced along with SWM vermi composting plant.

Treatment of sullage

The municipality has developed a proposal for the treatment of wastewater through Phytoride technology tested by NEERI.

Proposed project for wastewater treatment:

- Pilot project of construction of Decentralized Wastewater Treatment facility for Public Toilets and afterwards success story can be replicated in all 52 toilets
- Feasibility study has been done for the treatment of municipal sewage through Phytoride Technology by NEERI.

According to PAS checklist 2010-11, YMC generates around 8 MLD of wastewater. Construction cost for phytoride technology based treatment facility is assumed to be Rs 1.2 lakh for 20 m^3/day wastewater. Average cost for construction of treatment plant will thus work out to be Rs. 4.8 crore for YMC.

4.3 SUMMARY OF PROPOSED ACTIONS / INTERVENTIONS

Given that Govt. of Maharashtra's major focus in urban sanitation has been towards **'making cities Open Defecation Free',** the performance improvement plan in sanitation for YMC has concentrated on the covering the gap in toilet coverage, and related components like IEC activities, awareness campaigns, etc.

It is proposed that the YMC will move towards ODF status within the next five years. Assuming that the YMC will do this through provision of both individual and community toilets, it will cost the council Rs. 1.17 crore per year, across the five years. Simultaneously, the YMC will have to undertake revenue augmentation measures like levy sanitation taxes, levy charges for maintenance of community toilets, etc.

Table 22: Cost for Sanitation improvement in YMC

Cost for ODF	Rs in Lakh
Refurbishment cost	10
Toilet construction cost	544
IEC Activities at 5% of construction cost	29
Total cost for toilet coverage	**583**
Cost for FSM	**60**
Cost for Septage treatment	**480**

However, the YMC must also simultaneously undertake community mobilization and awareness campaigns in order to ensure that the community toilet blocks are maintained/ managed properly. While the maintenance of all the pay-n-use toilets has been contracted out, similar arrangements with CBOs can be looked at with respect to community toilets. Campaigns to bring about awareness related to cleanliness and hygiene practices, safe sanitation practices, and negative health impacts due to open defecation needs to be conducted by the Council. Local NGOs and CBOs need to be roped into this exercise to ensure participation by all communities. The campaigns should begin by triggering initiation in the slum settlements and undertaking transect walk to the open defecation sites to highlight the above issues.

As mentioned previously, septic tank cleaning machines are inadequate as compared to the demand. Assuming that YMC will meet this demand by procuring additional four vacuum trucks, cost incurred will be Rs 60 lakh. Cost of fecal sludge treatment is minimal, as YMC already has land available near the vermi compost plant.

YMC has already proposed a Phytoride technology based treatment facility for sullage treatment. Construction cost of this treatment system will be around 480 lakh. The operation and maintenance cost of this system is very less and relatively easy to maintain.

5. SUMMARY OF PERFORMANCE IMPROVEMENT PLAN FOR YAVATMAL

This section covers overall cost summary of PIP proposal along with phase wise implementation plan. This covers assessment of the level of funding available with YMC and the amount required to be generated from external sources to fund these PIP actions.

5.1 SUMMARY OF PROPOSAL

The proposals summarized below are focused on two key areas of establishing 24X7 water supply system and moving towards open defecation free. It also includes improvements in key processes and operations related to these two focal areas. Based on the analysis of the water and sanitation sectors in Yavatmal, the Performance Improvement Plan has been summarized in table 23 given below. While some of the actions identified in the previous sections can be taken up immediately and are low cost actions, others are more capital intensive and will require preparation of detailed project reports and financing plans to implement.

Table 23: Overall cost summary of PIP action

Categories	Action	Estimated Cost (Rs in crore)	Current status
Water supply			
Low cost action			
Access & coverage	Convert stand post into group connection	0.05	Needs to be done
	Subsidize the connection charges and simplify the connection procedure for slum dwellers	0.4	Needs to be done
Efficiency in service operation	Introduce appropriate complain redressal system	0.1	Needs to be done
Capital intensive			
Service level & Quality	24 x 7 water supply implementation cost (according to draft DPR)	40.2	Awaiting finalization and sanction of DPR
Total Water supply improvement cost		**40.77**	
Sanitation			
Low cost action			
Toilet coverage	Refurbishment cost	0.1	Needs to be done
Fecal sludge management	Procurement of vacuum trucks	0.6	Needs to be done
Capital intensive			
Toilet coverage	Toilet construction cost & IEC activities	5.7	Preparation of DPR is required
Service level & Quality	Treatment plant construction	4.8	Feasibility study completed
Total Sanitation improvement cost		**11.2**	
Total cost for performance improvement		**51.2**	

Process related improvement actions: Based on discussions with the MJP & YMC, process related improvement actions that can impact the service levels of the water supply system is revision of 'new

connection' format for slum settlements. In new connection format, eliminate connection deposit and connection charge can be borne by MJP.

Improvements related to performance contract for sanitation

The contract with private parties does not specify any performance targets or incentives which would help YMC to monitor the improvement in sanitation. Improvements are suggested in the contract with respect to specifying annual targets as well as reporting procedures for the private contractors.

Under the agreement between YMC and private contractors, the operation and maintenance of pay and use toilets is the responsibility of private contractors. Some of the clauses that need to be revised by adding certain performance targets are listed below:

Table 24: Improvements required in contract between private agency and YMC

Categories	Contractual clauses	Improvements/ additions suggested
Access and coverage		Include target for no of community toilets users
Service level and quality	There should not be any complaints from nearby residence	Monthly routine inspection of cleanliness of toilets and drains by community leaders.
Efficiency in service operation	Clean drains regularly	Clean drains and dump the waste at dumping site. Levy penalty charges if hips of waste are seen along with drains.

5.2 PROPOSALS RELATED TO IMPROVING FINANCE OF YMC

In order to carry out the PIP, the financial capability of YMC needs to improve. The financial assessment has been done through the approach of business-as-usual scenario, which is based on the hypothesis that the past trends in key financials of YMC would continue in the future. Based on such assumption, the key financials of YMC have been projected and the investible surplus has been determined. To arrive at the investible surplus in the this scenario, calculations are based on 1) revenue surplus (Difference of total revenue expenditure and WSS related revenue expenditure), 2) net surplus after capital and revenue receipt and expenditure (revenue surplus + capital receipts other than WSS – capital expenditure other than WSS and debt servicing), and 3) investible surplus (surplus + revenue related to WSS – revenue expenditure related to WSS). The key financials of the council have been projected for 10 years from 2011-12 as shown in below table. The financial assessment of YMC shows that the investment capacity of the council is improving over a period of time.

Table 25: Projected investible capacity – Business as usual scenario (Rs in Crore)

Year	2011-12	2021-22
Revenue surplus (other than WS, WWS, and MSW)	5.16	14.70
Capital receipt	6.25	14.75
Capital expenditure	10.58	13.49
Net Surplus after capital and revenue accounts (All except WS,WWS,MSW and Slums)	0.84	15.95
Revenues (WS, WWS, MSW, and slum)	0.13	0.17
Revenue expenses (WS, WWS, MSW, and slum)	5.31	6.85
Balance available for investment in performance improvement actions	-4.34	9.27

Source: (CRISIL Infrastructure Advisory Limited, Municipal financial assessment for Yavatmal Municipal council, 2005-2012)

It can be observed that YMC does not have significant balance for investment in performance improvement actions until 2015-16. This highlights the requirement of improving the revenue sources for meeting the service obligations of the city.

Investment capacity after revenue enhancement measures

As per 2009-10 budget of YMC, the per capita deficit in wastewater and SWM services combined is Rs. 196. Under the Maharashtra Municipal Councils, Nagar Panchayats and Industrial Townships Act, 1965, the council can levy following water and sanitation related additional taxes apart from the mandatory consolidated property tax:

- Special sanitary tax on private latrines, premises, or compounds cleansed by a municipal agency after making provision for the cleansing thereof by manual labour; or for conducting or receiving the sewage thereof into municipal sewers
- Drainage tax
- Special water tax for water supplied by the council in individual cases, with charges for such supply being fixed in such modes as shall be best suited to the varying circumstances of any class of cases

Based the Act, YMC can explore levying sewerage charges as part of the property tax to recover O&M cost for the services provided. Other revenue improvement measures that YMC can explore are mentioned below.

- Increase in property tax rates
- Increase in demand of property taxation through improvement in coverage

The above actions do not require any significant capital investments for implementation and need only process changes. To simulate the effect of the above changes in the investment capacity, assumptions have been made considering improvement of O & M costs in services. The details of assumptions are given in Annexure no 5.

At the same time, serious expenditure controls also needs to be enforced for YMC to contribute towards improving the investible surplus. Hence YMC can look to financing its projects after 2014.

5.3 PHASING OF INVESTMENTS FOR IMPROVEMENT

Based on the revenue enhancement measures mentioned above, the investment surplus for YMC will be approx. Rs. 45.5 crore in the next ten years. Hence YMC can look to financing its sanitation projects whereas water supply projects will be financed by MJP. Cost for 24x7 water supply implementation can be covered under UIDSSMT and/or Nagarothan grant. The improvements for YMC have been proposed in three phases: 1) Immediate interventions (from 2013 - 2014), 2) Short term interventions (from 2015 - 2018) and 3) Long term interventions (from 2018-2019). The interventions mentioned above to augment revenue as well as process improvements are proposed to begin in 2013. The costs shown below indicated are inflated at 7% for each year.

Table 26: Phasing of PIP for YMC

Activities	2014	2015	2016	2017	2018	2019
Water supply						
Phase 1						
Convert stand post into group connection						
Subsidize the connection cost for slum settlement						
Establish the complain redressal system						
24x7 WS DPR approval						
Phase 2						
24 x 7 water supply implementation *(Major component in DPR will be construction of mass balance reservoir, rehabilitation of pipelines, replacement of service connections and customer meters, installation of pressure reducing valves, monitoring and then reducing leakages in each DMA)*						
Sanitation						
Phase 1						
Refurbishment of community toilets						
Phase 2						
Procurement of vacuum trucks						
Construction of individual toilet						
Construction of community toilet						
Phase 3						
Treatment plant construction						

Phase 1: Immediate interventions (from 2013 - 2014)

It is suggested that low cost action along with preliminary work for finalization and approval of the DPR for 24x7 will be undertaken in the first year. It is proposed that YMC will begin with interventions related to process and policy changes that will not require capital investment such as introducing drainage tax, property assessment, revision in property tax etc. These interventions are listed below:

In water supply

- Convert stand post into group connection
- Subsidize the connection cost for slum settlement

- Establish complaint redressal system
- Finalization and approval of DPR for 24X7

In sanitation

- Revision in contractual arrangements
- Levy drainage tax
- Identify beneficiary for individual toilets

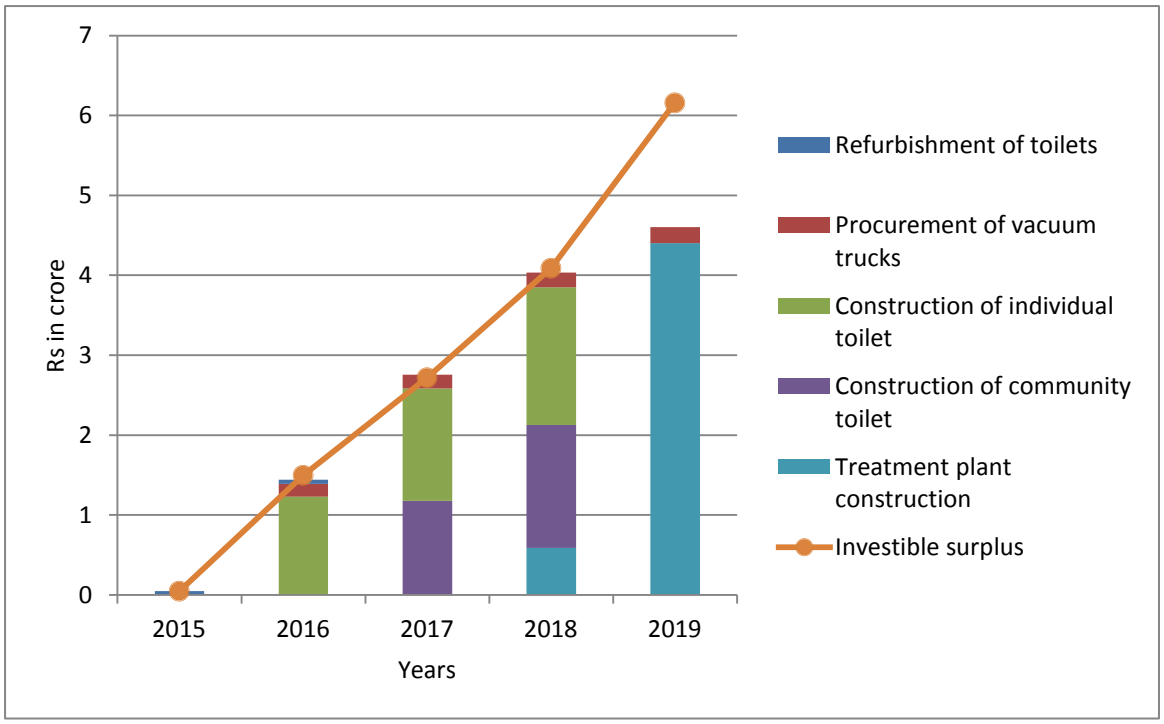
Phase 2: Short term intervention (from 2014-18)

Once the revenue augmentation measures and process improvements are in place, it is proposed that YMC can begin its capital intensive projects from 2014-15.

YMC will be able to fund implementation of open defecation for entire city from its own revenue sources.

- It is suggested that low cost action along with preliminary work for 24x7 like DPR finalization, approval, etc be undertaken in the first phase. Subsequently, implementation of DPR should be carried out in the following four years and covered in phase 2.
- In first year, low cost action should be implemented. YMC can begin refurbishment of existing community toilets before initiating construction of new community toilets. To begin with YMC will identify the beneficiary for individual toilet and then in the subsequent year can go for construction of individual toilets. Construction of individual toilets will be completed in three years, while community toilet will be completed by two years.
- While the maintenance of all the pay-n-use toilets has been contracted out, similar arrangements with CBOs can be looked at with respect to community toilets. Campaigns to bring about awareness related to cleanliness and hygiene practices, safe sanitation practices, and negative health impacts due to open defecation needs to be conducted by the Council. Local CBOs need to be roped into this exercise to ensure participation by all communities. The campaigns should begin by triggering initiation in the slum settlements and undertaking transect walk to the open defecation sites to highlight the above issues.
- At present, YMC has one vacuum truck for cleaning septic tank; it is proposed that in the first year YMC will start treating fecal sludge and then in the subsequent four years will procure additional vacuum truck. For fecal sludge treatment, it is proposed that YMC can use extra space available at existing solid waste dumping site. And O & M should be given on contract basis along with existing vermi composting plant.

Figure 21: Implementation of sanitation projects



Phase 3: Long term intervention (from 2018-19)

- It is suggested that YMC should first implement ODF activities like refurbishment and then construction of community toilets and individual toilets and then can go for a construction of sullage treatment plant.

After implementation of revenue improvement measures, YMC will be able to generate investible surplus. YMC will be able to fund ODF related activities from their internal surplus whereas for implementing 24x7 water supply, MJP has to depend on external funding.

5.4 INSTITUTIONAL IMPERATIVES TO ACHIEVING PROPOSED IMPROVEMENTS

In order to realise the targets set for improving water supply and sanitation in YMC & MJP, the existing institutional framework must be enhanced to enable better operation and management of these services. While in certain areas, it is the lack of a defined policy restricting provision of services, in other instances it is the improper regulation of the existing policies. YMC has to focus its attention on improving policies related to services, financial sustainability, and accountability to the consumers.

To ensure adequate utilisation of funds for capital projects, YMC has to build capacity of existing staff for project implementation. As mentioned previously, MJP has enough technical capacity to plan, design, implement, operate and maintain a 24x7 water supply system. A summary of the institutional reforms that YMC needs to undertake are given below.

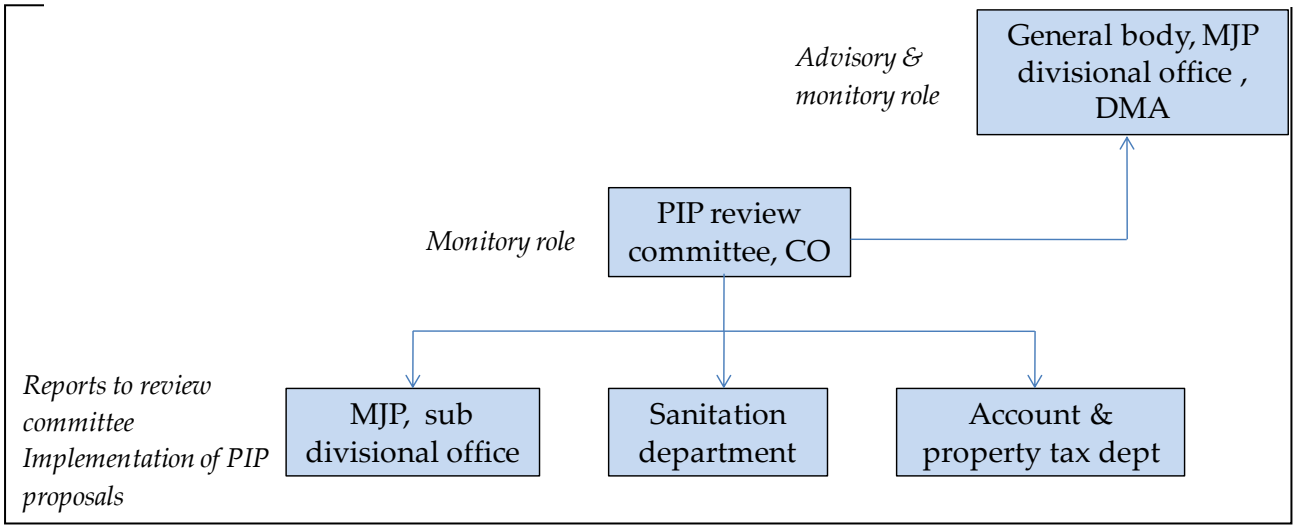
Table 27: Institutional improvements proposed for YMC

Area of improvement	Suggested improvements
Human resource management	YMC has to ensure adequate utilisation of funds for capital projects, YMC needs to built capacity of existing staff.
Equity in service delivery	Introduce policy to improve water supply and sanitation services to slum settlements, as well as un-served areas of the city. Reform institutional arrangements (with MJP) to target and monitor improvement services to slum settlements.
Financial sustainability	Introduce tariff for sewerage, sanitation, septage management services.
Consumer redressal system	Establishment of complaint redressal system to ensure effective addressing of customer complaints and also help in faster tracking and monitoring of the issues related to water & sanitation services.

The Council has to also form a PIP review committee in order to ensure proper implementation of the proposed projects. This is discussed below.

Constitution of the PIP review committee: The first step towards implementation of the proposed projects should be to constitute a PIP review committee comprising of key technical staff for water supply (MJP sub divisional office) and sanitation. The committee will be headed by the CO. The Council

Figure 22: Institutional structure for PIP implementation



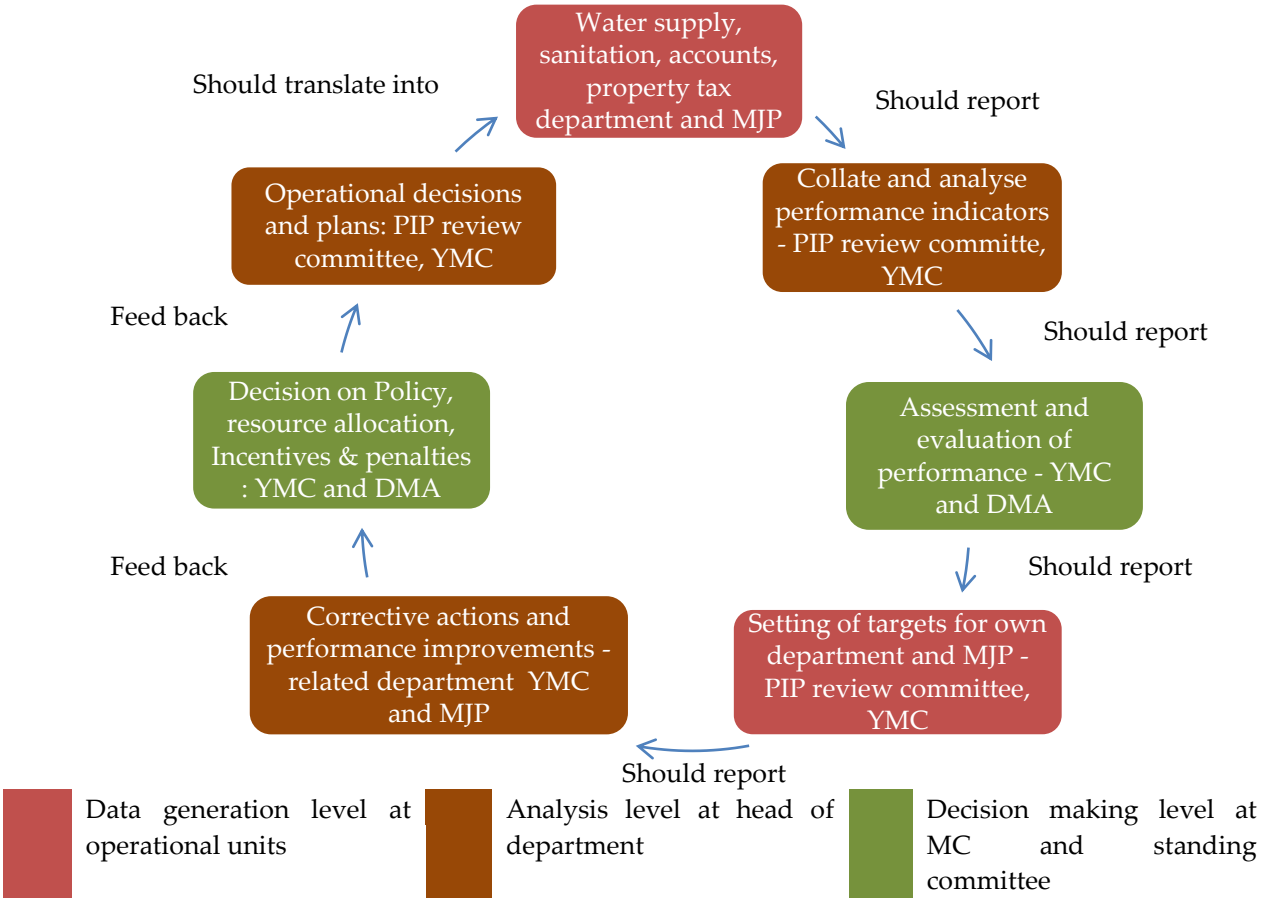
must legally mandate the PIP review committee with implementing the proposed projects. Appropriate budget provisions should be made to properly manage the committee. The responsibilities of the committee will include quarterly progress updates to General Body and divisional office of MJP and annual progress reports to the Directorate of Municipal Administration (DMA). A broad schematic of the institutional structure is shown below.

Performance monitoring through regular setting of targets and use of performance indicators: In order to ensure that YMC is able to achieve the performance improvement proposals outlined above, it is necessary that it has a well structured monitoring framework in place. The monitoring aspects will include

- Timely data capture and analysis of performance indicators
- Assessment and evaluation of progress
- Setting of targets (for own department as well as MJP) and corrective action if required
- Decisions on policy, resource allocation and incentives/ penalties
- Operational decisions and plans

As the performance improvement proposals are phased from 2013 till 2019, it is necessary for YMC to ensure that through the above process, the targets set for each year is achieved and if required corrective measures need to be incorporated. This will be possible only if the information related to performance indicators are updated and analysed regularly. Similarly, policies to provide incentives/ penalties to internal and external staff based on their performance needs to be implemented. Given that YMC should look to external agencies for support in PIP, the monitoring process should also include review of these agencies. A possible performance monitoring framework is suggested below.

Figure 23: Performance monitoring framework proposed for YMC



Source: (Adapted from MoUD website: http://www.urbanindia.nic.in/programme/uwss/slb/slb.htm)

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ANNEXES

Annex 1: Slum Settlement Profile of Yavatmal Municipal Council

Sr. No	Slum name	Notified	Land Ownership	Population (2011)	No of Households (2011)
1	Ambedkar Nagar	Stay	Private	4677	1015
2	Bangar Nagar	Y	Private	2284	574
3	Giri Nagar	Y	Private	721	167
4	Godown Phail	Y	Private	2844	635
5	Indira Nagar	Y	Govt. owned	3145	640
6	Kumbhar Pura	Y	Govt. owned	2410	452
7	Malipura	Y	Private	3670	820
8	Netaji Nagar	Y	Govt. owned	2754	575
9	Patipura Dorli pura	Y	Govt. owned	2409	564
10	Ravidas Nagar	Y	Govt. owned	1118	254
11	Santaji Nagar	Y	Private	702	184
12	Seva Nagar	Y	Govt. owned	1119	363
13	Shinde Nagar	Y	Private	1888	419
14	Talav Phail - I	Y	Govt. owned	3488	773
15	Tarpura	Y	Govt. owned	2969	600
16	Thakur Plot	Y	Private	1151	275
17	Talav Phail - II	Y	Govt. owned	2195	484
18	Lokhande Plot	Y	Private	747	180
19	Vanjari Phail	Y	Private	1759	425
20	Pimpal Gaon	N	Govt. owned	1790	424
21	Amrai Pura	N	Govt. owned	274	70
22	Gautam Nagar	N	Private	390	85
23	Kamgar Nagar	N	Govt. owned	350	78
24	Rohile Baba Math	N	Govt. owned	202	34
25	Vaghapur Nakka	N	Govt. owned	132	18
26	Rajratan Nagar	N	Private	226	46
27	Amba Nagar	Y	Govt. owned	253	59
Total				45667	10213

Source: Yavatmal Municipal Council

Annex 2: Capital income and expenditure towards urban poor (Rs in Crore)

Urban Poor	2005-06 (Actuals)	2006-07 (Actuals)	2007-08 (Actuals)	2008-09 (Actuals)	2009-10 (Actuals)	2010-11 (Budgeted)	2011-12 (Budgeted)
Capital Income							
Dalit community development plan	0.88	1.25	1.08	0.65	0.13	0.25	0.50
Minority community	0.11	0.00	0.00	0.00	0.15	0.15	0.15
Akhsay nagri funds	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Slum area improvement fund	0.00	0.00	0.00	0.00	1.06	0.12	0.00
IHSDP Grant	0.00	0.00	0.00	0.00	4.15	0.00	0.00
IHSDP other contribution	0.00	0.00	0.00	0.00	0.02	0.00	0.00
Total	**0.99**	**1.25**	**1.09**	**0.65**	**5.52**	**0.52**	**0.65**
% of total	**36.77**	**19.61**	**42.93**	**18.73**	**42.85**	**8.42**	**10.44**
Capital Expenditure							
5 % funds for urban poor	0.00	0.00	0.00	0.00	0.07	0.35	0.35
Minority community development	0.00	0.00	0.00	0.00	0.13	0.20	0.15
Dalit community area improvement fund	0.90	0.37	0.88	2.27	0.76	0.70	0.60
Community development fund	0.04	0.02	0.00	0.00	0.03	0.03	0.00
Slum development fund	0.00	0.00	0.00	0.00	0.09	0.80	0.30
IHSDP	0.00	0.00	0.00	0.00	0.00	2.15	2.20
Total	**0.94**	**0.39**	**0.89**	**2.27**	**1.07**	**4.23**	**3.60**

Source: (Budget books of Yavatmal Municipal council, 2005 - 06 to 2011 - 12)

Annex 3: Slum settlement wise no of functional & non functional toilet facilities

Sr. No	Slum name	Notified (Yes/ No)	Population (2011)	No of HHs	No of Seats in Public toilet		No of seats in pay & use toilet	Total No. of seats (PT+P&U)	Functional seats out of Total No. of seats (PT+P&U)
					Functional	Non-Functional			
1	Amba Nagar	Y	253	59	0	0	0	0	0
2	Ambedkar Nagar	Stay	4677	1015	0	0	0	0	0
3	Bangar Nagar	Y	2284	574	5	0	0	5	5
4	Giri Nagar	Y	721	167	0	0	0	0	0
5	Godown Phail	Y	2844	635	5	5	0	10	5
6	Indira Nagar	Y	3145	640	0	0	10	10	10
7	Kumbhar Pura	Y	2410	452	15	12	0	27	15
8	Lokhande Plot	Y	747	180	0	0	0	0	0
9	Malipura	Y	3670	820	10	10	0	20	10
10	Netaji Nagar	Y	2754	575	0	0	0	0	0
11	Patipura Dorli pura	Y	2409	564	14	14	64	92	78
12	Ravidas Nagar	Y	1118	254	0	0	16	16	16
13	Santaji Nagar	Y	702	184	0	0	0	0	0
14	Seva Nagar	Y	1119	363	0	0	19	19	19
15	Shinde Nagar	Y	1888	419	19	19	10	48	29
16	Talav Phail - I	Y	3488	773	0	10	20	30	20
17	Talav Phail - II	Y	2195	484	0	0	40	40	40
18	Tarpura	Y	2969	600	0	0	10	10	10
19	Thakur Plot	Y	1151	275	0	0	0	0	0
20	Vanjari Phail	Y	1759	425	12	13	37	62	49
21	Amrai Pura	N	274	70	10	9	20	39	30
22	Gautam Nagar	N	390	85	0	0	0	0	0
23	Kamgar Nagar	N	350	78	0	0	0	0	0
24	Pimpal Gaon	N	1790	424	5	5	19	29	24
25	Rajratan Nagar	N	226	46	0	0	0	0	0

26	Rohile Baba Math	N	202	34	0	0	0	0	0
27	Vaghapur Nakka	N	132	18	0	0	0	0	0
Total			45667	10213	95	97	265	457	360

Source: Yavatmal Municipal Council

Annex 4: Investible surplus for YMC (Rs. Crore)

Year	Revenue surplus (other than WS, WWS, and MSW)	Capital receipt	Capital expenditure	Overall surplus	Revenues (WS, WWS, MSW, and slum)	Revenue expenses	Balance available for investment in performance improvement actions
	A	B	C	D = (A+B-C)	E	F	G=(D+E-F)
Budgeted							
2010-11	2.84	6.24	17.98	(8.90)	0.13	5.86	(14.63)
2011-12	5.16	6.25	10.58	0.84	0.13	5.31	(4.34)
Estimated							
2012-13	5.72	6.76	10.98	1.50	0.13	5.39	(3.76)
2013-14	6.34	7.33	10.03	3.65	0.14	5.49	(1.70)
2014-15	7.04	7.96	10.39	4.61	0.14	5.60	(0.85)
2015-16	7.81	8.65	10.77	5.69	0.15	5.73	0.11
2016-17	8.67	9.42	11.17	6.92	0.15	5.87	1.20
2017-18	9.63	10.27	11.59	8.31	0.15	6.04	2.43
2018-19	10.69	11.22	12.03	9.89	0.16	6.22	3.82
2019-20	11.89	12.27	12.49	11.67	0.16	6.32	5.51
2020-21	13.21	13.44	12.98	13.68	0.17	6.57	7.28
2021-22	14.70	14.75	13.49	15.95	0.17	6.85	9.27

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Annex 5: Assumptions used for projecting revenues of YMC

Sr. No.	Item	Assumption
1	Increase in demand of property taxation through improvement in coverage	6 % every year 30% onetime increase due to special drive in third year
2	Increase in property tax rates	15% every three years
3	Collection efficiency	94%
4	Levy of sewerage charges	3% of the property tax

CRISIL Advisory Services. *(2012). Yavatmal: Assessment of Municipal Finances. Draft Report for PAS Project. CEPT University.*

Annex 6: Investible surplus after revenue enhancement measures (Rs. Crore)

Year	Balance available for investment in performance improvement actions	Increment due to increase in demand of property taxation	Increment due to Levy of Sewerage Charges	Investible surplus after revenue augmentation measures
Budgeted				
2010-11	(14.63)	-	-	(14.63)
2011-12	(4.34)	-	-	(4.34)
Estimated				
2012-13	(3.76)	0.27	0.05	(3.44)
2013-14	(1.70)	0.33	0.06	(1.32)
2014-15	(0.85)	0.83	0.08	0.05
2015-16	0.11	1.30	0.09	1.50
2016-17	1.20	1.42	0.10	2.72
2017-18	2.43	1.56	0.10	4.09
2018-19	3.82	2.22	0.13	6.16
2019-20	5.51	2.40	0.13	8.04
2020-21	7.28	2.60	0.14	10.02
2021-22	9.27	3.52	0.17	12.96

CRISIL Advisory Services. *(2012). Yavatmal: Assessment of Municipal Finances. Draft Report for PAS Project. CEPT University.*

The Performance Assessment System (PAS) Project

The PAS Project aims to develop appropriate methods and tools to measure, monitor and improve delivery of water and sanitation in cities and towns in India. The PAS Project includes three major components of performance measurement, performance monitoring and performance improvement. It covers all the 400+ urban local governments in Gujarat and Maharashtra.

CEPT University has received a grant from the Bill and Melinda Gates Foundation for the PAS Project. It is being implemented by CEPT University with support of Urban Management Centre (UMC) in Gujarat and All India Institute of Local Self-Government (AIILSG) in Maharashtra.

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pas performance assessment system

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