# Performance Improvement Plan for Latur

Prepared by:

CEPT University and AIILSG in Consultation with Latur Municipal Council

2012

performance assessment system

# Performance Improvement Plan for Latur

**CEPT University**

**All India Institute of Local Self-Government**

**2012**

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## ABBREVIATION

| | |
|---|---|
| AIILSG | All India Institute of Local Self-Government |
| CAGR | Compounded Annual Growth Rate |
| CEPT | Center for Environmental Planning and Technology |
| CO | Chief Officer |
| CPHEEO | Central Public Health and Environmental Engineering Organisation |
| DMA | Directorate of Municipal Administration |
| DPR | Detail Project Report |
| FGD | Focused Group Discussions |
| FSM | Fecal Sludge Management |
| GIS | Geographic Information System |
| HH | Household |
| IEC | Information Education and Communication |
| IHSDP | Integrated Housing and Slum Development Programme |
| ILCS | Integrated Low Cost Sanitation Programme |
| KPIs | Key Performance Indicators |
| LCS | Low Cost Sanitation |
| LMC | Latur Municipal Council |
| MJP | Maharashtra Jeevan Pradhikaran |
| MLD | Million liters per day |
| MSNA | Maharashtra Sujal Nirmal Abhiyan |
| NGO | Non-governmental Organization |
| O&M | Operation and Maintenance |
| ODF | Open Defecation Free |
| PIP | Performance Improvement Plan |
| PPP | Public Private Partnership |
| PWD | Public Works Department |
| SLB | Service Level Benchmarking |
| STC | Shah Technical Consultants Pvt. Ltd. |
| UIDSSMT | Urban Infrastructure Development Scheme for Small and Medium Towns |
| ULB | Urban Local Body |
| VAMBAY | Valmiki Ambedkar Awas Yojana |

## EXECUTIVE SUMMARY

The preparation of this Performance Improvement Plan (PIP) for water supply and sanitation was led by the Latur Municipal Council (LMC) 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 starting 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 the set of indicators given by the Government of India's Service Level Benchmark Initiative as a baseline to assess past performance and identify priorities.

**City profile**: Latur, a class 'A' city has a population of 4 lakhs. The city became an 'A' Class Municipal Council in year 1952. Latur has major state and national highways leading to Andhra Pradesh. It is well known for its educational institutes. Latur is located on the Osmanabad Plateau in eastern Maharashtra and is primarily known as a regional marketing center and also has a number of manufacturing industries, including cotton ginning and oil mills. In the decade of 2001 to 2011, the city's population grew at 3.33 percent.

Latur has 73 slums which houses 1,30,000 dwellers. While the majority of the slums are located within the municipal boundary of the city, however, many are on the periphery of the city. The population share of slums is 34 percent and there are a total of 27,209 households. Latur has around 59 percent slum settlements which are notified. Of these notified slums, 56 percent were notified in 1983 and another 42 percent were notified a few years ago in 2004.

**Water supply**: The water supply system in Latur city is operated and maintained by the Latur Municipal Council (LMC). The main sources of water supply for LMC are the Dhanegaon dam, Nagzari and Sai head works on the Manjara River. The LMC draws a total of 71 MLD from these three sources. The city has three conventional water treatment plants (WTPs), namely Harangul WTP with a storage capacity of 42 MLD, Warvanti WTP with a capacity of 19 MLD and Arvi WTP with a capacity of 9 MLD. There are 10 water distribution stations (WDS) through which water is distributed to the consumers in the city.

The coverage of household level connections is only 53 percent although the water distribution network covers 90 percent area of the city. The per capita availability of water at consumer end was 95 lpcd in 2010-11. The LMC officials shared that there are system related issues including need for repair and maintenance and strengthening of the distribution system. For the year, 2009-10, the cost recovery, which is the operation and maintenance charges of water supply services, was 49 percent. In the year 2007-08, LMC had a current collection efficiency of 69 percent which increased to 84 percent in the year 2009-10. However, the arrears are accrued on every year, with total outstanding arrears of Rs 5.11 crore of which only Rs 2.65 crore have been collected during the year 2009-10, leaving 48 percent of the arrears accrued for the next year.

LMC supplies water every alternate day and the amount of water received by consumers has been declining over the years. While in 2008-09, it was 102 minutes, in 2010-11, it fell to just 30 minutes. Currently, there is no conumer level metering in the city. Although the metering was initiaed during the

public private partnership (PPP) arrangement for water supply but it was dicontinuted due to rersitance to this arrnagement. The city recorded 39 percent non revenue water in the year 2010-11. A water audit study conducted by STC in 2006 suggests that there were about 35 percent losses are experienced in the water supply system.

While there are no apparent issues in the quality, it is important to have regular reinforcement amongst the Water Supply Department officials on the need of proper water quality surveillance regime.

The efficiency in consumer complaint redressal as reported by LMC is 100 percent. However, the data reliability of complaint redressal is very poor. The current mechanism of registering complaint is through personal visits or through telephone with the officials of Water Supply Department. LMC can consider improvements in complaint registering systems include filing complaints through SMS, web based technology etc.

In Latur, one of the WTPs, named Arvi WTP, which receives raw water from Sai water works and Dhanegaon dam has been in operations for many years and has suffered high level of wear and tear with little attention paid to revamp and thus operates at a very low efficiency. Hence, it experiences loss of energy and transmission. It requires higher manpower and O&M expenses. This negatively imp acts the supply of water to consumers. Discussions with the department officials reveal that it would be beneficial to discontinue the old low capacity Arvi WTP to save operating expenses on energy, manpower and O&M, besides curbing transmission losses. Instead, the Sai head works should be connected to Harangul WTP by developing a network between Arvi ESR and Shivaji Chowk for directing the water to Hanrangul WTP.

The work on augmentation of distribution network in old city is being undertaken currently at the cost of Rs. 6 crore. The Water Supply and Sanitation Department (WSSD), Government of Maharashtra is funding 60 percent of the project's cost with the remaining 40 percent to be arranged by LMC. As of now, 35 percent of the grant has been received and utilized by LMC. However, with LMC finding it difficult to raise its own share of 40 percent, the WSSD has put the next installment on hold. Consequently, the work on this project has been put on hold. It is proposed that the Council works towards arranging its share from its investible surplus. There are 450 borewells attached with submersible pumps scattered all over the city, especially to cater to the water requirements the slum residents and poor neighborhood. These borewells used earlier by LMC during water scarcity days, are now being used by residents for their domestic use. The residents using these borewells don't turn off the pump leading to a great quantity of energy, water and financial loss. LMC incurs Rs. 0.30 crore per annum as expenses on its O&M for which it does not record any revenue. To curb the non revenue water (NRW) emanating from the 450 borewells and save the expense on its O&M, these borwells should be converted to handpumps.

**Sanitiation:** In Latur city, the coverage in terms of individual toilets is quite high at 87 percent with 69,512 properties (including residential and non-residential) having access to individual toilets, with majority being connected to septic tanks. As per the Census 2011, the total number of septic tanks in Latur city is 52,446. The Census 2011 points that remaining toilets are connected pit toilets, other system, and piped sewer network (although LMC officials inform that sewer network does not work anymore).

Additionally, there are a total of 21 community and public toilets, which cater to 3 percent of the city's population. 10 percent of the city population still resorts to open defecation.

Based on the analysis of existing toilets, there are just 14 toilet seats which are non-functional and can be refurbished by LMC. Refurbishment cost is assumed to be Rs. 10,000 per seat. 25 persons are assumed per toilet seat. The total cost for refurbishment comes to Rs. 0.014 crore.

Currently, only LMC was the only service provider for septic tank cleaning and it has only one suction emptier of 6000 liters capacity. This emptier makes 750 trips in a year. An amount of Rs. 500 per trip is charged. For trips outside municipal limits, a higher fee is charged and goes upto Rs. 5000/-. The maintenance costs are recovered from the fee from services. There is a need for additional septic tank cleaning machines to improve the septage management in the city. A need of 14 such emptier is felt and it is proposed that they are made available. 6 such machines are proposed to be bought by LMC in a phased manner and remaining will be arranged through motivating private players.

The city has an underground sewerage network of 19.5 kms. However, it is very old and hence, rendered dysfunctional. Toilets in the city are connected to septic tanks. Latur has an open drain network of 716 kms. Of this, 135 kms has been constructed under Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT) Project. This network covers around 60 percent of the municipal area of the city. The drains are cleaned and maintained by LMC. The wastewater is disposed in the city through six outfall locations in open field outside the city without any treatment. Under Maharashtra Sujal Nirmal Abhiyan (MSNA), a project is currently under implementation for additional drains. 100 kms of drain network is being constructed under this project at the cost of Rs. 15 crore. This project for open drains in un-served areas is 50 percent complete and the remaining was scheduled to be completed by end 2011.

**Services in slum settlements**: The extent of household level coverage for water services is very low in the slums of Latur with just 20 percent households having individual level connections. Most of the residents in slums depend on the 450 borewells made available to slums settlements. Additionally, 335 group connections have also been provided in the slum settlements. Each group connection caters to 10 households, thus 3,350 slum households are served through group connections. Additionally, there were 112 standposts as per 2008-09 information in the city serving slum households.

There were 42,368 slum households with individual toilets with a coverage of 86 percent (2008-09)

**Municipal Finance of LMC**:

The municipal finances of the Latur Municipal Council have been reviewed for the last seven years, from 2005-06 to 2011-12. The total budgeted revenue income for LMC was Rs. 62.31 crore in 2011-12. LMC's internal revenue income includes property tax, water tax, other taxes, user and service charges and rental income. Revenue income, including income on account of water and wastewater services has increased from Rs. 24.81 crore in 2005-06 to Rs. 32.17 crore in the year 2009-10 at a Compounded Annual Growth Rate (CAGR) of 7 percent. There has been a steady growth for the revenue income during the period except for the year 2008-09; the revenue income has actually decreased from Rs. 38.81 crore in the year 2007-08 to Rs. 32.79 crore with a with a 16 percent decrease in the year 2008-09 and it further decreased to Rs 32.71 crore at 2 percent in the year 2009-10. Own sources contribute 26 percent of the total revenue income of the LMC. The own sources consist of tax and non-tax revenue.

LMC has increased its collection performance of the property tax and water charges. In the year 2007-08, LMC had a current collection efficiency of 69 percent which increased to 84 percent in the year 2009-10. At the same time, the arrears get accrued on every year, with total outstanding arrears of Rs 5.11 crore of which only Rs 2.65 crore has been collected during the year 2009-10, leaving 48 percent of the arrears accrued for the next year.

The capital income of LMC grew from Rs. 16.84 crore in 2005-06 to Rs. 65.88 crore in 2006-07, which is on account of Rs. 48.85 crore received under the UIDSSMT scheme. Thereafter, it fell and remained between Rs. 20 to 25 crore in the next three years. The budgeted capital income is Rs. 33.03 crore for 2011-12. Investible surplus is based on the surplus achieved from annual revenue surplus, committed and routine capital expenditure. From the assessment, it was observed that LMC would start generating an investible surplus from the year 2012-13.

The slum related income of LMC comprises grants under state and central schemes. This income rose from Rs. 4.04 crore in 2005-06 to Rs. 18.14 crore in 2009-10. The same has been budgeted Rs. 13.51 crore and Rs. 14.90 crore for the year 2010-11 and 2011-12 respectively. The grants under state scheme include Slum Redevelopment - Water Supply scheme and Slum Redevelopment scheme. The grants under central scheme include National Slum Development Programme, Integrated Housing & Slum Development Programme (IHSDP) grants (Infra) and IHSDP grants (Housing). The slum related expenditure also increased from Rs. 3.44 crore to Rs. 10.90 crore. The same has been budgeted Rs. 13.11 crore and Rs. 12.20 crore for the year 2010-11 and 2011-12 respectively.

**Summary of Performance Improvement Plan for LMC**: The proposals suggested are focused on two key areas of establishing 24x7 water supply system and moving towards open defecation free Latur, 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 Latur, the Performance Improvement Plan for LMC is summarized below. The total cost of the PIP is Rs. 140.50 crore.

**Table 0-1: Overall Cost Summary of PIP Action**

| **Water Supply** | | | **(Rs. in crore)** |
|---|---|---|---|
| **Access & coverage** | Extend water supply distribution network to non-served areas | | 7 |
| **Service level & Quality** | Improvement in WTP by halting of Arvi water treatment plant's operations | | 2 |
| | Arrangement for LMC's share of funds to replace distribution network in old gaothan area | | 2 |
| | **24x7 water supply implementation cost** | | 112.12 |
| | Network and Customer database | 100% consumer end survey, including identifying and regularizing illegal connections. | 0.18 |
| | Network Restructuring | Hydraulic modelling and creation of DMAs. | 0.11 |
| | Bulk metering | Metering at all bulk production and distribution points. | 0.56 |
| | Leakage control | Conduct water audits, energy audit and leak detection studies, and repair existing leakages in the system. | 0.81 |
| | Implementation of 24x7 in whole city | 50% of distribution network will be augmented and 100% service connections need to be replaced and installed with mechanical meter for implementation of 24x7 water supply. | 110.46 |
| **Financial Sustainability** | Converion of 450 borewells into handpumps to save energy expenditure since these are attached to submersible pumps | | 0.45 |
| **Efficiency in service operations** | Introduction of mobile and web based systems for improved response to customer complaints and effective monitoring of the issues related to water services | | 0.10 |
| **Equity in service delivery** | Subsidization of the connection cost for slum area | | 0.55 |
| | Conversion standpost into group connections | | 0.06 |
| **Water supply improvement cost** | | | **124.28** |
| **Sanitation** | | | |
| **Toilet coverage** | Construction of individual and community toilets | | 15.31 (includes 10% beneficiary contributions) |
| | Refurbishment of community toilet seats | | 0.014 |
| **Fecal sludge management** | Provision of septic tanks to 5,000 households in old city | | 5 (includes 10% beneficiary contributions) |
| | Purchase of 6 septic tank emptier trucks | | 0.90 |
| **Sanitation improvement cost** | | | **16.22** |
| **Total PIP Cost** | | | **140.50** |

The Council also has 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 by the Council. These include

- Improving collection efficiency of the water charges.
- Introduce policy for subsidization of individual water connections to slum households.

The investible surplus over the 10 year period in BAU after adding the revenues which were earlier reduced as part of the Water Supply O&M agreement with a private player and also adding the incremental cost related to O&M for the services, to get a more accurate picture of the investible surplus for LMC would be Rs. 142.35 crore.

The proposed improvements for LMC are proposed in two phases: 1) Immediate interventions (from 2013 - 2018), and 2) Long term interventions (from 2018-2022). While the LMC finances would start generating surplus starting from 2012-13, all development projects are proposed to commence with 2014 as the baseline.

**Phase 1: Immediate Interventions (from 2014 - 2018)**

- To begin with, starting 2014, LMC can initiate projects related to 24x7 water supply namely, undertaking consumer end survey, including identifying and regularizing illegal connection; hydraulic modelling and creation of DMAs; metering at bulk production and distribution points; conducting water audits, energy audit and leak detection studies, and repair existing leakages in the system. These projects can be completed in the first year itself.
- The work on improving the operations of WTP in the city would also be started in 2014 by halting the functioning of Arvi WTP and will take one year to complete.
- The work on conversion of 450 borwells into handpumps is proposed to be initiated in the year 2014 and will take three years to complete.
- The work on conversion standpost into group connections and introduction of mobile and web based systems would be undertaken in 2015 and completed in that year itself.
- The replacement of distribution network in old gaothan area would be taken up starting 2015 and will be completed in next three years.
- The task of subsidization of the connection cost for slum area would be taken up simultaneously in 2015 and will take 3 years to complete.
- It is proposed that work on extending water supply network to non-served areas be started in 2016 year and it is envisioned that it would be completed over a course of four years.
  The 24x7 water supply reforms include
    - 100 percent consumer end survey, including identifying and regularizing illegal connection.
    - Hydraulic modelling and creation of DMAs.
    - Metering at bulk production and distribution points
    - Conducting water audits, energy audit and leak detection studies, and repair existing leakages in the system.
- In 2014, the work on construction of individual and community toilet seats will be initiated to achieve ODF status over next two years. The work on refurbishment of community toilet seats will also be taken up in 2014 and finished in the same year itself.
- Starting 2014, LMC can also start investing in provision of septic tanks to 5,000 households in old city. This would be completed in next four years.

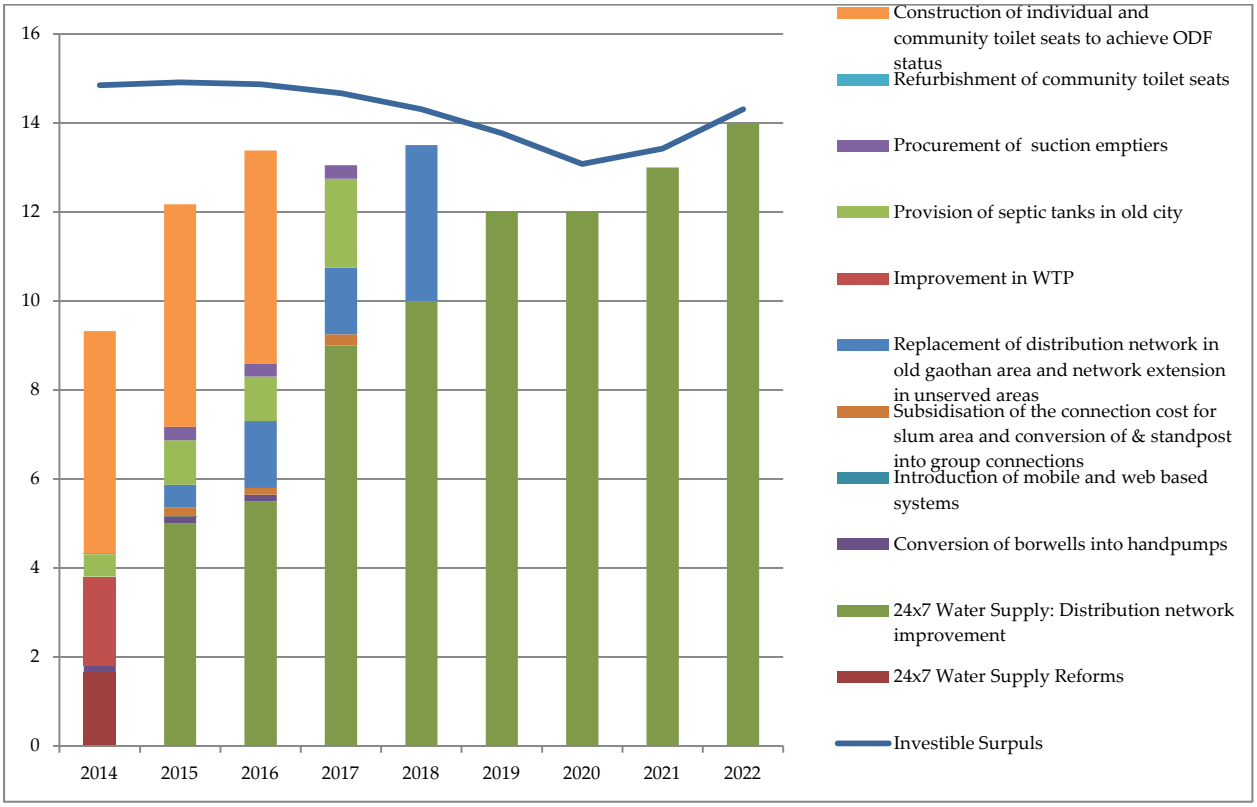
- From the year 2015, over the duration of three years, LMC can purchase six septic tank emptier and also work towards involving private sector operators for the same.

**Table 0-2: Immediate Interventions (from 2013 - 2018)**

| Proposed improvement areas | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| **Water supply** | | | | | |
| **24x7 water supply reforms** | | | | | |
| 100 percent consumer end survey, including identifying and regularizing illegal connection. | | | | | |
| Hydraulic modelling and creation of DMAs. | | | | | |
| Conduct water audits, energy audit and leak detection studies, and repair existing leakages in the system. | | | | | |
| **Implementation of 24x7 in whole city** | | | | | |
| Distribution network augmentation and replacement of service connection with metered connections | | | | | |
| **Access & Coverage** | | | | | |
| Extend water supply network to non-served areas | | | | | |
| **Service Level & Quality** | | | | | |
| LMC's share of funds to replace distribution network in old gaothan area | | | | | |
| Improvement in WTP through halting of Arvi water treatment plant operations | | | | | |
| **Financial Sustainability** | | | | | |
| Conversion of 450 borwells into handpumps | | | | | |
| **Efficiency in Service Operations** | | | | | |
| Introduction of mobile and web based systems | | | | | |
| **Equity in Service Delivery** | | | | | |
| Subsidization of the connection cost for slum area | | | | | |
| Conversion standpost into group connections | | | | | |
| **Sanitation (including sewerage)** | | | | | |
| Construction of individual and community toilet seats to achieve ODF status | | | | | |
| Refurbishment of community toilet seats | | | | | |
| Provision of septic tanks to 5,000 households in old city | | | | | |
| Purchase of 6 suction emptier | | | | | |

**Phase 2:** During this phase from the year 2015 till 2022, LMC would work on implementing 24x7 water supply systems to cover the entire city. The scaling up of 24x7 water supply in the entire city includes distribution network augmentation and replacement of service connection with metered connections. The cost of implementing this project would be Rs. 110.46 crore. Although, a substantial sum for this project will come from LMC's investible surplus revenue by contributing Rs. 80.5 crore of the estimated 110.46 crore, the remaining amount will have to be arranged from external funds. Around Rs. 30 crore of external funds will have to be arranged. The possible source for funding can be UIDSSMT plus, Nagarothan grant or National River Conservation Plan. Considering the project will begin in 2015, LMC can target to complete it by 2022.

## Figure 0-1: Implementation of Projects (Rs. in crore)



# 1 INTRODUCTION: LATUR MUNICIPAL COUNCIL

The preparation of this Performance Improvement Plan (PIP) for water supply and sanitation has been led by the Latur Municipal Council (LMC) with support from the Performance Assessment 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, the PIP 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 (CO) of LMC and officials from respective Departments.

Specifically, this has been done in following stages:

1. **Initial Performance Assessment**: Based on the data from the LMC, an initial assessment of all SLB indicators for the past three years was done. As part of the preparatory work, a preliminary profile of the urban local body (ULB) using SLB indicators was prepared. The LMC teams were assisted in generating a city profile based on comparative performance assessment of ULB for last three years based on their data in PAS benchmarking system. This involved past trends as well as comparison with other Class 'A' Municipal Councils in Maharashtra. The existing service levels are assessed along with their respective reliabilities against service level benchmarks to be achieved.

   This was discussed with the LMC officials at the first PIP consultative workshop in July 2011 at Latur. The workshop was attended by Latur CO, respective heads of water supply, sanitation, tax and Public Works Department (PWD). Preliminary priorities were identified at this workshop. Particular focus was also placed on the issues around making the city open defecation free and exploring the possibility of introducing 24x7 water supply. Following this consultation, a diagnostic assessment for the PIP in Latur was initiated.

2. **Detailed Diagnostics and Issues Identification**: The diagnostic assessment was prepared by taking into consideration the ground realities, local conditions, and assessment of the present situation. A detailed field guide developed for purpose of PIP preparation included data templates, survey formats, transect walks, schedules of interviews, focused group discussion (FGD) guidelines, areas for digital documentation, dimensions of stakeholder consultations etc.

   The emphasis was on understanding the current data record systems and measures to improve the performance data reliability. Discussions with LMC 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 water source 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 Maharashtra Jeevan Pradhikaran (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 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 to that key person interviews, FGDs and consultations were held with safai-karamcharis, contractors and private parties to identify service delivery issues from consumers' perspectives.

3. **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 solid waste management scenario were discussed with concerned LMC officials and CO. The diagnostic study, detailed assessment and preliminary strategies for improvement were shared with LMC officials during second PIP consultative workshop in August 2011 at Latur. The suggestions by LMC officials were taken and incorporated in the PIP.

   Based on the identification of city priorities, consultations were held with the CO, opinion leaders, Municipal Councillors, LMC officers, and representatives of water and sanitation departments 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, prioritized and streamlined in consultation with LMC officials to achieve both priority/ focal areas - 'Open Defecation Free LMC' and '24x7' water supply.

   In the PIP report, the identified interventions were classified as minimal capital expenditure, substantial capital expenditure and process and policy related. Actions to improve reliability of performance indicators are also identified. 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 LMC officials during the third PIP consultative workshop in November 2011.

4. **Preliminary Validation of Draft Performance Improvement Plan by LMC:** The proposed draft PIP was shared with LMC. It has been finalized by incorporating the revisions suggested. This report has been prepared in consultation with Latur CO and relevant LMC officials.

   It describes improvement actions and the costs that will have to be incurred to implement the identified actions. 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 LMC will identify low-cost actions that can be taken

immediately and provide funds for these actions from their budget. For actions that require significant capital expenditure, the LMC will prepare detailed project reports and can seek appropriate assistance under existing state and national programmes.

# 2 CITY PROFILE

*This section discusses general characteristics of Latur related to population, aspects related to slum settlements, and human resources in LMC. Additionally, aspects related to municipal finances, specifically with respect to water supply and sanitation services area also discussed here.*

## 2.1 ABOUT LATUR

Latur city is the headquarter of Latur District with ten tehsils. Latur became an 'A' Class Municipal in year 1952. The city has major State and National highways leading to Andhra Pradesh. It is well known for its educational institutes. Latur is located on the Osmanabad Plateau in eastern Maharashtra and is primarily known as a regional marketing center and also has a number of manufacturing industries, including cotton ginning and oil mills. The city is served by a state highway and by a rail line connecting to Mumbai and Chennai. In 1993, a powerful earthquake rocked Latur and the surrounding area, killing an estimated 15,000 people.

**Figure 2-1: Location of Latur**


The present population of Latur is 4 lakhs. The population here grew at a very fast rate of 5.19 percent in the decade of 1991 to 2001. In the ten years from 2001 to 2011, it grew at 3.33 percent. The LMC's area is spread over 33 sq. km. There are 22 municipal wards in the city with each ward represented by 3 members for administrative purposes, except one, which is represented by 4 members. In October 2011, the city was declared as a municipal corporation.

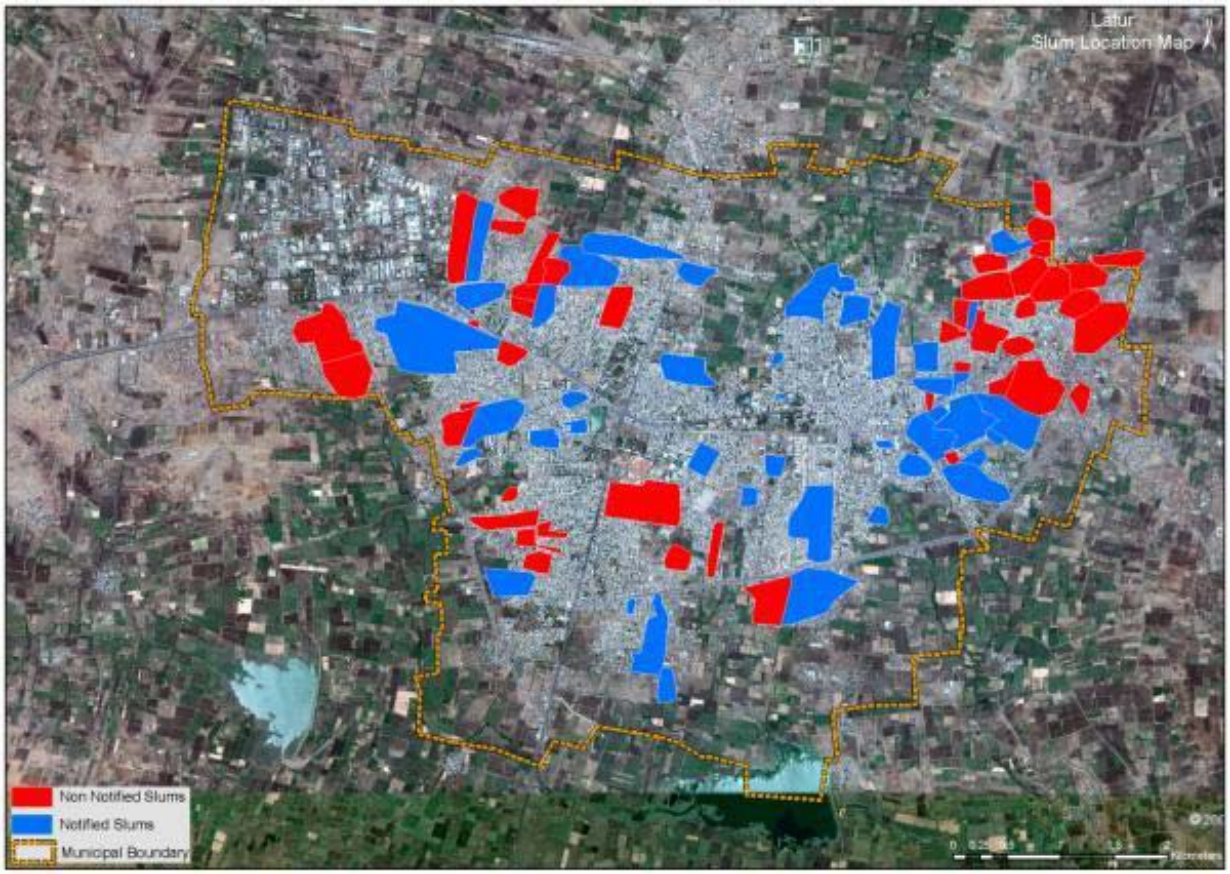
**Table 2-1: Population Trend**

| Year | Population | Growth rate |
|---|---|---|
| **1991** | 197,408 | - |
| **2001** | 2,99,985 | 5.19 |
| **2011** | 4,00,000 | 3.33 |

## 2.2 SERVICES IN SLUMS IN LATUR

One of the focal areas under the PAS Project's improvement areas is the services to urban poor. While the performance measurement tool captures information at city level on services provided to slums, a more detailed measurement tool was also developed to capture settlement level variations in services. During the PIP diagnostic assessment, rapid assessment of few slum settlements was carried out through personal visits to develop an enhanced understating of the characteristics of slums in the city. Latur has 73 slums which houses 1,30,000 dwellers. While the majority of slums are located within the municipal boundary of the city, many are on the periphery of the city as evident from the slum map of the city.

Figure 2-2: Notified and Non-notified Slums in Latur




Source: CEPT University, 2011

The population share of slums is 34 percent with a total of 27,209 households. Latur has around 59 percent slum settlements, which are notified. Of these notified slums, 56 percent were notified in 1983 and another 42 percent were notified a few years ago in 2004. 15 percent of the slums are located on public land in the city. In 1983, 55.81 percent of the slums were notified, which went down to 41.86 percent in 2004.

Table 2-2: Status of Slums in Latur

| Total No. of Slums | (%) |
|---|---|
| % of Notified slums | 58.90 |
| % of Non-notified slums | 41.10 |

Source: CEPT University, 2011

LMC has undertaken various slum housing and infrastructure upgradation schemes. Till date, proper housing facilities have been extended to 12,272 families under Valmiki Ambedkar Awas Yojana (VAMBHAY) scheme from the year 2002 to 2006. Under VAMBHAY scheme, the grant is provided to the beneficiary for restoration and rebuilding of the existing houses. The total cost of the works undertaken under VAMBAY scheme was Rs. 48 crore. This scheme was implemented on the same land and hence, there was no eviction or relocation. As per this scheme, each housing unit has an area of 15 sq m and is provided an individual toilet. Below Poverty line (BPL) card holders were eligible for this scheme. According to LMC, 14,312 housing units with toilets have also been constructed under Integrated Housing and Slum Development Programme (IHSDP) in various slums of the city. Other schemes under which services like water supply, storm water drainage, street lights have been provided include Dalit Wasti Yojana and National Slum Development Programme. From the year 2005-06 to 2009-10, LMC spent an amount of Rs. 27.52 crore under Slum

Development and Housing projects. For the year, 2010-11 and 2011-12, the budgeted amount for the same was Rs. 13.11 crore and 12.20 crore respectively.

## 2.3 OVERVIEW OF INSTITUTIONAL ASSESSMENT

The Latur Municipal Council was formed in 1952 under the provisions of the 'Maharashtra Municipal Councils, Nagar Panchayats and Industrial Townships Act 1965'. There are two arms of Municipal functioning body, namely political and executive body. They function in unison for conducting the operations of the ULB. There are various departments in the ULB to carry out these functions as listed in Figure 2.3 below. The political wing of LMC comprises 62 elected members. From these members, the President of the Council is appointed along with various department committees, most important of all being the 'Standing Committee' responsible for major decisions. There are 'Subject Committees' as well, which includes 'Water supply & Drainage Committee'. The head of executive ward is Chief Officer of State Administrative Cadre appointed by the State Government. S/he leads the entire team of municipal staff of all the departments.

As the case in most cities, the technical strength of the LMC is very low when compared with non-technical staff. Consequently, the non-technical staff comprises the majority of the municipal staff.

Figure 2-3: Administrative Set-up of Latur Municipal Council

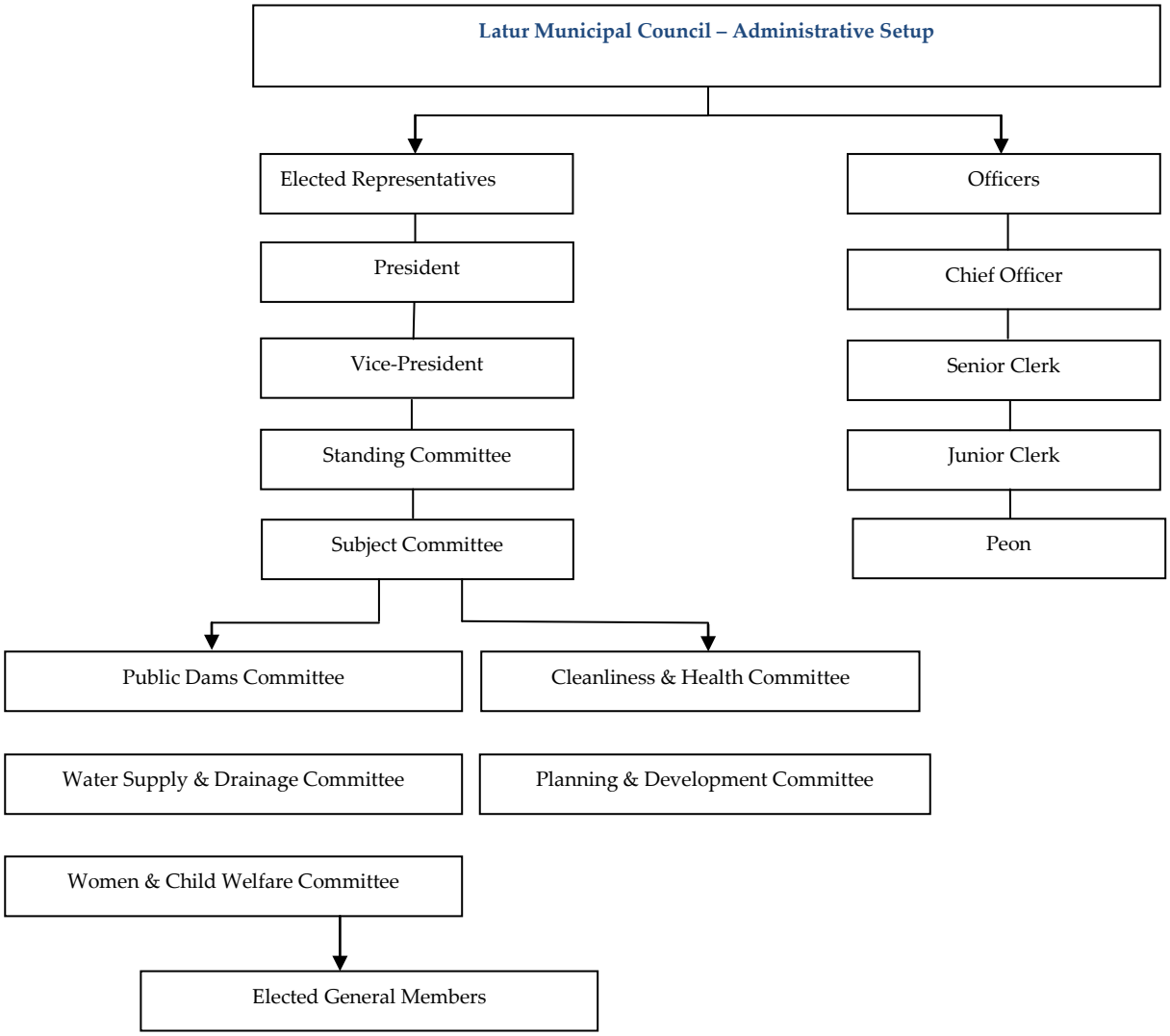
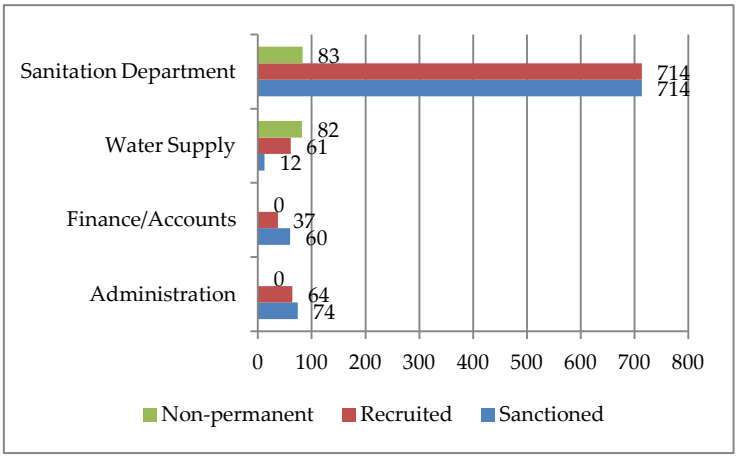



Figure 2-4: Staffing in Latur Municipal Council




LMC has 981 recruited staff members. The Water Supply Department is headed by a Deputy Engineer. There are 9 Junior and Sectional Engineers. There are 5 water zones in Latur city and the city has a total of 62 wards with each Junior Engineer/Sectional Engineer being given a charge of 8-10 wards. Amongst 88 members working in the Department, only 11 percent are senior staff members. The remaining staff members include fitters, linesmen, labours, clerks and peons.

Source: Latur Municipal Council

The Sanitation Department is headed by the Chief Sanitary Inspector, whose responsibility entails overall supervision of the sanitation related activities. This also includes delivering the solid waste management services in the city. The Department also has 11 Sanitation Inspectors (SI). For the sanitation services, LMC has divided the city into 11 divisions with each SI being responsible for one for sanitation activities of one division. There are 35 Mukkadams (supervisors), who are responsible for supervision and field visits to ensure proper implementation. The labours comprising major chunk of the staff in the Department undertake the actual implementation of sanitation related work. The administrative staff comprises two clerks and two peons.

## 2.4 MUNICIPAL FINANCE ASSESSMENT[1]

The municipal finances of the LMC have been reviewed from the years 2005-06 to 2011-12. While for 2005-06 to 2009-10, the information is of 'actuals', for the remaining two years only budget estimates were available. The analysis is based on a 'recast budget'. This was done mainly to reclassify some of the capital grants reported as revenue income to capital income.

**Revenue Account:** The total budgeted revenue income for LMC was Rs. 62.31 crore in 2011-12. This due to a higher income anticipated as part of assigned revenue, grant and contribution. LMC's internal revenue income includes property tax, water tax, other taxes, user and service charges and rental income. Revenue income, including income on account of water and wastewater services has increased from an actual level of Rs. 24.81 crore in 2005-06 to Rs. 32.17 crore in the year 2009-10 at a Compounded Annual Growth Rate (CAGR) of 7 percent. There has been a steady growth for the revenue income during the period except for the year 2008-09. The revenue income has actually decreased from Rs. 38.81 crore in the year 20007-08 to Rs. 32.79 crore with a 16 percent decrease in the year 2008-09 and it further decreased to Rs 32.71 crore at 2 percent in the year 2009-10. Own sources contribute 25 percent of the total revenue income of the LMC from the years 2005-06 to 2011-12. The own sources consist of tax and non tax revenue.

**Table 2-3: Revised Finances Summary for LMC (Rs. in crore)**

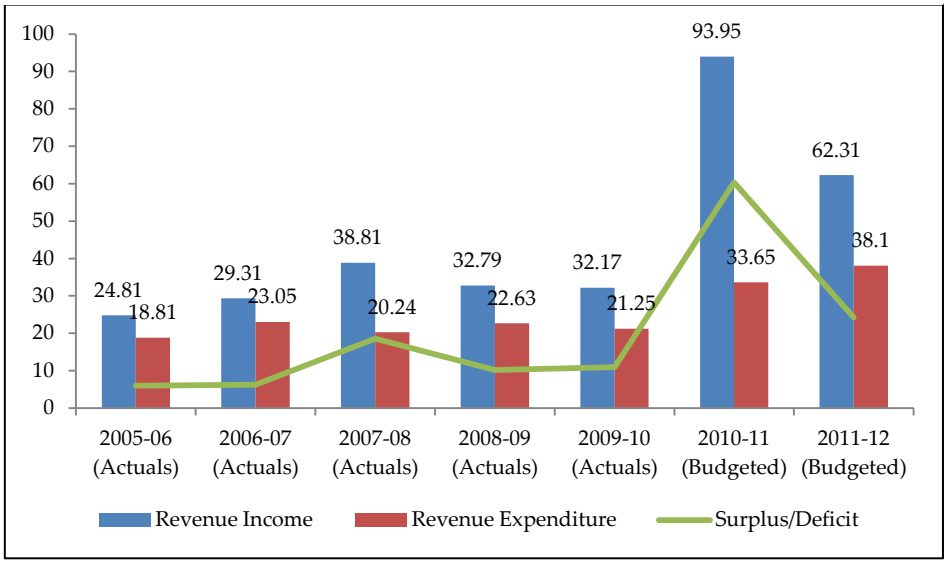
| Items | 2005-06 (Actuals) | 2008-09 (Actuals) | 2007-08 (Actuals) | 2008-09 (Actuals) | 2009-10 (Actuals) | 2010-11 (Budgeted) | 2011-12 (Budgeted) |
|---|---|---|---|---|---|---|---|
| **Opening Balance** | 1.78 | 12.09 | 50.82 | 60.56 | 17.76 | - | - |
| **Revenue Account** | | | | | | | |
| Revenue Income | 24.81 | 29.31 | 38.81 | 32.79 | 32.17 | 93.95 | 62.31 |
| Revenue Expenditure | 18.81 | 23.05 | 20.24 | 22.63 | 21.25 | 33.65 | 38.10 |
| Surplus/(Deficit) | **6.00** | **6.26** | **18.57** | **10.16** | **10.91** | **60.30** | **24.21** |
| Operating Ratio[2] | 76% | 79% | 52% | 69% | 66% | 36% | 61% |
| **Capital Account** | | | | | | | |
| Capital Income | 16.84 | 65.88 | 20.68 | 16.20 | 25.08 | 21.34 | 33.03 |

[1] *This section is based on a detailed analysis of municipal finances as reported in CRISIL 2012.*

[2] *Calculated as Revenue Expense/ Revenue Income*

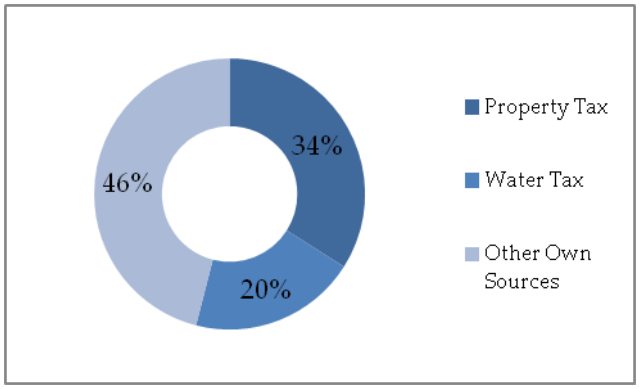
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Capital Expenditure | 12.25 | 32.26 | 25.19 | 63.09 | 45.18 | 69.43 | 47.16 |
| **Overall surplus/ (deficit)** | 10.59 | 39.89 | 14.05 | (36.72) | (9.19) | 12.20 | 10.08 |

**Figure 2-5: Revenue income vs. expenditure of LMC (in Rs. crore)**




**Tax revenue** mainly consists of property tax, general water tax, entertainment tax, special charges etc. Entertainment tax and special charges form the other own revenue sources of LMC. Figure 2.6 shows the average share of each head of tax in the total tax income.

**Figure 2-6: Composition of own sources of LMC**




*Source: Latur Municipal Council*

Taxes account for 14 percent of the total revenue income of LMC. This income has registered a CAGR of 7 percent during 2005-06 and 2009-10. The average collection performance stands at about 67 percent which indicates a scope for improvement in Tax Income. LMC has collected Rs 4.29 crore in the year 2005-06 as tax income which increased Rs 5.68 crore in the year 2009-10. The same has budgeted at Rs 8.65 crore for the year 2010-11 and Rs 10.77 crore for the year 2011-12. LMC has increased its collection performance of the property tax and water charges. In the year 2007-08, LMC had a current property tax collection efficiency of 69 percent which increased to 84 percent in the year 2009-10. At the same time, the arrears get accrued on every year, with total outstanding arrears of Rs 5.11 crore of which only Rs 2.65 crore has been collected during the year 2009-10, leaving 48 percent of the arrears accrued for the next year. The average water collection efficiency from the 2005-06 to 2009-10 stands at 67 percent, which is low and needs to improve. In addition, it shows that the current demand has stagnated, also indicating that the revenue income can be increased by improving the coverage of properties and assessment of additional properties. There are 55,007 assessed properties under property tax in LMC and approximately 78,000 households. There is a scope

of improvement for bringing the un-assessed properties under property taxation and increase the number of water connections.

The following table presents the demand and collection performance of LMC.

**Table 2-4: DCB statement - Property Tax and Water Charges (Rs. in crore)**

| Year | Current Demand | Arrears Demand | Total Demand | Current Collection | Arrears Collection | Total Collection | Current Collection Efficiency | Total Collection Efficiency |
|---|---|---|---|---|---|---|---|---|
| 2007 – 08 | 4.24 | 2.24 | 6.48 | 2.92 | 1.79 | 4.71 | 69% | 73% |
| 2008 – 09 | 4.21 | 2.07 | 6.28 | 3.11 | 1.64 | 4.75 | 74% | 76% |
| 2009 – 10 | 4.49 | 5.11 | 9.60 | 3.75 | 2.65 | 6.40 | 84% | 67% |

*Source: Latur Municipal Council*

**Non Tax Revenue** consists of rents from municipal property, development fees, charges of various services and fees for issue of licenses and approvals. Non-tax revenue accounts for 11 percent of the total revenue income of LMC. The non-tax revenues have registered a CAGR of 18 percent during the 2005-06 and 2009-10. These revenues have increased from Rs 2.80 to Rs 5.46 crore during the period. However, for the years 2010-11 and 2011-12, LMC has budgeted Rs 5.78 crore and Rs 5.18 crore with no increase of revenues from these sources.

LMC receives 74 percent of its revenue income from assigned revenues, grants and contributions. The grants mainly include road grants, dearness allowance grant, octroi compensation grants, water supply grants and women and children development grants. More than 50 percent of the total revenue income is through octroi compensation grants.

This income has grown with a CAGR of 4 percent from Rs 17.73 crore in the year 2005-06 to Rs. 20.12 crore in the year 2009-10. However, there is no steady trend during this period. The income has actually decreased from Rs. 31.95 crore in the year 2007-08 to Rs 24.14 crore in the year 2008-09. It has further decreased to Rs. 21.02 crore in the year 2009-10 as shown in table 2.5.

**Figure 2-7: Assigned revenues, grants and contributions (Rs. in crore)**

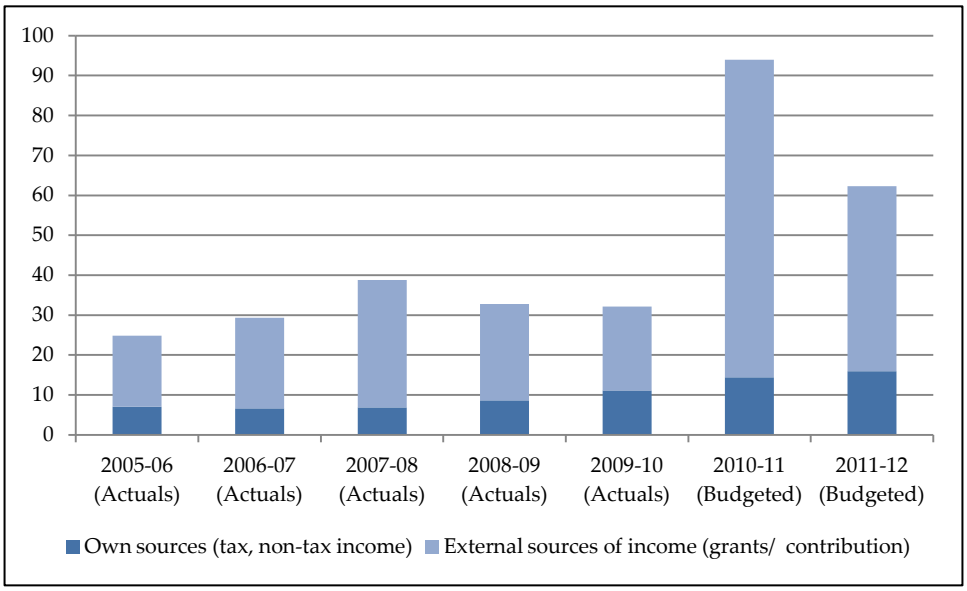


**Table 2-5: Source wise revenue grants for Latur Municipal Council (Rs. in crore)**

| Items | 2005-06 (Actuals) | 2008-09 (Actuals) | 2007-08 (Actuals) | 2008-09 (Actuals) | 2009-10 (Actuals) | 2010-11 (Budgeted) | 2011-12 (Budgeted) |
|---|---|---|---|---|---|---|---|
| Road grants | 2.73 | 4.52 | 3.87 | 5.23 | 3.25 | 3.30 | 4.00 |
| Dearness allowance grant | 2.17 | 1.77 | 1.77 | 3.07 | 3.23 | 5.00 | 6.00 |
| Octroi compensation grants | 11.74 | 11.18 | 12.79 | 14.32 | 14.12 | 16.33 | 18.00 |
| Water supply grants | - | 0.07 | 0.07 | 0.56 | - | 0.10 | 0.15 |
| Women and children development | - | 0.04 | - | - | - | 45.00 | 10.00 |
| Others | 1.09 | 5.10 | 13.44 | 0.97 | 0.42 | 9.79 | 8.21 |
| **Total** | **17.73** | **22.69** | **31.95** | **24.14** | **21.02** | **79.52** | **46.36** |

*Source: Budget documents of Latur Municipal Council*

Ideally, LMC should try to increase the share of own sources of revenue income and use the same for creation of assets and other development works. The steady income to LMC in the form of Octroi grants from the State Government can be used for general administration and other revenue expenditure.

LMC's revenue expenditure has increased from Rs 18.81 crore to Rs 21.25 crore during the years 2005-06 to 2009-10. There is no clear trend observed for LMC's revenue expenditure with increase and decrease for the period under consideration. The expenditure increased by 23 percent and 12 percent for the years 2006-07 and 2008-09, though there is a decrease of revenue expenditure by 12 percent and 6 percent for the years 2007-08 and 2009-10. Overall, the revenue expenditure had a CAGR of 3.10 percent during 2005-06 and 2009-10. The LMC's share of revenues from assigned revenues, grants and contribution is substantially high as compared to revenues from own sources. Such sources of revenue are not under the control of the ULB and therefore it is advisable to reduce the dependence of such sources.

The revenue expenditure of LMC has been analyzed against main departmental budget heads of general administration and tax collection department, public security, public health and sanitation etc. The per capita expenditure for LMC varies over the period, from Rs. 565 in 2005-06 to Rs. 625 in the year 2008-09. LMC had a high per capita revenue expenditure of Rs. 674 for the year 2006-07, while it decreased to Rs. 575 and Rs. 571 for the years 2007-08 and 2009-10. LMC has actually budgeted Rs. 879 and Rs. 969 as per capita expenditure for the years 2010-11 and 2011-12 respectively. About 64 percent of LMC's revenue expenditure is towards water, wastewater and municipal solid waste services and 12 percent towards general administration. The balance 24 percent of the revenue expenditure over the five years was spent on other departments of the LMC.

During the period under consideration, the revenue income has increased at a rate faster than revenue expenditure. As a result, the revenue surplus for Latur for the corresponding years has been higher.

**Capital Accounts:**

The capital income of LMC grew from Rs. 16.84 crore in 2005-06 to Rs. 65.88 crore in 2006-07, which is on account of Rs. 48.85 crore received under the UIDSSMT scheme. Thereafter, it fell and remained between Rs. 20 to 25 crore in the next three years. The budgeted capital income is Rs. 33.03 crore for 2011-12.

**Table 2-6: Capital Account of Latur Municipal Council (Rs. in crore)**

| Items | 2005-06 (Actuals) | 2006-07 (Actuals) | 2007-08 (Actuals) | 2008-09 (Actuals) | 2009-10 (Actuals) | 2010-11 (Budgeted) | 2011-12 (Budgeted) |
|---|---|---|---|---|---|---|---|
| Revenue Account Surplus/(Deficit) | 6.00 | 6.26 | 18.57 | 10.16 | 10.91 | 60.30 | |
| **Capital Account** | | | | | | | |
| Capital Income | 16.84 | 65.88 | 20.68 | 16.20 | 25.08 | 21.34 | 33.03 |
| Capital Expenditure | 12.25 | 32.26 | 25.19 | 63.09 | 45.18 | 69.43 | 47.16 |
| Capital Account Surplus/(Deficit) | 4.59 | 33.62 | (4.52) | (46.88) | (20.10) | (48.10) | (14.13) |
| % Utilization of Capital Income | 73% | 49% | 122% | 389% | 180% | 325% | 143% |

*Source: Budget documents of Latur Municipal Council*

The following table presents the categorization of capital income under various heads:

**Table 2-7: Source wise Capital Income for Latur Municipal Council (Rs. in crore)**

| Item | 2005-06 (Actuals) | 2008-09 (Actuals) | 2007-08 (Actuals) | 2008-09 (Actuals) | 2009-10 (Actuals) | 2010-11 (Budgeted) | 2011-12 (Budgeted) |
|---|---|---|---|---|---|---|---|
| HUDCO loan | 3.83 | 3.78 | 7.58 | 0.27 | - | - | - |
| UIDSSMT | - | 48.85 | - | - | - | - | - |
| NSDP | 2.36 | 0.49 | 0.62 | - | - | 0.80 | 0.75 |
| IHSDP scheme (Housing and infra) | - | - | - | - | 17.99 | 10.01 | 11.00 |
| Finance commission | 1.18 | 3.01 | 3.63 | 0.85 | 2.54 | 4.36 | 2.70 |
| Special area funds | 5.00 | 3.00 | 3.25 | 5.30 | 0.15 | 0.39 | 0.50 |
| Swarna Jayanthi | 0.47 | 1.77 | 1.56 | 1.22 | 1.65 | 1.51 | 1.50 |
| Other schemes | 4.01 | 4.99 | 4.04 | 8.57 | 2.74 | 4.27 | 16.58 |
| **Total** | **16.84** | **65.88** | **20.68** | **16.20** | **25.08** | **21.34** | **33.03** |

*Source: Budget documents of Latur Municipal Council*

LMC has taken a loan from HUDCO for the development of roads during the period under consideration. The budget books shows that LMC has received Rs. 3.83 crore in the year 2005-06, Rs. 3.78 crore in the year 2006-07, Rs. 7.58 crore in 2007-08 and Rs. 0.27 crore in 2008-09.

LMC has repaid part of the loans during the period under consideration. These payments have been accounted in the extra-ordinary budget account under expenditure. Another major source was Rs. 48.85 crore under UIDSSMT in year 2008-09. The following table presents the categorization of capital expenditure under various heads:

**Table 2-8: Capital Expenditure (Rs. in crore)**

| Items | 2005-06 (Actuals) | 2008-09 (Actuals) | 2007-08 (Actuals) | 2008-09 (Actuals) | 2009-10 (Actuals) | 2010-11 (Budgeted) | 2011-12 (Budgeted) |
|---|---|---|---|---|---|---|---|
| Roads | 2.72 | 12.57 | 6.02 | 0.46 | 0 | 0.10 | 0.10 |
| UIDSSMT | - | 1.27 | 0.33 | 28.69 | 18.86 | 43.60 | 10.00 |
| Development schemes | 0.61 | 1.29 | 1.12 | 4.50 | 2.08 | 1.74 | 8.51 |
| Finance commission | 1.45 | 2.08 | 3.65 | 1.85 | 2.17 | 3.11 | 2.75 |
| Water supply and sanitation | 0.61 | 1.87 | 1.14 | 2.07 | 2.15 | 2.09 | 5.80 |
| Slum development and housing | 3.44 | 1.51 | 2.16 | 7.04 | 10.90 | 13.11 | 12.20 |
| Others | 3.42 | 11.67 | 10.77 | 18.48 | 9.03 | 5.68 | 7.80 |
| **Total** | **12.25** | **32.26** | **25.19** | **63.09** | **45.18** | **69.43** | **47.16** |
| **Capital income utilisation** | **73%** | **49%** | **122%** | **389%** | **180%** | **325%** | **143%** |

*Source: Budget documents of Latur Municipal Council*

The capital expenditure of LMC has increased substantially from the level of Rs. 12.25 crore in 2005-06 to Rs. 45.18 crore in 2009-10 representing almost a fourfold increase. The capital expenditure varies during the period under consideration because of the various schemes under implementation.

The projects sanctioned under UIDSSMT scheme is for the development work for improvements roads, drains, footpath dividers and beatification. These works have been implemented by the grant received under UIDSSMT scheme and HUDCO loan.

The slum related income of LMC comprises grants under state and central schemes. This income rose from Rs. 4.04 crore in 2005-06 to Rs. 18.14 crore in 2009-10. The same has been budgeted Rs. 13.51 crore and Rs. 14.90 crore for the year 2010-11 and 2011-12 respectively. The grants under state scheme include Slum Redevelopment - Water Supply scheme and Slum Redevelopment scheme. The grants under central scheme include National Slum Development Programme, Integrated Housing & Slum Development Programme (IHSDP) grants (Infra) and IHSDP grants (Housing). The slum related expenditure also increased from Rs. 3.44 crore to Rs. 10.90 crore. The same has been budgeted Rs. 13.11 crore and Rs. 12.20 crore for the year 2010-11 and 2011-12 respectively.

**Public Private Partnership in Water Supply Service in Latur**

Maharashtra Jeevan Pradhikaran is the nodal agency responsible for development and regulation of water supply and sanitation in the state of Maharashtra. To overcome the source limitation of Latur city, in May 2005, MJP commissioned a source augmentation project for the city through the Stage V Water Supply Scheme. LMC took over this scheme from MJP in 2005 but was unable to operate and maintain it optimally. LMC was also plagued by low collection efficiencies and constraints on revenue growth through revisions in water tariffs.

Taking into account LMC's liabilities and its inability to raise additional resources of Rs. 17.17 crores for completing this scheme, LMC decided to transfer this Scheme to MJP. Subsequently, LMC resolved to transfer the right to operate the existing water supply schemes for the entire city to MJP for 30 years by passing a resolution. MJP was made responsible for the O&M of existing schemes as well as raising finance for completing the Stage V scheme through a private operator. MJP was also given the right to charge water tariff as necessary and collect the revenue from the users.

MJP eventually floated a management contract tender in March 2006 and a consortium of three private organizations was selected. Consequently, a tripartite agreement between MJP, LMC and private operator was prepared which spelled out detailed roles of each party. The MJP was made the nodal agency as per this agreement. The consortium included i) SPML, Delhi (with 51 percent share), ii) UPEL (with 23 percent share), and Hydrocom, Cyprus (with 23 percent share). This agreement for this project to be implemented at Rs. 42 crore and meant for 10 years, was signed in June 2008.

It was decided that for the initial six months, all the expenditures would be borne by the MJP. A minimum of 80 liters per capita per day (lpcd) water was to be provided daily for one hour as per the contract. The billing and collection was also to be done by the private operator by developing a billing software issuing the bills bimonthly. A 24x7 toll free number for complaints was also to be set up and the complaints were to be redressed within seven days.

However, this arranged was marred by vehement opposition from various quarters. Subsequently, Secretary, Water Supply and Sanitation Department (WSSD), Government of Maharashtra and the District Collector held a meeting. Thereafter, a committee comprising various representatives from the city was formed to critically evaluate this public private partnership under the chairmanship of the District Collector. The study committee in its report mentioned the contract as favourable for the city and later the Government of Maharashtra approved the report in October 2008. In accordance with the government directive, private operator was expected to restart operations. However, the opposition to the project continued.

During this time, few European Economic Certified (EEC) meters were installed, which require low maintenance. However, these meters were priced higher at Rs. 1300 as against the local meters, which was priced between Rs. 400 to Rs. 500, which invited opposition. Besides, the tariff was also increased during this duration from Rs. 78 per month to Rs. 150 per month. As meter installation drive started, opposition grew and MJP was forced to step in and operate for few days.

The private operator could only undertake initial study and in face of stiff opposition, they could not really take off the operations. The operations were majorly run by MJP during this duration. Meanwhile, MJP's dues kept mounting on account of operating the water supply services, which included dues to Maharashtra State Electricity Board (MSEB) worth Rs. 2.5 crore as arrears on bills. Non-payment of these dues resulted in MSEB discontinuing the power supply to MJP in May 2011, which brought the water supply services to a standstill in the city. Complaints were made by MJP to District Collector, MJP Head Office, Secretary, WSSD.

Eventually, a meeting took place in May 2011 between private operator and city administration took place, where the private operator complained about the stiff opposition and difficulty in continuing operations. Hence, a decision was taken to suspend the operations and handover the services to LMC.

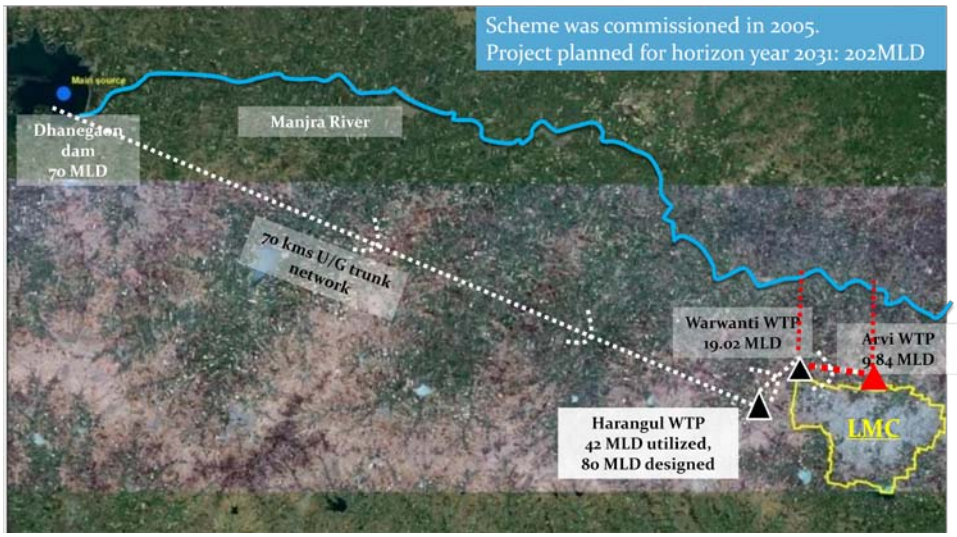
# 3 ASSESSMENT & PROPOSALS FOR WATER SUPPLY

*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 LMC to move towards 24x7 water supply system.*

## 3.1 WATER SUPPLY SCENARIO

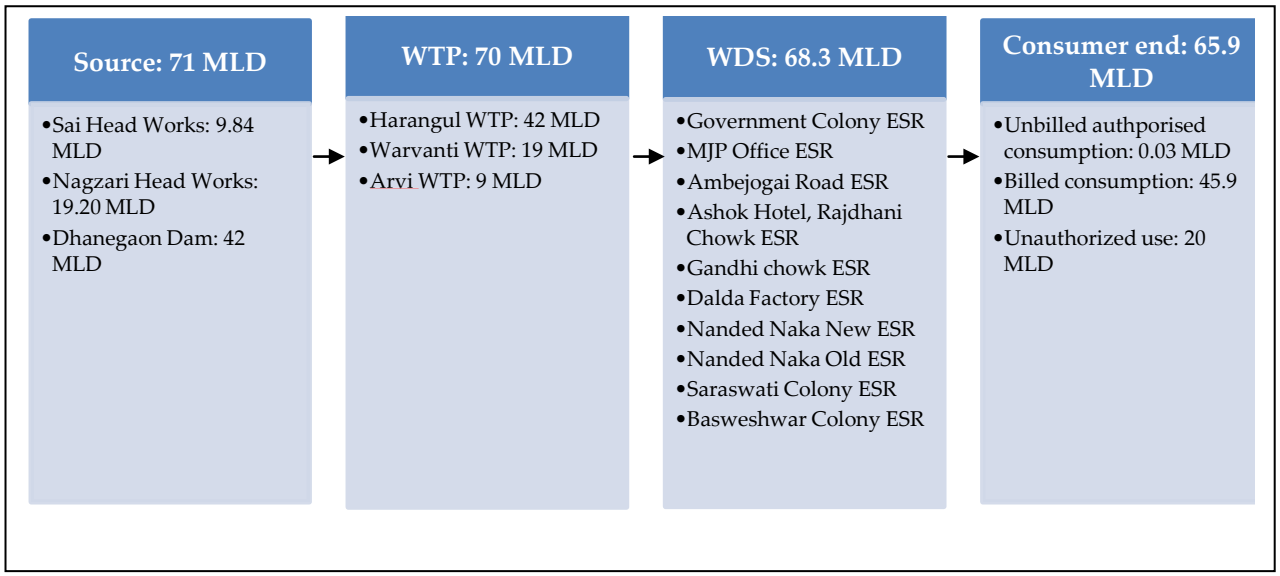
Prior to the year 2005, the water requirement of the Latur city was met by two water supply schemes. Water was sourced from Manjara River located near the city through Nagzari and Sai head works. These two head works supplied water to two water treatment plants (WTPs), namely Warwanti with a capacity of 19.02 million liters per day (MLD) and Arvi with a capacity of 9.84 MLD. There were no perennial sources, leading to high dependence on borewells. In 1998, limitations in these two schemes to cater to growing population were addressed by approval of a new scheme, Stage V Water Supply Scheme, a bulk water supply and distribution project costing Rs. 129.45 crore. The new scheme is part of Dhanegaon dam, which is located 70 kms away from the city. The commissioning of this scheme in the year 2005 resulted in an increase of the total length of the water distribution system of Latur city by an additional 126 kms. The total water generated through these three sources in the city is 71 MLD.

Figure 3-1: Location of Source & WTPs in Latur




A WTP named Harangul was also developed and is currently functioning at half of its designed capacity (42 MLD as against the design of 80 MLD). With the implementation of the new scheme, part of water is supplied to other two WTPs from Dhanegaon dam along with Nagzari and Sai head works. There are five water zones. There are 10 elevated storage reservoirs (ESRs), which distribute treated water to different parts of the city.

Figure 3-2: Schematic flow diagram of water supply scheme

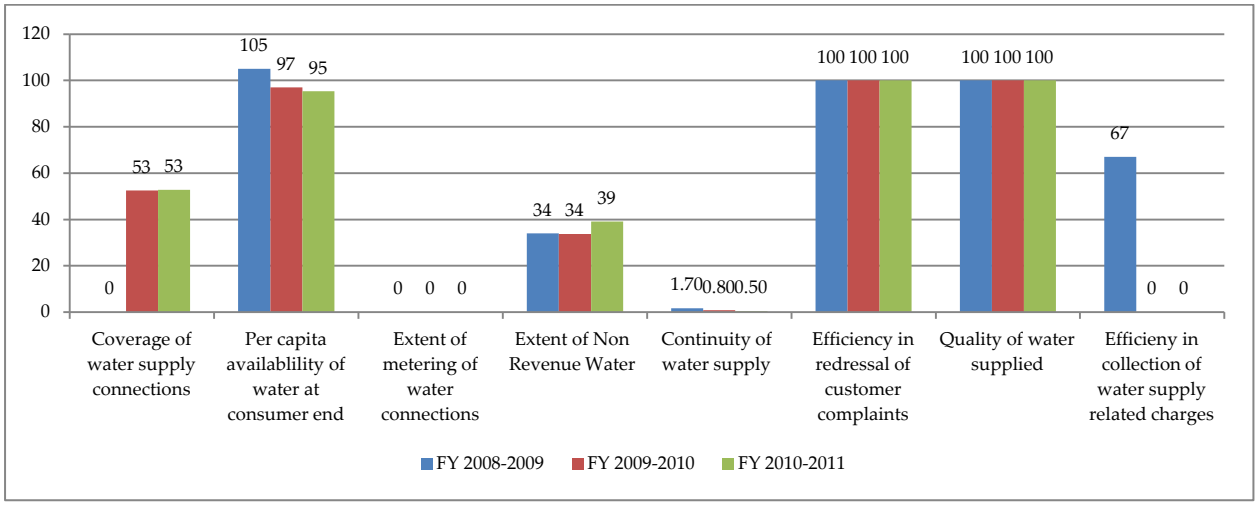



During the interactions with the Water Supply Department officials of LMC, it emerged that the Arvi WTP after years of continual use is now experiencing a loss of energy and transmission along with higher expense on manpower and O&M costs. The LMC officials are of the opinion that the Harangul WTP, which is operating at half of its capacity, should be put to additional use and the operations of Arvi should be ceased. The discussions with the Water Supply Department officials further revealed that there are 450 borewells attached with submersible pumps scattered all over the city, especially to cater to the water requirements of the slum residents and poor neighborhoods. These borewells, which were earlier used by LMC during days of water scarcity, are now being used by residents for their domestic use. Since their usage was unregulated, it was adding to the costs of the Council.

## 3.2 ASSESSMENT OF SERVICES DELIVERY

As referred earlier, the operations of water supply service in the Latur city over the past few years has changed hands between MJP, private operator and LMC with LMC eventually taking over the services recently. This forms an important backdrop to water services provision in Latur city since in 2005 MJP took over the operations from LMC due to source limitation in LMC and a management contract tender was floated in March 2006 and a consortium of three private organizations was selected. However, due to various turn of events, the PPP never fructified and LMC had to take over O&M of water supply in late 2011. The city has five water zones. The figure below provides an comparative assessment of key performance indicators of the Service Level Benchmark (SLB) initiative for water supply system over a three years.

Figure 3-3: Key Performance Indicators of Water supply system in Latur




### 3.2.1 Access and Coverage

**Coverage of water supply connections:** The coverage of household level connections while increasing over the period of time, still leaves scope of much improvement as it stood at 53 percent in the year 2010-11. It must be cited that the water distribution network covers 90 percent area of the city, which indicates that there are possibilities to increase coverage with the existing network. The discussions with the water supply department officials revealed that the household level coverage stood at higher than this. However, the data reliability is low. Additionally, the LMC officials shared that 10 percent of the areas are new growth areas, which are not covered by water supply system, where the water supply services need to be extended. Additionally, as per 2008-09 data, the coverage of individual connections in slums is just 20 percent. The slum households rely mainly on 450 borewells, 335 group connections and 112 standposts (as in the year 2008). Services need to be extended to these areas as well. It was also revealed that there were 30 to 35 percent illegal connections in the city.

**Proposal:** There is a need to extend water supply distribution network to un-served areas. To do this, requires developing an infrastructure of 4.32 km trunk mains and 20 kms of distribution network. This will ensure that there is an increase in the coverage of water supply connections. This exercise will cost an estimated amount of Rs. 7 crore. These figures were arrived at in consultation with the LMC officials. There is also need to link water connections database with property tax GIS database to get a better estimation of the water supply connections. This aspect is covered in a separate section on 24x7 in the subsequent sections.

### 3.2.2 Service levels and Quality

**Per capita supply of water:** The per capita availability of water at consumer end has been going down over the years. It stood at 105 litres per capita per day (lpcd) in the year 2008-09, but in 2010-11 it fell to 95 lpcd. The LMC officials shared that there are system related issues including need for repair and maintenance and strengthening of the distribution system. Discussions with LMC reveal that a portion of 600 km long distribution network of the city in the goathan area of old city doesn't function optimally and hence needs an overhaul. It was also found that in one of the WTPs, named Arvi WTP, which receives raw water from Sai water works and Dhanegaon dam has been in operations for many years, has suffered high level of wear and tear with little attention paid to revamp and thus operates at a very

low efficiency. Hence, it experiences loss of energy and transmission. It requires higher manpower and O&M expenses. This negatively impacts the supply of water to consumers.

**Proposal:** To improve and strengthen the distribution network, it is suggested that funds should be set aside by LMC to efficiently repair and maintain the distribution system. Discussions with the department officials reveal that it would be beneficial to stop the old low capacity Arvi WTP to save operating expenses on energy, manpower and O&M, besides curbing transmission losses. Instead, the Sai head works should be connected to Harangul WTP by developing a network between Arvi ESR and Shivaji Chowk for directing the water to Hanrangul WTP. Additionally, a 250 HP pump at Harnagul WTP needs repairing for optimal functioning. The estimated cost for this project would be Rs. 2 crore and can be completed in one year itself.

The work on augmentation of distribution network in old city is being undertaken currently at the cost of Rs. 6 crore. The WSSD, Government of Maharashtra is funding 60 percent of the project's cost with the remaining 40 percent to be arranged by LMC. As of now, 35 percent of the grant has been received and utilized by LMC. However, LMC could not pay its own share of 40 percent, the WSSD has put the next installment on hold. Consequently, the work on this project has been put on hold. It is proposed that the Council works towards arranging its share from its investible surplus.

For further strengthening of the distribution network, it is suggested that Hydraulic Modeling Study be conducted to prepare District Metered Areas (DMAs) and manage water supply for more hours. This component is covered under the section on 24x7 water supply. A proposal under Sujal Nirmal Abhiyaan costing of Rs. 8.05 crore has also been submitted by the LMC, which awaits sanction. The project entails construction of an ESR at Khadgaon Road and 24.32 kms pipeline. Additionally, an ESR construction at Sohail Nagar area will also be undertaken along with laying of 50 kms pipeline. These proposals would also contribute towards improving in per capita supply.

Furthermore, it is proposed that the separate bill collection team developed in the Water Supply Department should be trained to conduct periodic surveys at the major bulk production and consumer points through methods like bucket survey or using portable flow meters.

For implementing 24x7 water supply in the city in the future, LMC can also buy additional amount of water from the Irrigation Department in case of shortage through Dhanegaon dam.

**Continuity of water supply:** LMC supplies water every alternate day and the amount of water received by consumers has been declining over the years. While in 2008-09, it was 102 minutes, in 2010-11, it fell to just 30 minutes. The data reliability is very low for this. Nonetheless, these values clearly point towards a need for improvement on this count. It emerged during various site visits that consumer connections are major source of leakages as many households don't use stop cocks and water runs continuously during supply hours leading to wastage and pressure problems in tail end supply. Hence, areas that experience low-pressure, use line boosters within the distribution network, thus adding to the pressures on the system.

**Proposal:** In order to improve the continuity, it is vital to monitor the supply of water for adequacy of pressure and timings in various zones. This will ensure better assessment of the continuity of water supply. Additionally, the above mentioned proposals for improvement in distribution network and storage would also help in enhancing the continuity. The proposal for water wasters is dealt in section on NRW.

**Quality of water supply:** The Council undertakes quality tests at WTP level, which include chemical tests for pH, hardness and turbidity. Besides, bacteriological and residual chlorine tests are undertaken at WTP, ESR and consumer level. 10 samples at consumer end are tested every day for each ESR. LMC also maintains a proper record of the tests undertaken. The city has reported an indicator value of 100 percent but with a reliability of D.

**Proposal:** While there are no apparent issues in the quality, it is to be mentioned that it is important to have regular reinforcement amongst the Water Supply Department officials on the need proper water quality surveillance regime.

**Metering:** The metering drive was initaited during the public prtiate partnership in water services (refer PPP in water supply service), on page 25-26. However, this arrangement meeting with contiued opposition, it was discontinuted. Hence, the city operates without any metering of water connections at the consumer end. There might be a loss of revenue as water quantity is not calculated accurately in absence of metering and lack of volumetric billing at the consumer end.

**Proposal:** It is proposed that only consumer metering with volumetric billing is the only option to stem the loss of revenue on account of lack of metering at the consumer end. The element is covered under the section on 24x7 water supply.

### 3.2.3 Financial sustainability

The financial records of LMC reveal that currently the average cost recovery, which is the operation and maintenance charges of water supply services, is very low at 41 percent from 2005-06 to 2009-10. For the year, 2009-10, the cost recovery was 49 percent. The average collection performance of water related charges is only 67 percent from the 2005-06 to 2009-10 stands at 67 percent. In the year 2007-08, LMC had a current collection efficiency of 69 percent which increased to 84 percent in the year 2009-10. At the same time, the arrears are accrued on every year, with total outstanding arrears of Rs 5.11 crore of which only Rs 2.65 crore have been collected during the year 2009-10, leaving 48 percent of the arrears accrued for the next year.

The LMC needs to improve its performance of collection efficiency for high cost recovery of O&M of the water supply service. The income from water supply has registered a CAGR of 9.13 percent during the period 2005-06 to 2009-10. The revenues from the water supply services have increased from Rs 2.72 crore to Rs 3.86 crore during the same period. The revenues for the year 2010-11 have been projected with a decrease of 43 percent.

**Table 3-1: Financials of water supply (Rs. in crore)**

| Items | 2005-06 (Actuals) | 2006-07 (Actuals) | 2007-08 (Actuals) | 2008-09 (Actuals) | 2009-10 (Actuals) | 2010-11 (Budgeted) | CAGR % (2005-2010) |
|---|---|---|---|---|---|---|---|
| Income | 2.72 | 1.51 | 1.79 | 2.34 | 3.86 | 2.18 | 9.13% |
| Expenditure | 3.27 | 3.48 | 4.52 | 5.09 | 3.96 | 4.42 | 4.95% |

Source: Latur Municipal Council

Revenue expenditure for water supply has registered a CAGR of 4.95 percent growth between 2005-06 and 2009-10. From the data available, it is observed that the water supply related energy expenses has doubled between 2005-06 to 2009-10. It has increased from Rs. 0.50 crore in 2005-06 to Rs 1.26 crore in 2006-07 and to Rs 2.25 crore (see table 3.2). This increase in payments towards energy charges might be

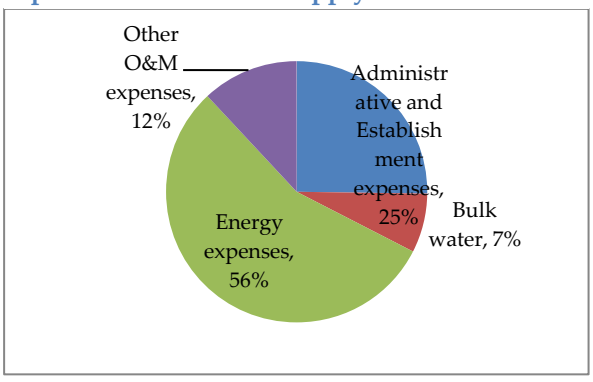
because of the default in payments from previous years. As mentioned earlier, there was Rs. 2.5 crore as arrears on bills due to MSEB. Also, Arvi WTP had suffered high level of wear and tear with little attention paid to revamp and thus operates at a very low efficiency. Hence, it experiences loss of energy and transmission. This is evident when the budgeted figure towards energy payments is considered, as the expenditure budgeted has decreased from an actual of Rs. 2.52 crore to Rs. 2 crore in 2010-11.

**Table 3-2: Revenue Expenditure for Water Supply**

| Items | 2005-06 (Actuals) | 2006 -07 (Actuals) | 2007-08 (Actuals) | 2008-09 (Actuals) | 2009-10 (Actuals) | 2010-11 (Actuals) | 2011-12 (Budgeted) | CAGR | % share |
|---|---|---|---|---|---|---|---|---|---|
| Administrative and Establishment expenses | 0.90 | 0.92 | 1.06 | 1.16 | 1.00 | 0.58 | 0.77 | 3% | 25% |
| Bulk water | 0.64 | 0.85 | 0.41 | 0.51 | 0.29 | 0.40 | 0.40 | -18% | 13% |
| Energy expenses | 0.50 | 1.26 | 2.25 | 2.52 | 2.20 | 2.00 | 2.00 | 45% | 43% |
| Other O&M expenses | 1.23 | 0.45 | 0.80 | 0.90 | 0.47 | 1.45 | 1.49 | -21% | 19% |
| **Total** | **3.27** | **3.48** | **4.52** | **5.09** | **3.96** | **4.42** | **4.66** | **5%** | |
| Operating Ratio for water supply | **212%** | **231%** | **303%** | **218%** | **107%** | **218%** | **111%** | | |
| Per Capita expenditure on water supply in Rs/ capita | **98** | **102** | **129** | **141** | **106** | **116** | **118** | | |

*Source: Budget documents of Latur Municipal Council*

**Figure 3-4: Item wise share of revenue expenditure for Water Supply – Year 2009-10**




It is evident that expenses on energy with 56 percent of overall expenditure forms the major chunk of LMC's expenditure on delivering water supply services. Other major expenditure includes cost towards establishment and administration with a figure of 25 percent of the total expenses. Further expenses include bulk water purchase, costs of chemicals for treatment purpose and other O&M expenses.

**Table 3-3: Water Tariff in Latur**

| Connection Size | Annual Flat Tariff (in Rs) | |
|---|---|---|
| | Residential | Commercial |
| **1/2"** | 1,800 | |
| **3/4"** | 1,555 | 7,138 |
| **1"** | 3,662 | 16,152 |

**Source: Latur Municipal Council**

The LMC charges an annual tariff of Rs. 1,800 annually for half inch household level connections. These rates have been revised in 2010-11 by 55 percent. For the past four years, this tariff was Rs. 806 per annum. The table here presents the currently tariffs for the water

services for Latur city. The water bills were prepared every quarter by MJP and given to the Tax Department. MJP did the billing till March 2011. Subsequently, starting financial year 2011-12, the Water Supply Department of LMC procured previous records from MJP and started preparing the water billing. The Water Supply Department distributes bills and also does the payment collection. A separate team has been developed in this department for billing and collection.

The city has 450 borewells with submersible pumps to cater to water requirements of the slum residents, which were used earlier by LMC during water scarce days. The residents using these borewells don't turn off the pump leading to a great quantity of energy, water and financial loss and therefore, LMC incurs Rs. 0.30 crore per annum as expenses in its O&M for which it does not record any revenue.

**Proposal:** To improve the energy efficiency and reduce costs on energy, as mentioned earlier it would be beneficial to discontinue the old low capacity Arvi WTP to save operating expenses on energy besides other costs and instead, the Sai head works should be connected to Harangul WTP by developing a network between Arvi ESR and Shivaji Chowk for directing the water to Hanrangul WTP. Additionally, a 250 HP pump at Harnagul WTP needs repairing for optimal functioning.

LMC must also explore the options of implementing volumetric tariff structure, after the metering of the existing water connections. Besides, the Council should identify illegal connections in the city and in its registers and regularise them. While the LMC has already been working on this aspect, but this need to be given further impetus. Steps also need to be undertaken to improve collection efficiency. This could include undertaking special drives on identifying defaulters and recovering arrears; introduction of rebates to people paying the charges early and penalties on defaulters and introduction of option to pay in installements.

### 3.2.4 Efficiency in Service Operations

**Extent of Non Revenue Water (NRW):** As per the information shared by LMC officials, the city experiences an NRW of 39 percent loss as in the year 2010-11. A water audit study conducted by STC in 2006 suggests that about 35 percent losses are experienced in the water supply system. The reasons for this include water loss in the system on account of old distribution network in goathan area of the old city, which needs an overhaul. It was also revealed that there were 30 to 35 percent illegal connections in the city. As mentioned earlier, there are 450 borewells attached with submersible pumps scattered all over the city, especially to cater to the water requirements the slum residents and poor neighborhood. These borewells used earlier by LMC during water scarce days, are now being used by residents for their domestic use. The residents using these borewells don't turn off the pump leading to a great quantity of energy, water and financial loss. LMC incurs Rs. 0.30 crore per annum as expenses in its O&M for which it does not record any revenue.

As mentioned earlier, it was also found during the various site visits that consumer connections are major source of leakages as many households don't have stop cocks and water runs continuously during supply hours leading to wastage and pressure problems in tail end supply. Therefore, areas, which experience low-pressure, use line boosters within the distribution network, thus adding to the pressures on the system.

**Proposal:** To deal with the problem of illegal connections the city, a survey needs to be conducted to identify the illegal connections. There is a need for dedicated efforts from LMC to link water connections database with property tax GIS database. While efforts have been made to detect and regularise illegal

connection, this needs to be stepped up further. LMC must take immediate action to detect and legalize all illegal connections with a big bang approach. To do this, household survey for water supply connections will be needed for illegal connections that are still not identified. This will help in identifying the number of illegal connections and ultimately take steps in legalizing it. Since this is a step in achieving 24x7 water supply, this also covered with costs in the section on 24x7 water supply.

To curb the NRW emanating from the 450 borewells in the city, some efforts have already been undertaken like some of these borwells have been converted to handpumps. It is estimated as per the water audit study by STC that operating these borewells consume double the energy per 1000 liters as compared to Dhanegaon dam. The STC report on water audit also suggested that the borewells used by slum residents should be converted to handpumps, which will also ensure water availability without the burden of energy bill. Assuming Rs. 10,000 to convert borwells into handpumps, Rs. 0.45 crore would be required. This should be done in a phased manner.

**Table 3-2: Cost of Converting Borewell into Handpumps**

| Sr. no. | Action | Improvement of KPIs | Estimated Cost (Rs. in crore) |
|---|---|---|---|
| 1 | Convert 450 borwells into handpumps | Reduction in non-revenue water | 0.45 |

LMC has now initiated a survey to ascertain the residents using 64 high yielding borewells' water supply. Based on this, they are being charged for last five years services (last 4 years @ Rs. 806/annum and last year @ Rs. 1800/annum).

To plug leakages in the water connections at consumer end, metering with volumetric billing can only bring about a change in user psychology. The proposal for the same is covered under 24x7 water supply. Also penalty must be levied on users wasting water by not installing stop cocks. Awareness measures on this issue will also go a long way in changing the consumers' attitude.

**Efficiency of complaint redressal:** The efficiency in consumer redressal as reported by LMC is 100 percent. There is scope of further improvement. With LMC recently taking over the operations of the water service delivery, the currently mechanism of registering complaint is through personal visits or through telephone with the officials of Water Supply Department. However, the data reliability of complaint redressal is very poor.

**Proposal:** Some of the proposals that LMC can consider in complaint registering systems include filing complaints through SMS, web based technology etc. This will result in improved response to the customer complaints, besides also helping in keep an effective monitoring of the issues related to water services. Moreover, use of technology would also help in categorizing various complaints, analyze them and respond accordingly. For computerised consumer grievance redressal process, average cost will be 0.10 crore for mobile application, software and hardware cost.

### 3.2.5 Equity in Service Delivery

As stated earlier, the extent of household level coverage is very low in the slums in Latur with just 20 percent households with individual level connections. Most of the people in slums depend on the 450

borewells made available to slums settlements. Additionally, 335 group connections have also been provided in the slum settlements of the city. Each group connection caters to 10 households. The tariff is similar to the individual connection. The bill is issued to the person in whose name the group connection was taken. The slum dwellers are also served by standposts. As of year 2008, the city had 112 standpots.

**Proposal:** Currently, the tariff structures are same for both slum and non-slum households. The Council can explore the possibility of introducing easy installments for slum level water connections. The focus should be on providing more group connections in the slums. Also the individual connections need to be subsidised, which will cost around Rs. 2,000 per connection. The total cost for this comes to Rs. 0.55 crore and will benefit 2,700 slum households. A policy for subsidization for individual conection for slum households need to be introducted by LMC first for this.

Additionally, the 112 standposts (as on year 2008) across the slums in the city should be converted into group connections. The cost assumed for converting standpost into group connections is assumed to be Rs. 5,000. Therefore, Rs. 0.06 crore will be incurred for coverting 112 standposts into group connections. This will ensure an increased coverage in slums.

**Table 3-3: Cost of Subsidizing Water Supply Connections to Slum Households and**

| Sr. no | Action | Improvement of KPIs | Estimated Cost (Rs. in crore) |
|---|---|---|---|
| 1 | Subsidize the connection cost for slum area and ease the connection procedure | Coverage of Water Supply Connections | 0.55 |
| 2 | Convert standpost into group connections | Coverage in slums | 0.06 |
| **Total** | | | 0.61 |

## 3.3 PROPOSED ACTIONS/ INTERVENTIONS FOR WATER SUPPLY

These interventions are suggested based on discussions with the Council, and analysis of the key indicators and their data reliability. The proposals listed below mainly include various interventions that need to be carried out by LMC. It is highly recommended that with LMC recently taking over the water supply service, proper capacity building efforts for the staff must also be undertaken to ensure proper implementation of these interventions. Since the focus of improvement in water supply is to move towards a 24x7 water supply system, the interventions mentioned below will help LMC need to be carried out at the earliest to ensure that basic systems are in place. Detailed interventions which will incur capital investment by LMC are discussed in the next section.

**Table 3-4: Intervention Required in Water Sector**

| Categories | Interventions required | Estimated cost (Rs. in crore) |
|---|---|---|
| **Access and Coverage** | Extend the water supply network to un-served areas. | 7 |
| **Service levels quality** | Arrangement of LMC's share of funds to replace distribution network in old gaothan area | 2 |

| | | |
|---|---|---|
| **Financial Sustainability** | Discontinuing Arvi water treatment plant's operations | 2 |
| | Converting 450 borwells into handpumps | 0.45 |
| | Converting standpost into group connections | 0.06 |
| **Efficiency in Service Operations** | Introduction of mobile and web based systems | 0.10 |
| **Equity in service delivery** | Subsiding individual connections to slum dwellers | 0.55 |
| **Total** | | **12.16** |

## 3.4 MOVING TOWARDS 24X7 WATER SUPPLY IN LATUR

The Government 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. 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 Ministry of Urban Development (MoUD), Government of India towards 24x7 systems provide an approach based on the institutional, technical and commercial improvements required.

**Technical improvements**: Given that the Council currently operates its water supply in intermittent conditions, technical shortcomings would exist which would constraint the shift towards establishing 24x7 water supply systems. These include

- Reliable data on distribution networks and customers do not exist.
- Pipelines comprising the distribution system are totally interlinked.
- There is virtually no metering of bulk water produced, its transmission, distribution at any point; or customer end meters.
- Control of leakage on a routine, planned basis is impossible.
- It is unusual for a water utility to routinely measure system pressure.

In LMC, distribution network in the old city was very old and therefore augmentation of distribution network in old city is being undertaken at the cost of Rs. 6 crore. A proposal for storage capacity augmentation costing Rs. 8.05 crore has been submitted under MSNA. As part of this, it is proposed to construct ESRs at Khadgaon Road and Sohail Nagar along with 74.32 km distribution network expansion.

Some of the technical and commercial constraints mentioned by MoUD guidelines are resolved through the implementation of Government of Maharashtra's reform program, MSNA. These are listed below.

**Reliable data on distribution network and customers is achieved through:**

- Consumer end survey**:** 100 percent consumer survey will help in identifying and regularization of illegal connection**s.** In LMC, a water audit study was conducted in 2006 revealed presence of 30 to 35 percent of illegal connections. Consumer survey will also provide consumer details and required

demand of water. These data will be used to calculate required quantity of water demand at consumer end and also help in assessment of source availability and sustainability**.**

- GIS mapping and hydraulic modeling**:** GIS mapping and hydraulic modelling will be used for preparation of rehabilitation and augmentation plan to improve existing water supply network. Equitable distribution of water can be achieved with the use of hydraulic modeling.

**Interlinked distribution network can be restructured through:**

- Water audit and leak detection and energy audit study**:** Water audit and leak detection study will help in identifying and then repairing existing leakages in system, whereas energy audit study will be helpful for optimization of electricity use.
- District Metered Area (DMA) demarcation & installation of bulk flow meters**:** Geographic Information system (GIS) mapping and hydraulic model will be used for DMA demarcation, once DMA are demarcated, bulk flow meters are installed to form DMA in the existing water supply network.

**Metering at bulk production and distribution points including consumer connections**

- Introduce metering and volumetric tariff**:** The reforms mentioned above related to regularization of illegal connections, implementation of suggestions of water audit and energy audit, formation of DMA, etc. will reduce the O&M expenditure. Once these reforms are in place, the city should introduce metering and volumetric tariff to recover full O&M cost.

**Control of leakage on a routine, planned basis**

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

**Commercial improvements**: Given that the technical improvements need to be financially sustainable, the conversion to 24x7 water supply requires advanced commercial systems and procedures. LMC has lack of computerized billing and collection system, and the billing is currently based on flat tariff. With introduction of metering and volumetric tariff system, consumers will be charged based on the water quantities consumed. To ensure that the system progresses smoothly, in the initial phase, the Council needs to develop public awareness.

- Computerized water billing and collection system: Linking of consumer survey results with the billing and collection system will improve the billing efficiency.

**Institutional improvements:** To move towards 24x7 water supply, the Council has to significantly improve and supplement its managerial and technical skills, as hitherto these skills were oriented towards maintaining an intermittent supply. Some of the technical aspects that will require improved skills and automation are

- Planning and design of water supply infrastructure from source to distribution to customer for 24x7 system, including concept and establishment of DMAs.

- Restructuring of existing systems, presently operated under intermittent conditions, to continuous supply at minimal cost and simultaneously maintaining supply throughout the conversion process.
- Appropriate hydraulic models and application to planning, design, and operation.
- All aspects of pressure management including specification of pressure valves.
- Design and specification of flow and pressure measurement and control devices for management of continuous supply.

Hence, the operational skills required to plan and implement these measures would include operation under continuous supply, pressure management, proactive detection and repair of leaks, proactive detection and regularization/ disconnection of illegal connections, mapping of water service infrastructure on GIS linked to operational, maintenance and customer services tracking.

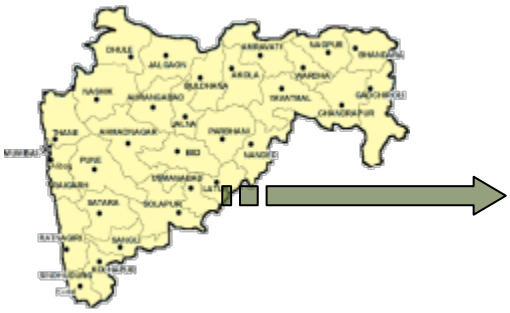
It is to be noted that currently the technical staff in the Water Supply Department in LMC is less and hence the technical staff strength and capacity at LMC needs to be augmented in order to ensure smooth functioning of the 24x7 water supply system. A summary of the actions and cost implications towards achieving 24x7 water supply is given below.

**Table 3-5: Summary of actions and cost implications for 24x7 water supply**

| Activity | Description | Cost (Rs in crore) |
|---|---|---|
| Network and Customer database | 100% consumer end survey, including identifying and regularizing illegal connections. | 0.18 |
| Network Restructuring | Hydraulic modelling and creation of DMAs. | 0.11 |
| Bulk metering | Metering at all bulk production and distribution points. | 0.56 |
| Leakage control | Conduct water audits, energy audit and leak detection studies, and repair existing leakages in the system. | 0.81 |
| Implementation of 24x7 in whole city | 50% of distribution network will be augmented and 100% service connections need to be replaced and installed with mechanical meter for implementation of 24x7 water supply. | 110.46 |
| | **Total Cost** | **112.12** |

## WATER SUPPLY SERVICES IN LATUR

### LOCATION OF LATUR



### WATER SUPPLY IN LATUR

**Source of Water** | **Treatment of Water** | **Transmission Main**

**Water supply to the consumers:**

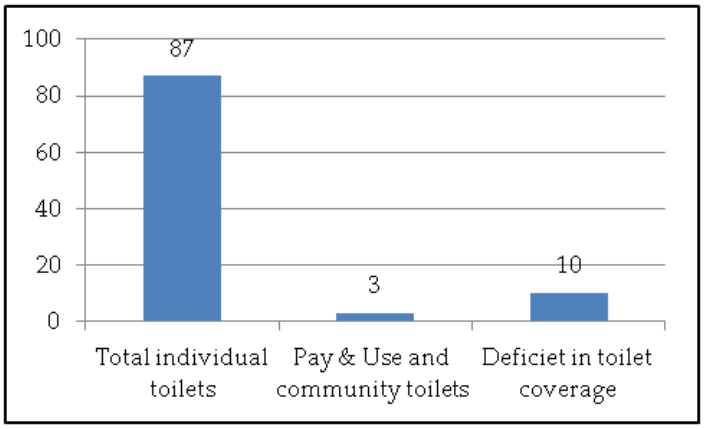
# 4 ASSESSMENT & PROPOSALS FOR SANITATION

*This section captures the sanitation aspects in LMC related to coverage of toilets in the city as well as slums, septage management, impact of the ongoing sewerage network and a summary of proposed interventions for improving sanitation in the city.*

## 4.1 COVERAGE OF TOILETS

On observing the sanitation scenario of Latur city, it comes to fore that the coverage in terms of individual toilets is 87 percent, with 69,512 properties (including residential and non-residential) having access to individual toilets, with majority being connected to septic tanks. Additionally, there are a total of 21 community and pay-n-use toilets. These toilets are mainly concentrated in the eastern part of the city and hence the newer one should be constructed in the western part of the city (see Figure 4.3) 16 of these are community toilets, which serve around 3 percent of the population in the city. 5 community toilets are managed by LMC, whereas 10 are managed by managed by Sulabh International and few other non-governmental organizations (NGOs). The slum community members are issued passes at very nominal rates to use these toilets. In addition, there are 6 public toilets (pay and use toilets) managed by various NGOs. The toilets being operated by NGOs have been given a contract to operation and maintenance for 30 years. During the field visits, it was found that these toilets are clean and well maintained. There is a provision of a borewell and overhead tank for water supply in these toilets. The LMC managed toilets, which although functional are not cleaned regularly and there is a shortage of water. Some people are using these facilities. People bring their own water to these toilets.

**Figure 4-1: Coverage of toilets in Latur City in year 2010-11 (%)**

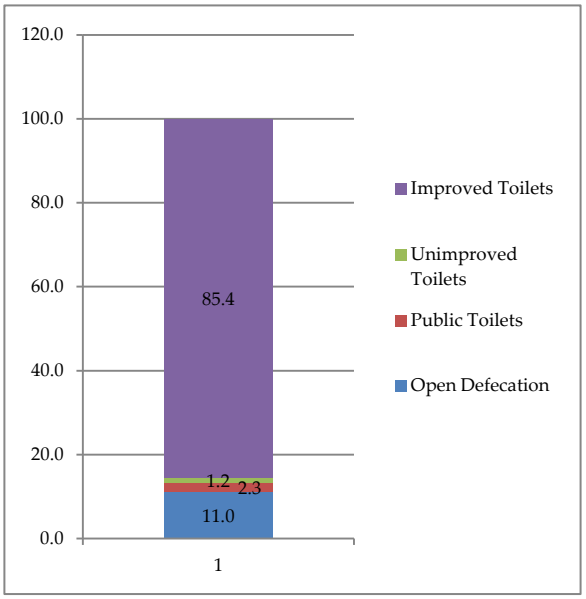



**Source: Latur Municipal Council**

While the LMC managed community toilets do not charge anything from the users, the ones managed by Sulabh and few other NGOs charge Rs. 30 per household per month. Besides, the pay and use toilet mainly charge Rs. 2 for the use of toilets from male user and they don't charge anything from female and disabled users.

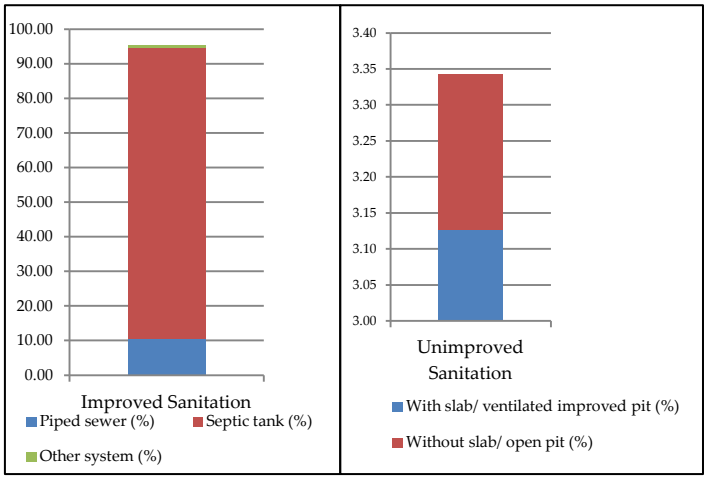
Figure 4-2: Access to sanitation in Latur City (%)

As per Census 2011, 85.4 percent of the households have access to safe sanitation in the city. These include latrine facilities within premises connected to septic tank or ventilated improved pit latrines. 1.2 percent of the households have access to unimproved sanitation like pit latrine without slab/pit and where night soil is disposed into open drains. 2.3 percent households depend on the public toilets. However, 11 percent of the households do not have access to any sanitation (improved/unimproved/shared) and thus resort to open defecation.



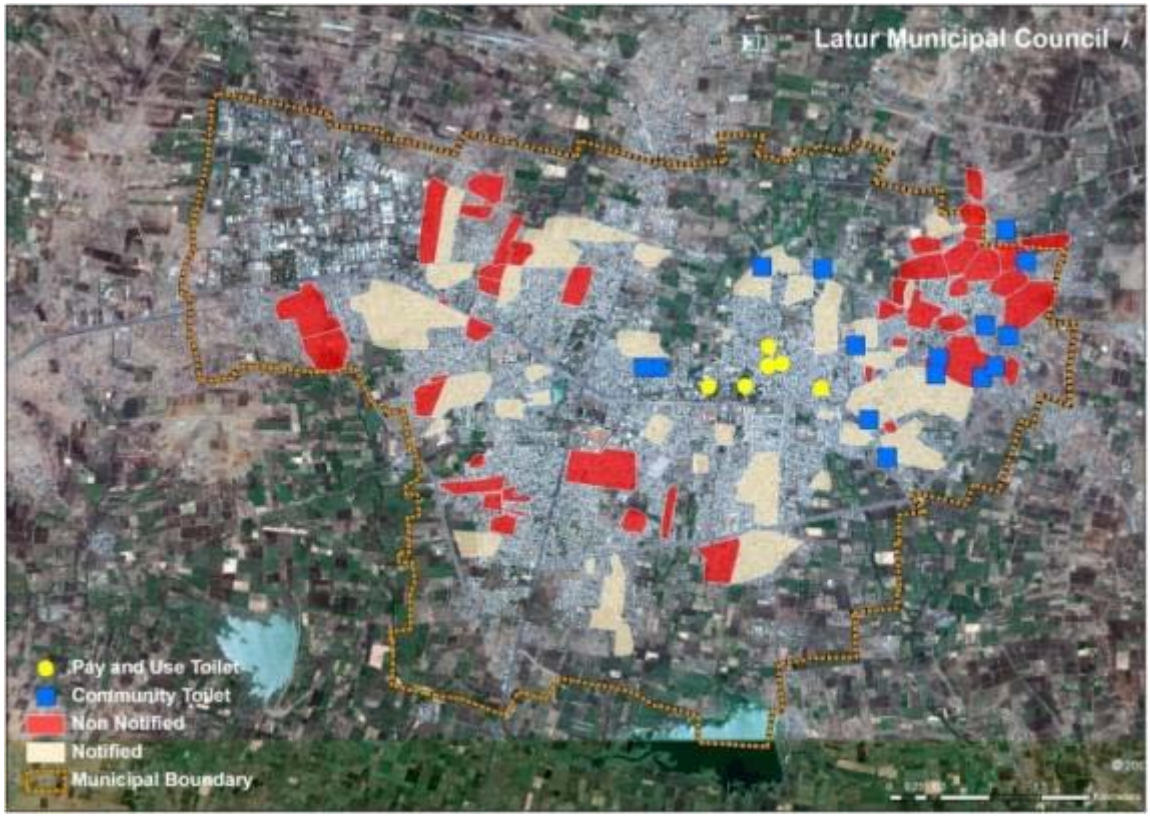

Source: Census 2011

Figure 4-3: Breakup of improved and un-improved sanitation in Latur




Source: Census 2011

Figure 4-4: Slums and Sanitation Facilities in Latur




In the slum settlements of Latur, there were 42,368 individual toilets in the year 2008-09 with a very high coverage of 86 percent. In Latur, Valmiki Ambedkar Awas Yojana (VAMBAY) and Integrated Housing and Slum Development Programme (IHSDP) schemes have been initiated. Under the VAMBAY scheme, 12,227 housing units with toilets have been constructed and under IHSDP, 14,312 many housing units with toilets were constructed.

During the site visits to various pay & use and community toilets, it was observed that there are very few toilet seats, which are non-functional. Of the 272 seats, 258 are functional. Only 14 seats were non-functional, which were in the community toilets managed by LMC.

Table 4-1: Status of Community and Pay & Use toilets

| Toilets | Number of blocks | Number of functional blocks | Number of seats | Number of functional seats |
|---|---|---|---|---|
| Community Toilets | 16 | 16 | 203 | 189 |
| Pay & Use Toilets | 5 | 5 | 69 | 69 |
| Total | 21 | 21 | 272 | 258 |

The LMC operated community toilets are maintained by the council itself, whereas the 10 community toilets managed by Sulabh and few other NGOs are operated and maintained by the respective organizations. Moreover, Sulabh operates and maintains 6 pay and use toilet.

**Table 4-2: Sanitation Status in Latur**

| | |
|---|---|
| Total Properties in Latur | 80,111 |
| Total individual toilets | 69,512 |
| People using 21 pay & use and community toilets | 12,900 |
| Provisions for individual toilets in the proposal for ILCS | 7,967 |
| Number of individuals to be reached if the proposal gets sanctioned | 39,853 |
| People without sanitation facility | 40,000 (10 % of the population) |

**Source: Latur Municipal Corporation**

It was found that at few locations near the slums, there was a prevalence of open defecation by few households that do not have access to toilets. Based on the analysis of the existing toilet facilities, both individual and access to community toilets, 39,540 people in Latur do not have access to any kind of sanitation facilities, which is around 10 percent of the city population. LMC had submitted a Detailed Project Report for the construction of 7,967 toilets under Integrates Low Cost Sanitation (ILCS) scheme but it has still not been approved. The ILCS implementation period was planned for 2011-13.

Considering this backdrop, the following options have been worked out to achieve ODF status.

**Refurbishment of toilet seats**

Based on the analysis of existing toilets, there are just 14 toilet seats which are non-functional and can be refurbished by LMC. Refurbishment cost is assumed to be Rs. 10,000 per seat. 25 persons are assumed per toilet seat. The total cost for refurbishment comes to Rs. 0.014 crore.

**Option 1: Achieving Open Defecation Free status through 100 percent provision of individual toilets:** After refurbishing the non-functional toilets, there still would be a gap of 7,838 individual toilets. The total cost for providing these individual toilets works out to be Rs. 20.57 crore, assuming Rs. 25,000 is considered as the cost of construction for one individual toilet. This also includes a provision of 10 percent beneficiary share. To identify and motivate the users for construction of individual toilet, a separate Information, Education and Communication (IEC) cost for creating awareness has been set aside amounting to 5 percent of the construction cost. Although a possible constraint with this option might be reluctance of a few households due to availability of less space.

**Option 2: Achieving Open Defecation Free status through provision of individual and community toilets:** Based on this option, the LMC would have to construct about 3,919 individual toilets and 80 community toilet blocks comprising around 780 seats. Assuming similar costs for individual toilet as in Option 1 and Rs. 60,000 per seat (including connection to septic tank) for community toilet, the total cost works out to be Rs. 15.31 crore. A provision of 10 percent beneficiary share has again been kept in this arrangement. The budget for IEC remains same at 5 percent of the construction cost.

**Option 3: Achieving Open Defecation Free status through provision of only community toilets:** Alternatively, the LMC can also look at the option to make the city open defecation free through provision of community toilets. Under this scenario, LMC would need to construct 1,568 additional new toilet seats after refurbishing the non-functional toilets. The cost for construction is assumed as Rs 60,000

per toilet seat. This arrangement will cost Rs. 9.87 crore. The budget for IEC would remain the same at 5 percent of construction cost of community toilet.

**Table 4-3: Summary of options to make LMC Open Defecation Free**

| Strategies for ODF | Option 1 | Option 2 | Option 3 |
|---|---|---|---|
| Number of individual toilets | 7838 | 3919 | 0 |
| Number of seats in community toilets | 0 | 798 | 1568 |
| Cost per individual toilet | 25000 | 25000 | 0 |
| Cost per seat in community toilet (including connection to septic tank) | 0 | 60000 | 60000 |
| **Total cost including IEC cost at 5 % of the construction cost (Rs. in crore)** | **20.57** | **15.31** | **9.87** |

While ILCS is still awaited, in the current scenario considering various factors, it is suggested that Option 2 is most feasible both in terms of cost as well as management of community toilet blocks. Option 2 offers a combination of individual toilets and community toilets is more appropriate since individual toilets would also ensure higher ownership those who don't have space constraints, while the rest will be served by community toilets. Option 1 is very cost intensive and while Option 3 is the least costly of all options, there is no scope for individual toilets for people who do not have space constraint.

LMC should also focus on drawing a proper management plan and resource optimization for proper management of 5 community toilets, which is its responsibility.

## 4.2 SEPTAGE AND SULLAGE MANAGEMENT

The sanitation scenario of Latur city further reveals that the city is majorly dependent on the conventional non-sewered system. The city has an underground sewerage network of 19.5 kms. However, it is very old and hence, rendered dysfunctional. Furthermore, the sewerage network is located in the old city, which is very congested and this makes the replacement of this network very difficult. Besides, present sewage collected is not treated before disposal because the sewerage treatment plant is not operational. As per Census 2011, of 80,000 households in the city, 52,446 households have septic tanks. According to LMC officials, there are approximately 5,000 households, in the old city, which cannot install septic tanks in their houses due to affordability issue and hence need to be provided with septic tanks. A cost of Rs. 5 core has been estimated for this component. It is also proposed that the beneficiary contribution for this component would be 10 percent and hence their share contribution would amount to Rs. 0.5 crore.

The LMC has one suction emptier of 6,000 liters capacity and on an average empties around 750 septic tanks annually. The city does not have any private operator offering this service. The septic tank waste is transported and dumped at the open disposal site on the outskirts of the town. The Council charges Rs. 500/- per trip for emptying within city limits, and the charges went upto Rs. 5000/- per trip outside the city limits based on the demand and distance. The Council does not treat its septage and no reuse/recycling is carried out.

**Proposal for Improvement:** The Government of India's Advisory on Septage Management in Indian cities states that pumping programmes that focus on routine inspection and pumping when required, rather than mandated periodic pumping, are most efficient. This is because households generate varying

volumes of sludge at different rates. It also mentions that prior to sending the trucks for de-sludging, the service provider (local government/private operator) can consider sending an inspection crew to inform the residents of such activity, locate manholes and access points, and probe tanks to determine level of accumulated sludge. One simple means of gauging sludge depths is by using a probe on a long handle and submerge into the tank. The inspection activity will also help to identify the tanks that require pumping, and those that may be cleaned in the next cycle. The policy states that the standard practice in India is to de-sludge every two years or so. Community run programmes such as distribution of flyers about proper care and maintenance of septic tanks would also help build awareness among people. Some of the aspects that the Septage Management Plan should undertake include:

- Manual of Practice listing operation procedures for specific equipment and documenting day to day procedures.
- Record keeping and manifests: Maintain accurate records related to septic tanks and volume pumped for billing and compliance purposes. These records should specify location or address of the pumped septic tank, septage characteristics (residential/commercial), details of property owner, volume of septage pumped, any other details like deficiencies in piping/ manholes, etc.

Record keeping is an important part of the monitoring aspect as it allows the local government to keep track of the service it provides/that the private operator undertakes.

**Improvement in Monitoring:** LMC needs to undertake initiatives to ensure a proper septage management plan for the city. Amongst other things, this will include estimation of septage generated in the city, increased provision of public services to cater to safe disposal of septage, encourage private operators and community based organizations to provide services like emptying of septic tanks, monitor emptying and tracking operator activities, and provide health and safety guidelines for the operators. The Council will need to regularly monitor the effluent and dried septage quality. Additionally, the state government on its part needs to ensure that the current policies are amended to support and require local governments to improve sanitation and reorganize and clarify institutional roles and responsibilities.

**Proposal for Fecal Sludge Management:** In this backdrop, it is proposed that LMC starts needs to commence concerted efforts towards treating fecal sludge generated in the city. Consequently, the treated fecal sludge to be used to produce compost can be a source of revenue for the Council, since it can be sold to farmers near Latur, which has good agricultural land in its vicinity. The total number of septic tanks in Latur city is 52,446 (as per 2011 Census). At this point, a five year period for cleaning a septic tank is considered. Although as suggested above, this needs to be improved upon as pointed out in the advisory of the Government of India. Assuming that per septic tank emptier will clean 750 septic tanks annually, which is based on the information shared by LMC, therefore by this calculation, 14 septic tanks emptiers would be required for LMC. It is proposed that the Council can procure six of these septic tanks emptiers and remaining are to be arranged by encouraging the private operators to participate in this sector. Each emptier will cost around Rs. 0.15 crore and hence the total cost for procuring these emptiers would be Rs. 0.90 crore. The purchase of these emptiers needs to be phased by LMC. Six trucks are proposed to be procured by LMC since the demand is high and there is only one truck in the city operated by LMC. While the private participation happens gradually, till then LMC can serve the city by procuring these trucks. Also, the economic position of LMC has been considered while making this proposal.

The composting of fecal sludge is proposed to be carried out at the dumping place, where the vermi-composting can be done. Here, the LMC would need to involve a private operator for setting up the vermi-composting plant along with its O&M. Since the LMC operates a mechanical waste processing plant and generate manure from it, it has some level of capability and this would help in coordinating the activity pertaining to vermi-compost generation. Based on this demand, the number of compost pits of the dimension 30x10x3 feet, which are required to be excavated are 274. The area required for 274 compost pits would be 10,275 sq. m.

**Table 4-4: Cost for Fecal Sludge Management**

| | | |
|---|---|---|
| Collection of septage | Number of emptier available at present | 1 |
| | Needed for full service by Municipality | 12 |
| | Septic Tank Emptier required | 14 |
| | Proposal for no. of septic tank emptier to be bought | 6 (rest to be arranged through private sector participation) |
| | Cost of septic tank emptier for LMC (Rs. in Crore) | 0.90 |
| Treatment of septage | No. of septic tanks | 10,489 |
| | Average volume of FS reaching at composting site | 1.25 $m^3$ per septic tank |
| | No. of compost pits required (assuming 2 annual composting cycle per pit) | 274 |
| | Area required for compost pits | 10,275 sq. m |

**Figure 4-5: Outfall Locations of Drains**


Latur has an open drain network of 716 kms. Of this, 135 kms has been constructed under UIDSSMT Project. This network covers around 60 percent of the municipal area of the city. The cleaning of 716 km network of drains is not happening efficiently. The cleaning is undertaken by sanitation workers in two shifts every day (6-11 am in old areas of the city and 2-5 pm in new areas of Latur). Each area is cleaned in every seven to ten days. The wastewater is disposed in the city through six outfall locations in open field outside the city without any treatment.

## 4.3 ONGOING PROJECT UNDER MAHARASHTRA SUJAL AND NIRMAL ABHIYAN (MSNA)

Under MSNA, a project was currently under implementation for additional drains. 100 kms of drain network is being constructed under the project at the cost of Rs. 15 crore. The project for open drains in un-served areas is 50 percent complete and the remaining was scheduled to be over by end 2011. This will further improve the open drainage coverage in the city.

**Proposal:** There is a need to prepare a management plan for daily cleaning of drains with available resources to ensure optimization of the current resources. This will ensure frequent cleaning of the drains. Additionally, the Public Sector Organization Bharat Heavy Electrical Limited (BHEL) is currently in the process of preparing a project proposal to reuse the wastewater collected from Latur city after treatment at its own cost. This will go a long in the proper treatment of wastewater before final disposal.

## 4.4 SANITATION SERVICES-FINANCES

There are very minimal revenue incomes on account of wastewater services. There is only one income head under the wastewater services, which LMC has budgeted to collect as wastewater cess. There are no major expenses for wastewater services by LMC as the town does not have sewerage system. The CAGR of revenue income from 2005-06 to 2011-12 is 13 percent and the revenue expenditure for this period is 29 percent. As the revenue expenditure by LMC is very low, the per capita expenditure for wastewater services is minimal.

**Table 4-5: Revenue Income and Expenditure in Wastewater (Rs. in crore)**

| Items | 2005-06 (Actuals) | 2006-07 (Actuals) | 2007-08 (Actuals) | 2008-09 (Actuals) | 2009-10 (Actuals) | 2010-11 (Budgeted) | 2011-12 (Budgeted) | CAGR |
|---|---|---|---|---|---|---|---|---|
| **Revenue Income** | 0.17 | 0.15 | 0.17 | 0.19 | 0.28 | 2.75 | 3.54 | 13% |
| **Revenue Expenditure** | 0.02 | 0.03 | 0.04 | 0.04 | 0.06 | 0.05 | 0.06 | 29% |

## 4.5 SUMMARY OF PROPOSED ACTIONS/ INTERVENTIONS

The proposed interventions are based on discussions with the Council, along with an analysis of the key indicators and their data reliability. The proposal listed below to make LMC open defecation free is based on experiences and constraints faced in present management of toilet options. Extensive awareness campaigns must also be conducted to ensure achievement of being open defecation free.

As stated previously, the LMC has submitted a DPR for the construction of 7,967 toilets under ILCS programme and is awaiting approval. Therefore combination of the individual and community toilets construction is proposed. This includes construction of 3919 individual toilets and 798 community toilet seats and it will cost Rs. 15.31 crore. Refurbishment of 14 community toilet seats is also proposed at a cost of Rs. 0.014 crore. It is critical that the 5,000 households still connected to dysfunctional sewerage network and without any septic tanks in the old part of the city due to financial constraints must be provided septic tanks. It will cost Rs. 5 crore and it includes 10 percent beneficiary contribution. A summary of the improvements required is provided below.

The Council also has to prepare a Septage Management Plan to ensure safe and proper disposal of septage, and streamline its operations.

Table 4-6: Summary of improvement actions for sanitation in LMC

| Activity | Description | Status/ Next steps |
|---|---|---|
| **Strategies for ODF** | A mix of community and individual toilets.<br>Refurbishment of community toilet seats | Preparation of detailed plan |
| **Strategies for Septage Management** | Comprehensive plan to be implemented. | Preparation of Septage Management Plan.<br>Procurement of the resources. |
| | Provision of septic tanks to households without septic tanks in old city. | |
| | The additional required resources for septage management including septic tank emptiers needs to be arranged and treatment needs to be initiated. | |

## SANITATION SCENARIO IN LATUR



# 5 SUMMARY OF PERFORMANCE IMPROVEMENT PLAN FOR LATUR

*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 LMC and the amount required to be generated from external sources to fund these PIP actions.*

## 5.1 OVERALL SUMMARY OF PROPOSAL FOR PIP

The proposals summarized below are focused on two key areas of establishing 24x7 water supply system and moving towards open defecation free Latur, 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 Latur, the Performance Improvement Plan has been summarized in table 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. The total cost of PIP is 140.50 crore.

**Table 5-1: Overall cost summary of PIP action**

| | **Water Supply** | | **(Rs. in crore)** |
|---|---|---|---|
| **Access & coverage** | Extend water supply distribution network to non-served areas | | 7 |
| **Service level & Quality** | Improvement in WTP by halting of Arvi water treatment plant's operations | | 2 |
| | Arrangement for LMC's share of funds to replace distribution network in old gaothan area | | 2 |
| | **24x7 water supply implementation cost** | | 112.12 |
| | Network and Customer database | 100% consumer end survey, including identifying and regularizing illegal connections. | 0.18 |
| | Network Restructuring | Hydraulic modelling and creation of DMAs. | 0.11 |
| | Bulk metering | Metering at all bulk production and distribution points. | 0.56 |
| | Leakage control | Conduct water audits, energy audit and leak detection studies, and repair existing leakages in the system. | 0.81 |
| | Implementation of 24x7 in whole city | 50% of distribution network will be augmented and 100% service connections need to be replaced and installed with mechanical meter for implementation of 24x7 water supply. | 110.46 |
| **Financial Sustainability** | Converion of 450 borewells into handpumps | | 0.45 |
| | Conversion standpost into group connections | | 0.06 |
| | Introduction of mobile and web based systems for improved response to customer complaints and effective monitoring of the issues related to water services. | | 0.10 |
| **Equity in service delivery** | Subsidization of the connection cost for slum area | | 0.55 |
| **Water supply improvement cost** | | | **124.28** |

| Sanitation | | |
|---|---|---|
| **Toilet coverage** | Construction of individual and community toilets | 15.31 (includes 10% beneficiary contributions) |
| | Refurbishment of community toilet seats | 0.014 |
| **Fecal sludge management** | Provision of septic tanks to 5,000 households in old city | 5 (includes 10% beneficiary contributions) |
| | Purchase of 6 septic tank emptier trucks | 0.90 |
| **Sanitation improvement cost** | | **16.22** |
| **Total PIP Cost** | | **140.50** |

**Process related improvement actions:** The Council also has 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 by the Council. These include

- Improving collection efficiency of the water charges.
- Introduce policy for subsidization of individual water connections to slum households.

## 5.2 PHASING AND NEXT STEP TO IMPROVEMENT

To implement PIP action, the financial capability of LMC needs to be assessed. This 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 LMC would continue in the future. Based on such assumption, the key financials of LMC have been projected and the investible surplus has been determined. The table details the investible surplus for LMC in the business-as-usual scenario.

**Table 5-2: Projected investment capacity- business as usual scenario (Rs. in crore)**

| Year | Revenue surplus (other than WS, WW and SWM) | Revenue surplus for WS, WW and SWM | Debt servicing | Capital surplus after receipt and expenditure | Investible surplus/ (need for external funds) |
|---|---|---|---|---|---|
| 2012-13 | 38.58 | (11.32) | 8.60 | (3.97) | 14.68 |
| 2013-14 | 39.15 | (12.04) | 8.17 | (3.59) | 15.36 |
| 2014-15 | 39.72 | (12.80) | 7.73 | (3.17) | 16.02 |
| 2015-16 | 40.29 | (13.60) | 7.27 | (2.72) | 16.70 |
| 2016-17 | 40.86 | (14.44) | 6.84 | (2.23) | 17.35 |
| 2017-18 | 41.43 | (15.33) | 6.40 | (1.71) | 17.99 |
| 2018-19 | 42.01 | (1.627) | 5.96 | (1.15) | 18.62 |
| 2019-20 | 42.58 | (17.27) | 5.48 | (0.55) | 19.29 |
| 2020-21 | 43.16 | (18.31) | 3.72 | 0.10 | 21.21 |
| 2021-22 | 43.73 | (19.42) | 1.15 | 0.79 | 23.94 |

From the above table, it is clear that in a business as usual scenario, LMC would be able to generate investible surplus mainly on account of revenue surplus from non UWSS sources. The investible surplus over the 10 year period would be Rs. 181.16 crore.

In the above business as usual scenario, the additional revenues that would be generated because of the transfer of the O&M of the water supply scheme back to LMC have not been considered, as part of the business as usual scenario. It would therefore be proper to add the revenues which were earlier reduced as part of the Water Supply O&M agreement with a private player and also add the incremental cost related to O&M for the services, to get a more accurate picture of the investible surplus for LMC.

The following table provides the revenue and cost implications because of transfer of water supply services back to LMC and the investible surplus considering the net effect.

**Table 5-3: Investible surplus incorporating the net impact O&M transfer (Rs. in crore)**

| Year | Investible surplus | Incremental revenues | Incremental costs due transfer of services | Net effect | Net investible surplus |
|---|---|---|---|---|---|
| 2012-13 | 14.68 | - | 0. 52 | (0.52) | 14.16 |
| 2013-14 | 15.36 | 0.09 | 0. 60 | (0.51) | 14.85 |
| 2014-15 | 16.02 | 0.20 | 1.31 | (1.12) | 14.91 |
| 2015-16 | 16.70 | 0.32 | 2.16 | (1.84) | 14.87 |
| 2016-17 | 17.35 | 0.47 | 3.16 | (2.68) | 14.67 |
| 2017-18 | 17.99 | 0.65 | 4.33 | (3.68) | 14.31 |
| 2018-19 | 18.62 | 0.85 | 5.70 | (4.85) | 13.77 |
| 2019-20 | 19.29 | 1.09 | 7.30 | (6.21) | 13.08 |
| 2020-21 | 21.21 | 1.37 | 9.17 | (7.80) | 13.42 |
| 2021-22 | 23.94 | 1.69 | 11.33 | (9.63) | 14.31 |

Thus, the investible surplus over the 10 year period would be Rs. 142.35 crore. This is being considered for phasing of PIP measures.

The proposed improvements for LMC are proposed in two phases: 1) Immediate interventions (from 2013 - 2018), and 2) Long term interventions (from 2018-2022). With the LMC finances generating surplus starting from 2012-13, all development projects are proposed to commence with 2014 as the baseline.

**Phase 1: Immediate Interventions (from 2014 - 2018)**

- To begin with, starting 2014, LMC can initiate projects related to 24x7 water supply namely, undertaking consumer end survey, including identifying and regularizing illegal connection; hydraulic modelling and creation of DMAs; metering at bulk production & distribution points; conducting water audits, energy audit and leak detection studies, and repair existing leakages in the system. These projects can be completed in the first year itself.
- The work on improving the operations of WTP in the city would also be started in 2104 by halting the functioning of Arvi WTP and will be completed in one itself.

- The work on conversion of 450 borwells into handpumps is proposed to be initiated in the year 2014 and will take three years to complete.
- The work on conversion standpost into group connections and introduction of mobile and web based systems would be undertaken in 2015 and completed in that year itself.
- The replacement of distribution network in old gaothan area would be taken up starting 2015 and will be completed in next three years.
- The task of subsidization of the connection cost for slum area would be taken up simultaneously in 2015 and will take 3 years to complete.
- It is proposed that work on extending water supply network to non-served areas be started in 2016 year and it is envisioned that it would be completed over a course of four years.

  The 24x7 water supply reforms include
    - 100 percent consumer end survey, including identifying and regularizing illegal connection.
    - Hydraulic modelling and creation of DMAs.
    - Metering at bulk production & distribution points
    - Conducting water audits, energy audit and leak detection studies, and repair existing leakages in the system.
- In 2014, the work on construction of individual and community toilet seats will be initiated to achieve ODF status over next two years. The work on refurbishment of community toilet seats will also be taken up in 2014 and finished in the same year itself.
- Starting 2014, LMC can also start investing in provision of septic tanks to 5,000 households in old city. This would be completed in next four years.
- From the year 2015, over the duration of three years, LMC can purchase six septic tank emptier and also work towards involving private sector operators for the same.

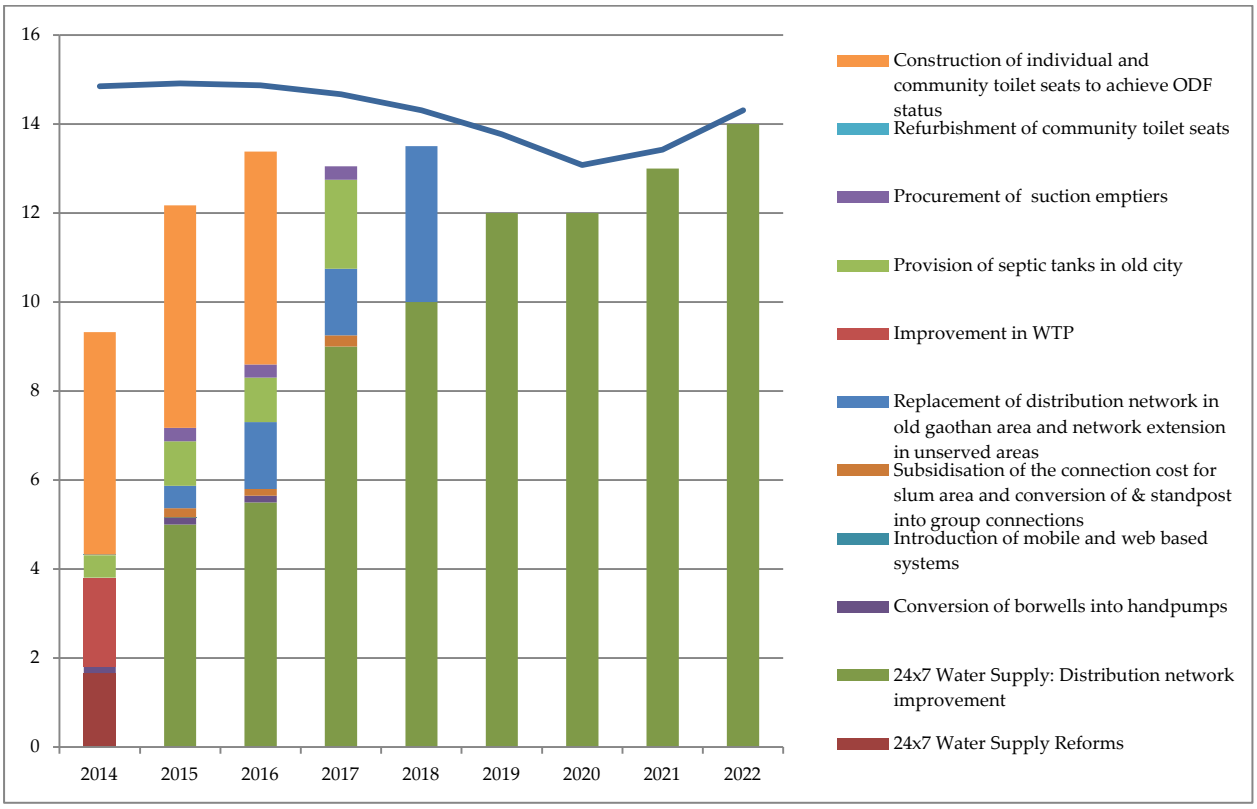
Table 5-4: Immediate Interventions (from 2013 - 2018)

| Proposed improvement areas | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| **Water supply** | | | | | |
| **24x7 water supply reforms** | | | | | |
| 100 percent consumer end survey, including identifying and regularizing illegal connection. | | | | | |
| Hydraulic modelling and creation of DMAs. | | | | | |
| Conduct water audits, energy audit and leak detection studies, and repair existing leakages in the system. | | | | | |
| **Implementation of 24x7 in whole city** | | | | | |
| Distribution network augmentation and replacement of service connection with metered connections | | | | | |
| **Access & Coverage** | | | | | |
| Extend water supply network to non-served areas | | | | | |
| **Service Level & Quality** | | | | | |
| LMC's share of funds to replace distribution network in old gaothan area | | | | | |
| Improvement in WTP through halting of Arvi water treatment plant operations | | | | | |
| **Financial Sustainability** | | | | | |
| Conversion of 450 borwells into handpumps | | | | | |
| **Efficiency in Service Operations** | | | | | |
| Introduction of mobile and web based systems | | | | | |
| **Equity in Service Delivery** | | | | | |
| Subsidization of the connection cost for slum area | | | | | |
| Conversion standpost into group connections | | | | | |
| **Sanitation (including sewerage)** | | | | | |
| Construction of individual and community toilet seats to achieve ODF status | | | | | |
| Refurbishment of community toilet seats | | | | | |
| Provision of septic tanks to 5,000 households in old city | | | | | |
| Purchase of 6 suction emptier | | | | | |

**Phase 2:** During this phase from the year 2015 till 2022, LMC work on implementing 24x7 water supply systems to cover the entire city. The scaling up of 24x7 water supply in the entire city includes distribution network augmentation and replacement of service connection with metered connections. The cost of implementing this project would be Rs. 110.46 crore. Although, a substantial sum for this project will come from LMC's investible surplus revenue by contributing Rs. 80.5 crore

of the estimated 110.46 crore cost, the remaining amount will have to be arranged from external funds. Around Rs. 30 crore of external funds will have to be arranged. The possible source for funding can be UIDSSMT plus, Nagarothan grant or National River Conservation Plan. Considering the project will begin in 2015, LMC can target to complete it by 2022.

**Figure 5-1: Implementation of Projects (Rs. in crore)**




## 5.3 INSTITUTIONAL IMPERATIVES TO ACHIEVING PROPOSED IMPROVEMENTS

Accomplishing the targets set for improving water supply and sanitation in LMC calls for improvements in the current institutional framework to facilitate improved operation and management of these services. The impetus from LMC needs to be on enhancing policies pertaining to services, financial sustainability, and accountability to the consumers.

The financial analysis of LMC reveals that overall capital utilisation is very uncertain in LMC, with a minimum 73 percent of capital income utilised in 2005-06 and maximum 389 percent utilization in 2008-09 over a period of seven years. This clearly indicates towards added efforts required from LMC when it comes to project conceptualisation and management. Additionally, the Council should consider augmenting its staff to undertake the aforementioned.

Currently, the majority of the staff at LMC comprises non-technical personnel. Moreover, with LMC regaining the reins of water supply operations of the city, provisions to increase technical strength of LMC needs to be bought about. A summary of the institutional reforms that LMC needs is provided below.

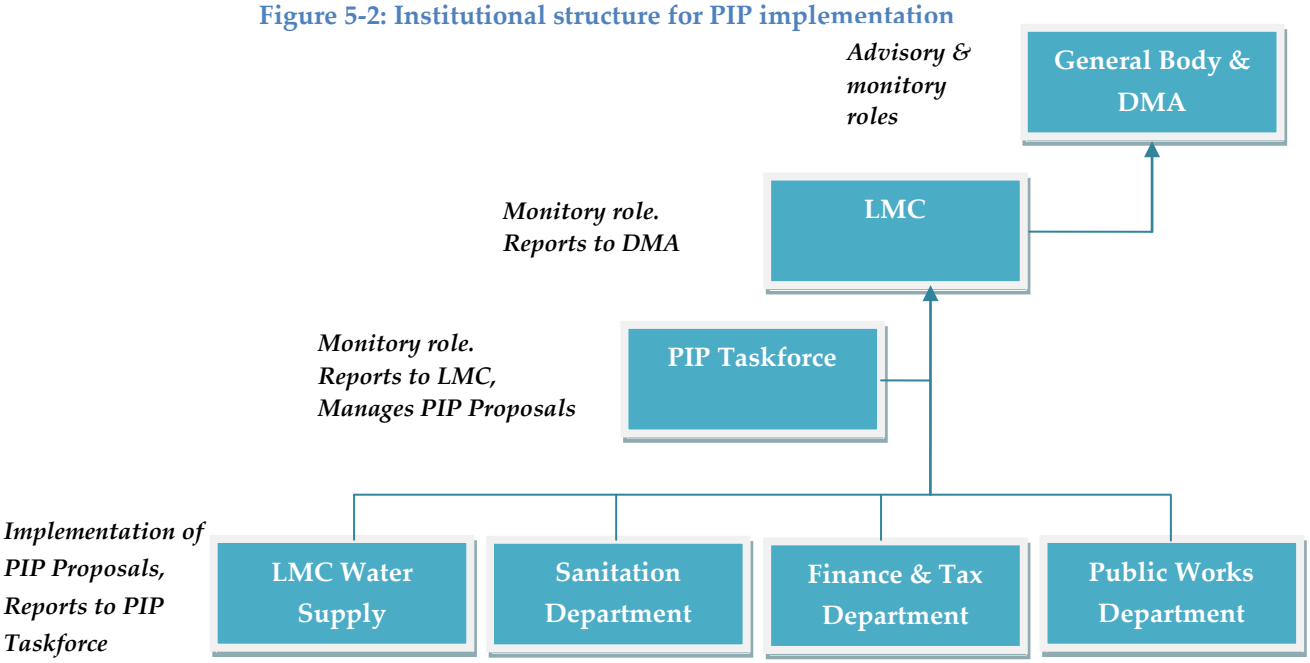
Table 5-5: Institutional improvements proposed for LMC

| Areas of improvement | Suggested improvements |
|---|---|
| **Across all sectors** | |
| **Human resource management** | LMC needs to enhance its technical staff in view of recommended projects like 24x7 water supply system and open defecation free Latur. Additionally, to ensure adequate utilisation of funds for capital projects, LMC needs to employ additional resources. This is more so important since the task of O&M have been recently shifted to LMC after many years. In order to provide efficient services, the LMC would require additional staff members, especially if LMC is aiming to provide 24x7 water supply to the entire city. |
| **Equity in service delivery** | Introduce policy and measures to improve water supply services to slum settlements, as well as un-served areas of the city.<br>Focus on introducing changes in institutional set up to target and monitor improvement services in slum settlements. |
| **Financial sustainability** | Provisions needed to enhance collection efficiency of tariff related to water. |
| **Consumer redressal system** | Improvement in complaint redressal system for improved response to addressing customer complaints. Besides, it will also help in better monitoring of issues related to water & sanitation services. |

It is also suggested that to facilitate proper and effective implementation of the proposed projects, the LMC need to put in place a PIP review committee, which is discussed below.

**Constitution of the PIP Taskforce**: A significant foremost step towards operationalization of the proposed projects should be formation of a PIP Taskforce. This would be made of key technical staff members from water supply, sanitation and public works departments of the Council. Along with these, key members of Finance and Tax departments will also be included in this Taskforce. For effective implementation of the proposed projects, it is suggested that this Taskforce should be backed by appropriate legal mandate. Additionally, suitable budget provisions will be needed for effective management of this Taskforce. The responsibilities of the Taskforce will include providing quarterly updates on progress to the General Body of the Council. Furthermore, the Taskforce will also provide annual progress report to the Directorate of Municipal Administration (DMA), Government of Maharashtra. A broad outline of the institutional structure of the proposed Taskforce is shown below.

Figure 5-2: Institutional structure for PIP implementation




**Performance monitoring through regular setting of targets and use of performance indicators:** For LMC to successfully implement the performance improvement proposals, it is essential to have a well-defined monitoring framework in place. The monitoring aspects will include

- Timely data compilation and analysis of performance indicators.
- Evaluation of the progress made.
- Fixing the targets for departments and taking corrective steps, if/when required.
- Decisions on policy, resource allocation and incentives/penalties.
- Operational decisions and plans.

As the performance improvement proposals are phased from 2014 till 2022, it is necessary for LMC to ensure that through the above process, the targets set for each year are defined and achieved. If the need be, corrective actions be taken. This will only be possible if the information related to performance indicators is regularly complied and analyzed. For this, it is important to foster a culture of regular data collection amongst the staff members along with data analysis. Senior members of LMC need to convey the significance of this practice to other staff members in better planning and management of the Council's operations. It is also suggested that incentives be introduced in form of special recognition to staff members with consistent performance in this aspect to motivate staff members to adhere to regular data collation and analysis. Similarly, policies to provide incentives/ penalties for staff based on their performance also need to be introduced and incorporated. A possible performance monitoring framework is suggested below.

**Figure 5-3: Performance monitoring framework proposed for LMC**


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

## ANNEXURE

**Investment capacity after revenue enhancement measures**

In the scenario of LMC taking up revenue enhancement measures, the potential steps could include the following:

1) Increase in property tax collection efficiency
2) Increase in water supply tariff
3) Increase in collection efficiency for water charges

The above actions do not require capital investments for implementations and need only process changes. To simulate the effect of the above changes in the investment capacity the following assumptions have been made.

**Table 1: Assumptions for simulation of revenue enhancement**

| Sr. No. | Item | Assumption |
|---|---|---|
| 1 | Property tax | Current collection efficiency: 84%<br>Targeted collection efficiency: 95%<br>Annual increment (over 5 years): 2.5% |
| 2 | Increase in water supply tariff | Revision of tariff by LMC (5% annual increase) |
| 3 | Increase in collection efficiency of water charges | Current collection efficiency: 67%<br>Targeted collection efficiency: 95%<br>Annual increment (over 6 years): 6% |

The following table presents the incremental revenues because of the revenue enhancement measures

**Table 2: Investible surplus after revenue enhancement actions (Rs. in crore)**

| Year | Investible surplus | Increment due to improvement in property tax collection | Increment due to tariff revision and improvement in water charges collection | Balance available for investment in performance improvement actions |
|---|---|---|---|---|
| 2012-13 | 14.68 | - | 0.08 | 14.77 |
| 2013-14 | 15.36 | 0.14 | 0.27 | 15.76 |
| 2014-15 | 16.02 | 0.29 | 0. 47 | 16.79 |
| 2015-16 | 16.70 | 0.45 | 0.71 | 17.86 |
| 2016-17 | 17.35 | 0. 63 | 0. 97 | 18.95 |
| 2017-18 | 17.99 | 0.72 | 1.27 | 19.98 |
| 2018-19 | 18.62 | 0.75 | 1.40 | 20.77 |
| 2019-20 | 19.29 | 0.78 | 1.50 | 21.57 |
| 2020-21 | 21.21 | 0.81 | 1.60 | 23.63 |
| 2021-22 | 23.94 | 0.84 | 1.71 | 26.50 |

Thus, following the revenue improvement actions, the investible surplus over the 10 year period would be Rs. 196.56 crore. Thus, the investible surplus of LMC can be gradually improved. LMC can use these funds to finance its water supply and sanitation projects.

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## The Performance Assessment System (PAS) Project

**The Performance Assessment System (PAS) Project supports development of appropriate tools and methods to measure, monitor and improve delivery of urban water and sanitation services in the states of Gujarat and Maharashtra. 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.**

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## PAS Project

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