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Report of the Comptroller and Auditor General of India on Local Bodies for the year ended 31 March 2016

Government of Maharashtra

Report No. 5 of the year 2017

Report of the Comptroller and Auditor General of India

on

LOCAL BODIES

for the year ended 31 March 2016

GOVERNMENT OF MAHARASHTRA

Report No. 5 of 2017

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PREFACE

This Report for the year ended March 2016 has been prepared for submission to the Governor of Maharashtra under the CAG's DPC Act, 1971.

The Report contains significant results of the audit of the Panchayati Raj Institutions and/or Urban Local Bodies in the State including the Departments concerned.

The issues noticed in the course of test audit for the period 2015-16 as well as those issues which came to notice in earlier years, but could not be dealt within the previous Reports have also been included, wherever necessary.

The audit has been conducted in conformity with auditing standards issued by the Comptroller and Auditor General of India.

OVERVIEW

OVERVIEW

This Report comprises five chapters under two sections. Section A includes two chapters containing observations on the functioning of Panchayati Raj Institutions (PRIs) and three compliance audit paragraphs. Section B comprises three chapters containing observations on the functioning of Urban Local Bodies (ULBs), three performance audits and six compliance audit paragraphs. A summary of major audit findings is presented in this overview.

1. Functioning of Panchayati Raj Institutions

A review of finances of PRIs revealed that of the 29 functions referred to in the XI Schedule of the Constitution of India, 14 functions and 15,840 functionaries were transferred to the PRIs. Of the State Government's total revenue receipts of ₹ 1,40,031.12 crore during 2015-16 (excluding State's share of Union taxes and duties and Grants-in-aid from GoI), the PRIs were allocated ₹ 18,239.92 crore (13.02 *per cent*). Of the total budget provision of ₹ 2,399.56 crore made for PRIs, ₹ 712.59 crore (29.70 *per cent*) could not be spent during 2015-16.

Preparation of accounts by Zilla Parishads were in arrears. There were also arrears in audit and certification of accounts due to non-submission/delayed submission of approved accounts. As of March 2016, Detailed Contingent (DC) bills in respect of 216 Abstract Contingent (AC) bills involving ₹ 4.46 crore pertaining to Rural Development Department were outstanding.

The State Government received ₹ 5591.84 crore under 13th Finance Commission during 2010-15 of which, the PRIs could not spend ₹ 300.16 crore (February 2017). The Rural Development Department extended the period of utilisation from time to time and finally up to 31 March 2017. During 2010-15, the State Government paid an interest of ₹ 2.34 crore to ZPs for delay of two to 37 days in release of grants (₹ 5,592 crore). The ZPs/Gram Panchayats did not maintain separate accounts for different type of grants.

The Social Audit Unit of the State conducted social audit of only 281 GPs out of total 1,400 GPs to be covered during 2015-16. As of December 2016, a total of 2,346 Utilisation Certificates pertaining to the Rural Development Department involving ₹ 1,187.13 crore were pending from field offices.

(Paragraphs 1.3.6, 1.3.8, 1.5.1, 1.8, 1.9, 1.11.1, 1.11.3, 1.11.6 and 1.11.7)

2. Compliance Audit Findings - Panchayati Raj Institutions

Implementation of Scheme for Distribution of Milch Animals to Scheduled Caste and Scheduled Tribe Population

The Animal Husbandry Department, Government of Maharashtra introduced (November 2011) a Scheme 'Distribution of two milch animals (cows/buffalos) to the beneficiaries belonging to Scheduled Caste under Special Component Plan (SCP) and Scheduled Tribes under Tribal Sub Plan (TSP) and Other Tribal Sub Plan (OTSP)' with a view to creating a source of income. Audit was conducted for the period 2011-16 to assess the procedure adopted for selection of beneficiaries, allocation and utilization of funds and the benefits derived by the targeted population. Audit observed that the

demands were not placed adequately so as to give maximum coverage to intended people resulting in depriving 72 *per cent* of valid applicants. **In Gadchiroli and Chandrapur districts (tribal dominated) tribal people were kept out of the ambit of the scheme during 2011-16 as the district authorities failed to demand funds**. Delay in completion of administrative processes resulted in delay of four to 11 months in purchase and distribution of animals. Over aged animals were purchased and instances of sale of animals by the beneficiaries were observed. Monitoring at all levels was inadequate. No attempt was made to evaluate the scheme to ascertain the benefits derived from the scheme.

The above deficiencies indicated that the implementation of the scheme was not effective and therefore, the Government needs to evaluate the implementation and monitoring process.

(Paragraph 2.1)

Poor planning and implementation of the Scheme for construction of Permanent Sale Centres to facilitate marketing of products of rural artisans, resulted in unfruitful expenditure of ₹ 14.58 crore and blocking of ₹ 33.65 crore for three to seven years.

(Paragraph 2.2)

Failure of the Block Development Officer/Chief Executive Officer to take action led to misappropriation of Government money of ₹ 2.29 lakh.

(Paragraph 2.3)

3. Functioning of the Urban Local Bodies

A review of finances of ULBs revealed that of the State Government's total revenue of ₹ 1,40,031.12 crore during 2015-16 (excluding State's share of Union taxes and duties and Grants-in-aid from GoI), ULBs were allocated ₹ 9,187.23 crore (6.56 *per cent*).

There were significant arrears in preparation of accounts by ULBs as well as in audit and certification of their annual accounts by the Director, Local Fund Audit (Primary Auditor). Similarly, there were arrears in audit of Municipal Corporations by Municipal Chief Auditors (Internal Auditor).

The State Government released ₹ 2,904.83 crore under 13th Finance Commission during 2010-15 of which, ₹ 807 crore could not be spent by ULBs (February 2017). Six of 11 test-checked units did not furnish UCs amounting to ₹ 35.90 crore to Urban Development Department against ₹ 397.71 crore received by them during 2010-15. Three units did not spend ₹ 10.04 crore received during 2010-15 which was lying idle (June 2016) in their bank accounts.

Reconciliation of balances as per cash books with bank pass books was not done in eight units. As of March 2016, Detailed Contingent bills in respect of 11 Abstract Contingent bills involving ₹ 0.03 crore pertaining to Urban Development Department were outstanding. Only seven of 27 Municipal Corporations had published fire hazard response and mitigation plans.

(Paragraphs 3.3.3, 3.5.1, 3.11, 3.13, 3.14.3, 3.14.4, 3.14.5 and 3.14.6)

4. Performance Audits - Urban Local Bodies

Management of Municipal Solid Waste by Select Municipal Corporations

Solid Waste Management is a part of public health and sanitation since it poses a threat to the environment and human life if not handled or disposed of properly.

A Performance Audit conducted on 'Management of Municipal Solid Waste by Select Municipal Corporations' revealed that the selected seven Municipal Corporations (MCs) had neither prepared comprehensive city plan for management of Municipal Solid Waste (MSW) in accordance with the MSW Manual, nor had they met the timelines for improvement of existing landfills and for setting up of new waste processing and disposal facilities in their jurisdiction. Generation of MSW was not assessed properly in all the MCs for want of weigh bridges. Budget provisions were not fully utilized in all the selected MCs, though there were shortages of vehicles for transportation of MSW.

All the MCs, except Amravati and Nagpur MC, had provided separate vehicles for collection of waste generated by hotels. Facility for collection of construction and demolition waste was not available in Amravati and Kalyan-Dombivli MCs. Except Municipal Corporation of Greater Mumbai (MCGM) and Pune MC, where partial segregation was available, segregation of waste at household level was not in place. Different coloured Community bins were not provided by any of the selected MCs for collection of segregated waste. Open body vehicles were used for transportation of MSW in all the MCs except Pune MC.

MSW processing facility was not available in Amravati, Kalyan-Dombivli and Kolhapur MCs. Though MCGM had a plan for installation of three processing plants, only one could be installed till date (January 2017) mainly due to land lease issues. Sanitary Landfills were developed only by Nagpur and Pune MCs. Waste inspection facility to monitor waste brought in for landfill was not in place at the landfill sites except Kanjur in MCGM. No records on the baseline data of ground water quality near landfill site were maintained nor was any test of quality of underground water conducted.

(Paragraph 4.1)

Management of Bio-medical Waste in Municipal Hospitals

Government of India framed the Bio-medical Waste (Management and Handling) Rules, 1998, under the provisions of the Environment (Protection) Act, 1986 which prescribed the procedures for handling, collection, segregation, transportation, treatment and disposal of biomedical waste (BMW) generated by hospitals, nursing homes, blood banks and veterinary institutions. The BMW Rules require the BMW generating establishments to comply with the provisions of the Rules.

The management of Bio-medical Waste in 22 Municipal Health Care Establishments (HCEs) and six common facilities was audited between February and June 2016 for the years from 2011 to 2016. The Maharashtra Pollution Control Board, the enforcement authority for implementation of BMW Rules in the State, did not conduct survey after 2009 for identification

of HCEs. Most of the selected HCEs and common facilities were operating without authorization from MPCB and did not maintain records of quantity of BMW generated. The BMW was not being segregated as per rules in the HCEs and was found mixed with municipal solid wastes. In some HCEs, BMW was stored in close proximity to patients' beds while in common facilities it was improperly stored.

Audit observed that only two out of 22 HCEs test checked had carried out chemical analysis of waste effluent, which showed Bio-chemical Oxygen Demand (BOD) (77 to 227 mg per litre) and Chemical Oxygen Demand (COD) (280 to 1,044 mg per litre) parameters much beyond the accepted norms. Effluent high in BOD/COD would deplete oxygen in the receiving waters thereby affecting aquatic life and the eco-system. Only seven of the 22 HCEs submitted Annual Report regarding categories and quantities of BMW generated. An Advisory Committee formed to advise the Government and MPCB about matters related to the implementation of the BMW rules was not functional. Inspection of the HCEs and enforcement of BMW Rules by MPCB was deficient.

The above deficiencies were pointers to the fact that the enforcement and implementation needs to be strengthened to ensure effective implementation of BMW Rules.

(Paragraph 4.2)

Sewage Management by Municipal Corporation of Greater Mumbai

A performance audit of Sewage management by Municipal Corporation of Greater Mumbai (MCGM) was conducted to ascertain the status of management of sewage by MCGM. Three Departments *viz.,* Sewage Project (SP), Sewage Operation (SO) and Mumbai Sewage Disposal Project (MSDP) under MCGM are responsible for sewage management in Greater Mumbai. MCGM generates 2,146 million litres per day (MLD) sewage of which 1,098 MLD was being treated and 1,048 MLD untreated sewage was directly discharged to sea and creeks as of July 2016.

A Master Plan was prepared by MCGM (2002) which suggested capital works worth ₹ 5,570.40 crore (2001 price) for all the three departments in five phases up to 2025. The MCGM, however, selected feasible works for execution as suggested by the Ministry of Environment and Forests (MoEF) and Jawaharlal Nehru National Urban Renewal Mission (JNNURM) to provide zone wise point to point solution for collection, conveyance and treatment of generated sewage.

SP identified 105 feasible works (115.67 kms), for laying new sewer lines and upsizing of existing lines. However, only 44 works (49.81 kms) were executed as of July 2016. Besides, out of total 35.52 sq. kms in isolated area, new sewage network was laid in only 8.19 sq. kms area. However, in respect of 30.3 sq. kms in unsewered slums, SP could not make any comprehensive plan for laying sewer lines.

Rate analysis for the execution of work was prepared in such a manner that excess payments of ₹ 44.36 crore were released to contractors as of July 2016. After spending ₹ 124.30 crore on micro-tunnelling works, these works could not be commissioned by SP.

Out of total 363 kms proposed sewer lines in the Master Plan, SO could rehabilitate only 62.01 kms of old dilapidated sewer lines. Instances of incorrect preparation of estimates of rehabilitation works were also noticed that resulted in excess payment of ₹ 22.05 crore to contractors. As of July 2016, SO also executed condition assessment works of 1,256 kms old dilapidated sewer lines incurring an expenditure of ₹ 89.25 crore, but it did not formulate any time bound programme for rehabilitation of identified dilapidated stretches of sewer lines. Though MSDP was responsible for construction of Waste Water Treatment Facility (WWTF), priority sewer works, improvement in pumping station works, no works were awarded except a pumping station at Shimpoli. However, ₹ 141.78 crore was expended on Project Management Consultancy. There was almost no change in position of untreated discharge into the sea/creeks.

There was severe contamination of sea water around Mahim creek due to the highly polluted Mithi river. Besides, all the installed aerators at the lagoons of Versova, Bhandup and Ghatkopar WWTFs were not operational which affected the quality of sewage treatment.

Against the assessed shortage of 20,195 toilet seats as of March 2016, MCGM could construct only 5,797 toilet seats. Out of 8,594 available toilet blocks, only 2,476 toilet blocks were connected with sewer lines. The objective of the MSDP for reducing open defecation was not achieved.

(Paragraph 4.3)

5. Compliance Audit Findings - Urban Local Bodies

Implementation of Service Level Benchmarks in Aurangabad Municipal Corporation

Service Level Benchmarks (SLBs) are parameters prescribed (July 2008) by the Government of India for assessment of four basic services rendered by urban local bodies *viz*., Water Supply, Solid Waste Management, Sewage Management and Storm Water Drainage System. Benchmarking ensures accountability in service delivery. Government of Maharashtra (GoM) adopted (February 2010) the same with modifications. The audit was conducted during January to June 2016 covering the period 2011-16 to assess the implementation of SLBs in Corporation area of Aurangabad city.

The Special Cell formed by Aurangabad Municipal Corporation (AMC) was to prepare a time bound action plan for achievement of SLBs. However, the special cell met only once during 2011-16. The City Sanitation Plan and City Development Plan remained unapproved as of February 2017 and were not linked with the SLBs. There was no mechanism for collection of basic data on performance against SLBs from the wards and reporting the same to various authorities. There were deficiencies in preparation of Draft Project Reports for the projects and in execution. Insufficient budget provisions and ineffective management of ongoing projects led to severe shortfall in achievement of SLBs thereby depriving the citizens of Aurangabad city of basic amenities like water supply, sewage management, disposal of solid waste and drainage of storm water. The parallel water supply scheme started in September 2014 could not be completed till date. MPCB expressed concern over adverse impact on public health due to release of untreated sewage water in to the river

Sukhana and Kham which further entered into the Jayakwadi dam, polluting the only source of potable water for Aurangabad City and surrounding areas. The MPCB declared (March 2016) its intention to prosecute AMC for such negligence. Despite this, no action was taken by the AMC even after a lapse of more than five years. Staff of the AMC was not imparted training for effective implementation of service level benchmarks**.**

The above deficiencies need urgent attention of the Government for proper delivery of services to the public by the AMC and to achieve the target of SLBs prescribed by GoI.

(Paragraph 5.1)

Undue delay by Pune Mahanagar Parivahan Mahamandal Limited in switching over from wholesale to retail purchase of diesel resulted in an avoidable expenditure of ₹ 9.89 crore.

(Paragraph 5.2)

Municipal Councils Ambernath, Kulgaon-Badlapur and Panvel levied and collected development charges at pre-revised rates which resulted in short-levy of ₹ 5.58 crore affecting their revenues. The Municipal Corporation of Greater Mumbai recovered the entire short-levy of development charges of ₹ 1.02 crore at the instance of audit.

(Paragraph 5.3)

The Municipal Council, Yavatmal purchased organic waste converter machine but failed to put it to use even after a lapse of four years from purchase rendering expenditure of ₹ 19.79 lakh unfruitful.

(Paragraph 5.4)

Failure of Nagpur Improvement Trust to submit original bank guarantee with the bank resulted in loss of ₹ 25 lakh.

(Paragraph 5.5)

Upgraded healthcare facilities created in September 2013 at a cost of ₹ 5.98 crore in Chhatrapati Shivaji Maharaj Hospital, Kalwa under Thane Municipal Corporation remained idle for 41 months due to non-deployment of requisite manpower.

(Paragraph 5.6)

CHAPTER-I

AN OVERVIEW OF THE FUNCTIONING, ACCOUNTABILITY MECHANISM AND FINANCIAL REPORTING ISSUES OF PANCHAYATI RAJ INSTITUTIONS

SECTION A

CHAPTER- I

An Overview of the Functioning, Accountability Mechanism and Financial Reporting Issues of Panchayati Raj Institutions

1.1 Introduction

In conformity with the provisions of the 73rd Constitutional Amendment, The Maharashtra Zilla Parishads and Panchayat Samitis Act, 1961 (ZP/PS Act) and The Maharashtra Village Panchayats Act, 1958 (VP Act) were amended in 1994. A three tier system of Panchayati Raj Institutions (PRIs) comprising Zilla Parishads (ZPs) at the district level, Panchayat Samitis (PSs) at the block level and Gram Panchayats (GPs) at the village level were established in the State. As per 2011 Census, the total population of the State stood at 11.24 crore of which, 55 *per cent* was from rural areas.

The demographic and developmental status of the State is given in **Table 1.1.1**.

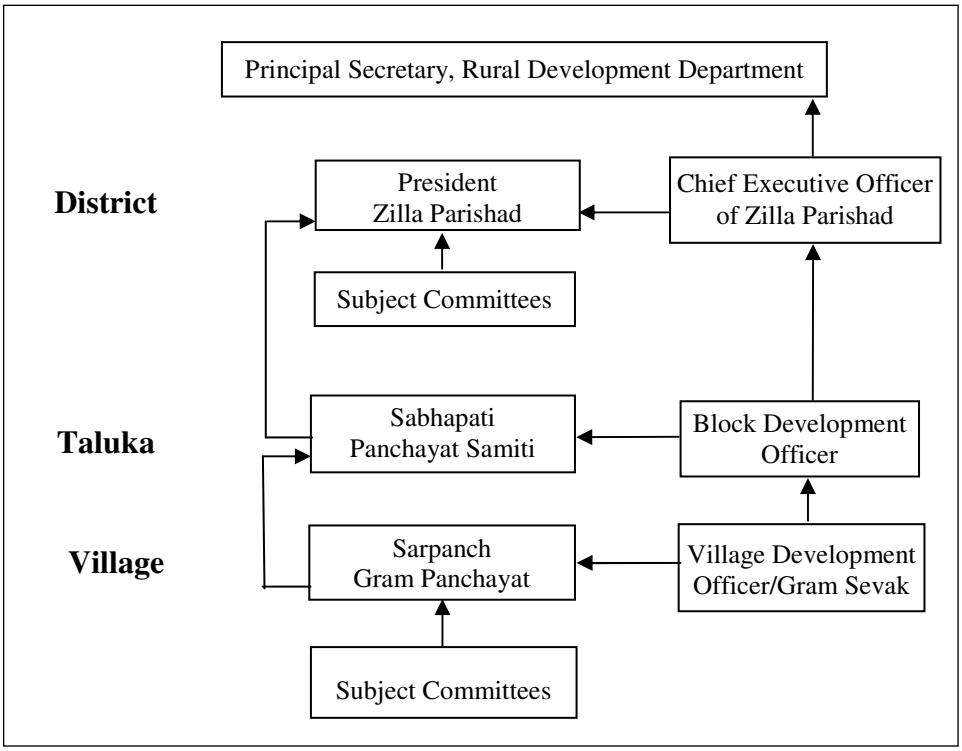
Table 1.1.1: Important statistics of the State

Indicator	Data
Population	11,23,74,333
Population density	365 km^2
Gender ratio	929:1000
Rural population	6,15,56,074
Literacy in *per cent* (Rural)	77.01
Number of PRIs	28,416
(i) District Panchayats	34
(ii) Block Panchayats	351
(iii) Village Panchayats	28,031
Source: Information furnished by the Rural Development and Water Conservation Department and Census 2011	

1.2 Organisational Setup of PRIs

The organisational set up of PRIs in Maharashtra is depicted below.

Chart 1: Organisational structure of PRIs



The Chief Executive Officer (CEO) in the ZP, the Block Development Officer (BDO) in the PS and the Village Development Officer (VDO)/Gram Sevak in the GP report functionally to the respective elected bodies and administratively to their next superior authority in the State Government hierarchy.

There were 28,031 GPs for 44,105 villages in Maharashtra as of November 2016. The VDO/Gram Sevak, a village level functionary, functions as Secretary to the GP and is also responsible for maintenance of accounts and records at GP level. However, sanctioned strength of VDOs/Gram Sevaks was 22,864 which showed that not even one VDO/Gram Sevak post was sanctioned for each GP. The persons-in-position was 21,253 only with a shortage of 1,611 as of November 2016. No reasons were on record for not sanctioning and filling up of 1,611 posts of VDOs/Gram Sevaks.

1.3 Functioning of PRIs

1.3.1 There are 36 districts in Maharashtra. Two districts (Mumbai and Mumbai Suburban) do not have rural areas and therefore, there are 34 ZPs in the State. The ZPs have their own Departments for Education, Public Works, Health, Minor Irrigation, Rural Water Supply, Social Welfare, Animal Husbandry, Agriculture, Women and Child Welfare, Finance, General Administration and Village Panchayat.

1.3.2 The ZPs are required to prepare a budget for the planned development of the districts and utilisation of the resources. The Government of India (GoI) Schemes funded through the District Rural Development

Agency (DRDA) and the State Government Schemes are also implemented by the ZPs. The ZPs are empowered to impose water tax, pilgrim tax and special tax on land and buildings *etc*.

1.3.3 The intermediate tier of Panchayat at the Taluka level in Maharashtra is called the PS. There were 351 PSs in the State. The PSs do not have their own source of revenue and are totally dependent on the Block Grants received from ZPs. The PSs undertake developmental works at the block level.

1.3.4 The VP Act provides for the constitution of Gram Sabha, a body consisting of persons registered in the electoral rolls of the villages within the GP area. The GPs are empowered to levy tax on buildings, betterment charges, pilgrim tax, taxes on fairs/festivals/entertainment, taxes on bicycles, vehicles, shops, hotels *etc*.

1.3.5 Gram Sabhas are required to meet periodically. They select beneficiaries for the Central/State Government Schemes, prepare and approve development plans and projects to be implemented by the GPs, grant permission for incurring expenditure by GPs on developmental Schemes. They also convey their views on the proposals for acquisition of land by GPs.

1.3.6 Of the 29 functions referred to in the XI Schedule of the Constitution of India, 14 functions and 15,840 functionaries were transferred to the PRIs. Non-transfer of all functions and functionaries had also been commented in earlier Audit Reports.

1.3.7 The broad accountability structure in PRIs is as shown in **Table 1.1.2**.

Table 1.1.2: Accountability structure in PRIs

PRIs	Functions Assigned
Zilla Parishad, CEO	1. Drawal and disbursal of fund 2. Preparation of annual budget and accounts 3. Supervision and control of officers of the ZP 4. Finalisation of contracts 5. Publishing statement of accounts of ZPs in the Government Gazette
Chief Accounts and Finance Officer, ZP	1. Compilation of the accounts of ZP 2. Providing financial advice
Heads of Departments in ZPs	1. According technical sanctions to the works and implement development Schemes 2. Supervising the work of Class II officers
Panchayat Samiti, BDO	1. Drawal and disbursal of funds 2. Execution and monitoring of Schemes and maintenance of accounts and records
Gram Panchayat, Gram Sevak	1. Secretary to the Gram Sabha 2. Execution and monitoring of Schemes and maintenance of accounts and records
Source: The Maharashtra Zilla Parishads and Panchayat Samitis Act, 1961	

1.3.8 Of the State Government's total revenue receipts of ₹ 1,40,031.12 crore during 2015-16 (excluding State's share of Union taxes and duties and Grants-in-aid from GoI), the PRIs were allocated ₹ 18,239.92 crore (13.02 *per cent*).

1.4 Formation of various Committees

The ZP/PS Act provides for formation of various Committees *viz.,* Standing Committee, Finance Committee, Works Committee, Agriculture Committee, Social Welfare Committee, Education Committee, Health Committee, Animal Husbandry and Dairy Committee, Water Management and Sanitation Committee *etc.* in every Zilla Parishad under Sections 78 to 80.

Rural Development and Water Conservation Department (Department) stated (November 2016) that all these Committees were functioning in all ZPs/GPs.

1.5 Audit Arrangement

1.5.1 Primary Auditor

Director, Local Fund Audit (DLFA) is the primary auditor of the accounts of local bodies and discharges duties and responsibilities as per the provisions of The Maharashtra Local Fund Act, 1930.

Placing of Audit Review Report of DLFA

As per Government of Maharashtra (GoM) Resolution of 01 April 1968, DLFA shall submit annually a consolidated report of the audited accounts to the Legislative Assembly. The Audit Review Report for the year 2013-14 has been placed in the State Legislature in August 2016.

Arrears in Audit/Certification by DLFA

As of February 2017, of the total 34 ZPs, DLFA completed the audit of one ZP for the year 2015-16, 30 ZPs for the year 2014-15 and four ZPs for the year 2013-14. However, certification of accounts of one ZP for the year 2015-16, 10 ZPs for the year 2014-15, 22 ZPs for the year 2013-14 and of one ZP for the year 2012-13 could only be done. There were arrears in audit and certification of accounts due to non-submission/delayed submission of approved accounts.

1.5.2 Audit by the Comptroller and Auditor General of India

The Comptroller and Auditor General of India conducts audit of ZPs and PSs under Section 14 of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971. Section 142 A of the ZP/PS Act also contains an enabling provision for audit by the Comptroller and Auditor General of India.

Audit of GPs was also entrusted (March 2011) to the Comptroller and Auditor General of India under Technical Guidance and Supervision by the GoM under Section 14 of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971.

The Audit Report (Local Bodies) of the Comptroller and Auditor General of India for the year ended 31 March 2015 was placed in the State Legislature in August 2016 and the Audit Report for the year ended 31 March 2014 has been taken up for discussion by Public Accounts Committee (PAC) along with paragraphs from previous reports pending for discussion.

1.6 Response to Audit Observations

1.6.1 Outstanding Paragraphs from DLFA Reports

As per Annual Audit Review Report of DLFA for the year 2013-14, 1,28,440 paragraphs in respect of Government funds involving ₹ 10,998.66 crore and 30,629 paragraphs pertaining to ZPs own funds involving ₹ 3,502.50 crore were pending settlement from 1962-63 to 2013-14.

1.6.2 Outstanding Inspection Reports and Paragraphs of PRIs Audited by Accountant General

As of February 2017, a total of 3,679 Inspection Reports and 11,914 paragraphs of PRIs audited by Principal Accountant General/Accountant General, Maharashtra up to March 2016 were outstanding as shown in the **Table 1.1.3**.

Table 1.1.3: Position of outstanding inspection reports and paragraphs

Year	Inspection Reports	Paragraphs
Up to 2011-12	2581	6437
2012-13	278	1021
2013-14	294	1269
2014-15	157	962
2015-16	369	2225
Total	**3679**	**11914**
Source: Information compiled in the offices of the Principal Accountant General/Accountant General, Maharashtra (Mumbai and Nagpur)		

1.6.3 Paragraphs Appeared in Audit Reports but Pending for Discussion by PAC

As of February 2017, of the 22 paragraphs pertaining to PRIs that appeared in Audit Reports from 2010-11 to 2014-15, 10 paragraphs were discussed by the PAC while 12 paragraphs were pending discussion as shown in the **Table 1.1.4**.

Table 1.1.4: Position of paragraphs pending for discussion by PAC

Year of Audit Report	Number of Paragraphs in Audit Report	Number of Paragraphs discussed in PAC	Number of Paragraphs pending for discussion in PAC
2010-11	06	03	03
2011-12	09	05	04
2012-13	01	01	00
2013-14	04	01	03
2014-15	02	02	00
Total	**22**	**12**	**10**
Source: Information compiled in the offices of the Principal Accountant General/Accountant General, Maharashtra (Mumbai and Nagpur)			

Accountability Mechanism and Financial Reporting Issues

Accountability Mechanism

1.7 Lokayukta

The State of Maharashtra has established the institution of Lokayukta in Maharashtra on 25 October 1972 based on the concept of Ombudsman in accordance with The Maharashtra Lokayukta and Upa-Lokayukta Act, 1971. However, the Lokayukta was not exclusively formed for PRIs in Maharashtra.

1.8 Social Audit

Social audit is a continuous and ongoing process which includes verification of quantity and quality of works at different stages of implementation to ensure transparency and public accountability in the implementation of projects, laws and policies and its results by the community with active involvement of primary stakeholders. The process also combines people's participation and monitoring with the requirements of the audit discipline.

The GoM vide Resolution dated 11 September 2013 established Social Audit Unit (SAU) in Maharashtra. The State Employment Guarantee Council was to monitor the action taken by the State Government on the observations raised during social audit and incorporate the Action Taken Report in the annual report to be laid before the State Legislature.

The SAU in the State is headed by the Director who is assisted by one Assistant Director, three State Co-coordinators and six regional co-coordinators for six regions of the State.

The Director, SAU stated (February 2017) that of the 1,400 GPs to be covered during 2015-16, social audit of only 281 GPs was completed.

1.9 Submission of Utilisation Certificates

The Bombay Financial Rules, 1959 provide that for the grants provided for specific purposes, utilisation certificates (UCs) should be obtained by the departmental officers from the grantee institutions and after verification, the UCs should be forwarded to the concerned accounting offices *i.e.* Accountant General (Accounts and Entitlements), Maharashtra within 12 months from the dates of their sanction.

As of December 2016, a total of 2,346 UCs pertaining to the Department involving ₹ 1,187.13 crore were pending from field offices.

1.10 Internal Audit and Internal Control System of PRIs

An effective Internal Control System and strict adherence to Statutes, Codes and Manuals minimise the risk of errors and irregularities, and help to protect resources against loss due to waste, abuse and mismanagement.

The Department informed (January 2017) that Internal Audit and Internal Control System exist in PRIs and internal audit is done/carried out as per the procedure prescribed in the Section A and B of Annexure 4 to The Maharashtra Zilla Parishads and Panchayat Samitis Account Code, 1968.

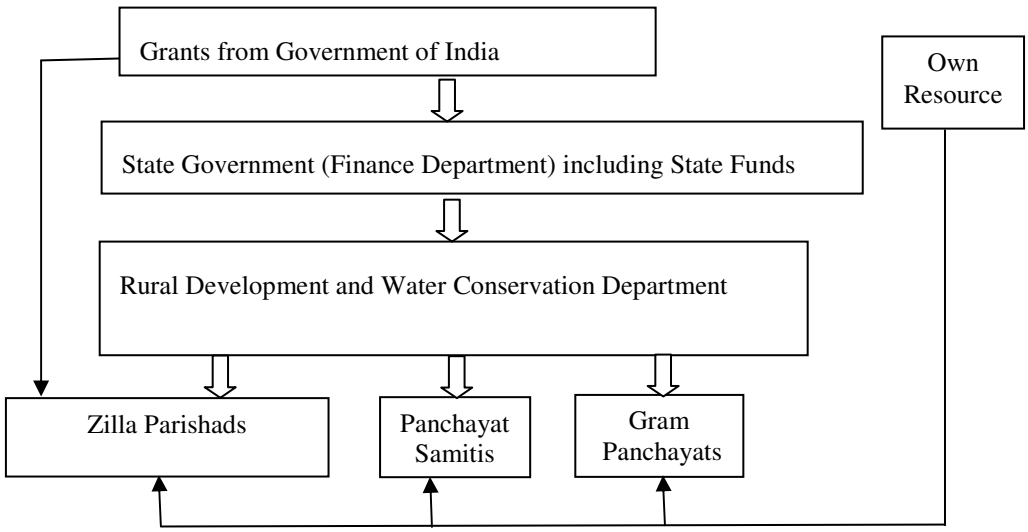
1.11 Financial Reporting Issues

1.11.1 Source of Funds

In addition to their own sources for tax and non-tax revenue *i.e.* fair tax, building tax, fees, rent from land and building, water charges *etc.* and capital receipts from sale of land, the PRIs also receive funds from the State Government and GoI in the form of grants-in-aid/loans for general administration, implementation of developmental schemes/works, creation of infrastructure in rural areas *etc.* Funds are also provided on the recommendations of the Central/State Finance Commissions.

The fund flow mechanism is as shown in **Chart 2**.

Chart 2: Source of Funds



The position of receipts and expenditure of PRIs for the period 2011-16 is shown in **Table 1.1.5**.

Table 1.1.5: Position of receipts and expenditure of PRIs during 2011- 2016

(₹ in crore)

Description	2011-12	2012-13	2013-14	2014-15	2015-16
Own revenue	1545.62	1277.46	1571.10	1759.08	1393.96
Grants received from GoM	690.48	1031.73	1537.63	1362.27	1185.88
GoI grants including 13th Finance Commission grants	765.23	1433.00	989.96	2032.00	--
Total receipts	3001.33	3742.19	4098.69	5153.35	2579.84
Total expenditure	999.11	965.95	1100.3	2920.93	1686.97
Source: Information furnished by the Department					

The budget provision of PRIs for the last five years (2011-16) showing the actual expenditure and savings is indicated in **Table 1.1.6**.

Table 1.1.6: Details of budget and expenditure of PRIs during 2011-16

(₹ in crore)

Description	2011-12	2012-13	2013-14	2014-15	2015-16
Total budget provision	1126.99	1097.67	1212.25	3423.93	2399.56
Total expenditure	999.11	965.95	1100.3	2920.93	1686.97
Savings	127.88	131.72	111.95	503.00	712.59
Percentage savings	11.35	12.00	09.23	14.70	29.70
Source: Information furnished by the Department					

From **Table 1.1.6** it may be seen that 29.70 *per cent* of the budget provision could not be spent during 2015-16.

1.11.2 Recommendations of the State Finance Commission

Article 243 (I) of the Constitution of India requires that the State Finance Commission (SFC) be appointed at the expiry of every fifth year.

The Fourth SFC was constituted in February 2011 and was to submit its report to the State Government by September 2012 for implementation of its recommendations during 2011-12 to 2015-16. However, the date for submission of report was extended by the State Government up to December

2014. The report was under printing (December 2016).

1.11.3 Recommendation of the Thirteenth Finance Commission

The 13th Finance Commission (13th FC) recommended grants of ₹ 5,565.60 crore to the PRIs during 2010-15. The grants were to be utilized up to 31 March 2015.

The position of yearly allocation by 13th FC, actual release by GoI to GoM, subsequent release to PRIs and actual utilisation up to the period ending February 2017 is shown in **Table 1.1.7**.

Table 1.1.7: Utilisation of 13th FC grants

(₹ in crore)

Year	Recommendations of 13th FC	Actual grants released by GoI (including forfeited grants of other States)	Grants released by GoM to PRIs	Actual utilisation of grants by PRIs	Balance to be utilised
2010-11	519.85	513.68	515.00	499.28	15.72
2011-12	808.49	957.45	957.45	931.88	25.57
2012-13	1185.90	1244.46	1244.46	1225.58	19.09
2013-14	1399.66	1672.58	1672.58	1594.09	78.49
2014-15	1651.70	1203.67	1204.47	1043.19	161.28
Total	**5565.60**	**5591.84**	**5591.84**	**5294.02**	**300.16**
Source: Information furnished by the Department					

It may be seen from **Table 1.1.7**, the PRIs could not spend ₹ 300.16 crore (February 2017). The Department extended the period of utilisation from time to time and finally up to 31 March 2017.

The audit findings regarding delayed release and utilisation of grants are discussed below.

1.11.3.1 Delay in Release of Grants

As per GoI guidelines (September 2010) regarding utilisation of grants recommended by 13th FC for rural and urban local bodies read with Government Resolution of August 2010, the grants received from 13th FC were to be released by GoM to PRIs within five to 10 days through electronic transfer or any alternative channels of transmission. In case of delayed disbursement of funds, the State/ZPs were to pay interest at the Bank Rate of RBI to ZPs/PSs/VPs.

Scrutiny of records of the Department revealed that during 2010-15, the GoM paid an interest of ₹ 2.34 crore to ZPs for delay of two to 37 days in release of the FC grants (₹ 5,592 crore).

Further scrutiny of cash books of four ZPs[1] revealed delays in release of grants by the ZPs to PSs/GPs to the extent of two to 299 days. However, these ZPs did not pay interest amounting to ₹ 0.95 crore to the PSs/GPs.

The concerned Chief Accounts and Finance Officers (CAFOs) stated (between February 2016 and August 2016) that the ZPs took longer to release the grants

[1] Nashik (29 to 66 days), Satara (03 to 26 days), Palghar (11 to 57 days) and Thane (02 to 299 days)

to PSs and GPs as the PSs/GPs did not furnish UCs for grants released in the preceding year and some of the PSs did not have bank accounts.

1.11.3.2 Diversion of 13th FC Grants

As per GoM guidelines of August 2010 regarding implementation of recommendations of 13th FC, grants received under 13th FC and interest accrued thereon were to be utilised for the intended purpose. Scrutiny of records of ZP, Pune revealed that an interest of ₹ 30.60 lakh accrued on 13th FC grants was diverted to the ZP's District Fund in March 2014.

The CAFO, ZP Pune accepted the diversion of ₹ 30.60 lakh and stated (May 2016) that the same was recouped in April 2015. The amount stated to have been recouped could however, not be ascertained in audit as the cash book was not updated since August 2014.

1.11.3.3 Execution of Inadmissible Works

As per GoM guidelines of August 2010, the broad categories on which 13th FC grants were to be spent included solid waste management, road works, sanitation, maintenance of assets created *etc.*

In three ZPs[2] and eight PSs[3], an inadmissible expenditure of ₹ 1.03 crore was incurred from 13th FC grants on 51 inadmissible works such as, repair and maintenance of gymnasium, erection of gate, repairs to Mudranalaya, renovation of officers' quarters/Sabhapati residence, purchase of medical equipment *etc.*

1.11.4 Maintenance of 13th FC Records

1.11.4.1 Cash Book

As per Rule 98 (2) (ii) of Maharashtra Treasury Rules, 1968, all monetary transactions should be entered in the cash book as soon as they occur and attested by the head of the office in token of check. As per GoM guidelines of August 2010, separate account was to be maintained for each type of grant (general basic grant, general performance grant, special area basic grant and special area performance grant) received under 13th FC. Scrutiny of cash books revealed the following inadequacies in three ZPs[4] and eight GPs[5]:

- None of the above ZPs/GPs had maintained separate accounts for different types of grants. Due to non-maintenance of separate accounts, audit could not ascertain types of grant received from the Department and that disbursed to PSs and GPs. Since the ZPs/GPs did not maintain separate accounts, audit could not ascertain the actual utilization of 13th FC grants.
- In ZP Pune, cash book was incomplete for the year 2014-15 and 2015-16. Further, some of the pages in the cash books for the years 2014-15 and 2015-16 were kept blank. Reconciliation of cash books with bank accounts was done only up to August 2014.

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2 Nashik, Pune and Satara

3 Haveli, Newasa. Mangalvedha, Shrirampur, Junnar, Niphad, Karad and Satara

4 Pune, Satara and Thane

5 Khed and Shahupuri (PS, Satara); Otur and Warulwadi (PS, Junnar); Phursungi and Manjri Budruk (PS, Haveli); and Dabhadi and Nimgaon (PS, Malegaon)

- There were differences in amount released by the Department and that indicated in the records of ZP, Thane for the years 2012-13 (₹ 49.56 lakh) and 2013-14 (₹ 73.90 lakh).

1.11.4.2 A to N Format Reports

As per GoM guidelines of August 2010, monthly reports in A to N format were required to be furnished by GPs to PSs regarding utilization of 13th FC grants. However, six GPs[6] had not submitted monthly reports in the prescribed formats to PSs.

1.11.5 Maintenance of General Records by PRIs

1.11.5.1 Cash Book

During local audit of PRIs in 2015-16, cash books of 22 of 354 test-checked units showed a number of discrepancies such as, daily/monthly closing of cash books not done, non-maintenance of separate cash books for various Schemes, regular attestation of daily entries by Drawing and Disbursing Officers (DDOs) not done *etc.*

1.11.5.2 Advance Register and Stock Register

As per Manual on Financial Management and Procurement Rule 72.1, the funds released to the districts and sub-district level were to be initially classified as advances and subsequently adjusted based on the expenditure Statements/UCs.

Further, as per Rule 98(1) of The Maharashtra Zilla Parishads and Panchayat Samitis Account Code, 1968, all movable and immovable properties were to be recorded in the stock register and verified annually by the head of the Department.

During audit of PRIs in 2015-16, it was noticed that advance registers were either improperly maintained or not maintained in 14 units. Similarly, stock registers were either improperly maintained or not maintained in five[7] units.

1.11.5.3 Reconciliation of Balances as per Cash Book with Bank Pass Book

As per Rule 57 of Maharashtra Zilla Parishads and Panchayat Samitis Account Code, 1968, cash book was to be closed on the last working day of the month and the balances were to be reconciled with the bank pass book. In 29 of 360 test-checked units during 2015-16, reconciliation of balances as per cash book with bank pass book was not done.

1.11.6 Maintenance of Accounts by PRIs

Under the provisions of Section 136 (2) of the ZP/PS Act, the BDOs forward the accounts approved by the PSs to the ZPs and these form part of the ZPs' accounts. Under provisions of Section 62 (4) of the VP Act, the Secretaries of the GPs are required to prepare annual accounts of GPs. A Performance Audit on quality of maintenance of accounts in PRIs in Maharashtra State was

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6 Otur, Phursungi, Khed, Manjri Budruk, Dabhadi and Nimgaon

7 Child Development Project Officer (CDPO), Integrated Child Development Services Scheme (ICDS), Washim; BDO, Tellara (Akola); CDPO (ICDS), Akot (Akola); CDPO (ICDS), Sakoli (Bhandara); and CDPO (ICDS), Pandharkawda (Yawatmal)

conducted and commented in Chapter II of the Report of the Comptroller and Auditor General of India (Local Bodies), GoM for the year ended 31 March 2008.

In accordance with the provisions of Section 136 (1) of the ZP/PS Act and Rule 66 A of The Maharashtra Zilla Parishads and Panchayat Samitis Account Code, 1968, CEOs of ZPs are required to prepare annually, statements of accounts of revenue and expenditure of the ZPs along with statements of variations of expenditure from the final modified grants on or before 10 July of the following financial year to which the statements relate. The accounts are then placed before the Finance Committee and finally before the ZPs for approval along with the Finance Committee reports.

The abstracts of the approved accounts of the ZPs/PSs are prepared by CAFO and forwarded to DLFA for audit, certification and publication in the Government Gazette.

As per Section 136 (1) of ZP/PS Act and Rule 66 A of The Maharashtra Zilla Parishads and Panchayat Samitis Account Code, 1968, the prescribed date for approval of annual accounts of ZPs for a financial year is 30 September of the following year and accounts of ZPs are required to be published in the Government Gazette by 15 November of the year. Accordingly, the accounts for 2015-16 should have been finalised by September 2016 and published by November 2016. As per Government Resolution (September 2015), all the ZPs were to prepare accounts in all eight Model Accounting System formats.

The Department stated (January 2017) that annual accounts for the year 2013-14 had been received from all the ZPs and would be placed in the State Legislature soon. Annual accounts for the year 2014-15 had been received from four ZPs (Thane, Sindhudurg, Nandurbar and Solapur) and were under finalisation. Thus, preparation of accounts by ZPs were in arrears.

1.11.7 Issues related to Abstract Contingent and Detailed Contingent Bills

As per the Maharashtra Treasury Rules, 1968, the DDOs were required to submit Detailed Contingent (DC) bills (comprising vouchers in support of final expenditure) drawn against Abstract Contingent (AC) bills, within 30 days to the office of the Accountant General (Accounts and Entitlements), Maharashtra.

As of March 2016, DC bills in respect of 216 AC bills involving ₹ 4.46 crore pertaining to the Department were outstanding.

CHAPTER-II

COMPLIANCE AUDIT
(PANCHAYATI RAJ INSTITUTIONS)

CHAPTER II

COMPLIANCE AUDIT OF PANCHAYATI RAJ INSTITUTIONS

ANIMAL HUSBANDRY DEPARTMENT

2.1 Implementation of Scheme for Distribution of Milch Animals to Scheduled Caste and Scheduled Tribe Population

2.1.1 Introduction

The Animal Husbandry Department, Government of Maharashtra introduced (November 2011) a Scheme 'Distribution of two milch animals (cows/buffalos) to the beneficiaries belonging to Scheduled Caste under Special Component Plan (SCP) and Scheduled Tribes under Tribal Sub Plan (TSP) and Other Tribal Sub Plan (OTSP)' with a view to creating a source of income through self-employment. As per the Scheme guidelines, the cost of two milch animals was fixed at ₹ 80,000 and insurance for three years at ₹ 5,061 (total ₹ 85,061). Government was to provide financial assistance of 75 *per cent* of cost (₹ 63,796) and the remaining 25 *per cent* (₹ 21,265) was to be contributed by the beneficiary. The Scheme was to be widely publicised so as to provide appropriate coverage to the targeted beneficiaries.

The Scheme was implemented by District Animal Husbandry Officer, Zilla Parishad (DAHO) at the district level and Livestock Development Officer (LDO) at block level.

Audit test-checked (March to June 2016) the records of (i) Commissioner, Animal Husbandry, Pune (ii) Regional Joint Commissioner, Animal Husbandry (RJC), Nagpur (iii) six[1] DAHOs and (iv) twelve[2] LDOs (two from each district) for the period 2011-16 to assess whether selection of beneficiaries, allocation and utilisation of grants and implementation of the Scheme were effective. Physical verification of 68 (123 animals) of 366 beneficiaries in selected 12 blocks was conducted along with departmental staff. During 2011-16, the selected six districts received funds of ₹ 11.69 crore and a financial assistance of ₹ 11.64 crore was provided to 2,372 beneficiaries.

2.1.2 Audit Findings

2.1.2.1 Inadequate Extension of Benefit to Targeted Population

DAHOs placed the demands for fund based on the funds received in the previous year. Accordingly, budget provision was made by Tribal Development Department and Social Welfare Department for the current year.

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1 Bhandara, Chandrapur, Gadchiroli, Gondia, Nagpur and Wardha

2 Bhandara, Chandrapur, Desaiganj, Gadchiroli, Gondia, Hinganghat, Kalmeshwar, Lakhni, Nagbhid, Ramtek, Tiroda and Wardha

Details of applications received, funds demanded/received, benefits given are given in **Table 2.1.1**.

Table 2.1.1: Details of application received and benefit given

Year	Number of valid applications received	Funds demanded (₹ in crore)	Fund Received (₹ in crore)	Number of applicants given benefit	Number of applicants not given benefit
2011-12	880	1.20	1.05	281	599
2012-13	1054	1.71	1.52	242	812
2013-14	1825	2.20	2.19	420	1405
2014-15	1813	2.96	2.84	526	1287
2015-16	2883	4.30	4.09	903	1980
Total	**8455**	**12.37**	**11.69**	**2372**	**6083**
Source: Information furnished by DAHOs					

Audit observed that during 2011-16 though 8,455 valid applications were received, benefit under the Scheme was given to only 2,372 applicants (28 *per cent*) as per the availability of funds. Since demand for funds was made based on previous year's fund receipt without considering the number of valid applications received during last years, the benefit under the Scheme could not be provided to 6,083 (*i.e.* 72 *per cent)* applicants.

As there was wide variation between the number of eligible beneficiaries (valid applications) and actual benefit given in a year, the projection for requirement of fund for next year should have been based on number of valid applications received so as to provide benefit adequately. As against the demand of ₹ 12.37 crore fund received was ₹ 11.69 crore during 2011-16, which was utilised. It was also observed that no supplementary demand was made by the DAHOs during 2011-16 to extend benefit to these 72 *per cent* applicants.

Audit further observed that in Chandrapur and Gadchiroli, both tribal dominated districts, the DAHO failed to demand funds and call for applications during 2011-16 under TSP and OTSP. As a result, tribal people in these two districts were kept out of the ambit of the Scheme. In Bhandara district during the years 2011-13 and 2014-16 and in Nagpur district during the years 2011-14, tribal population was not benefitted as demands for fund were not placed by the DAHOs concerned.

In reply, the DAHOs stated (March and April 2016) that the beneficiaries were selected on the basis of availability of funds. Regarding not extending benefit to tribal population, the DAHOs added that no grant was received under TSP and OTSP.

Reply is not acceptable as the demands for fund was placed without considering the actual number of valid applications received. Further, the DAHOs of Bhandara, Chandrapur, Gadchiroli and Nagpur failed to place the demands for fund under TSP and OTSP, depriving the tribal population of the Scheme benefits.

2.1.2.2 Delayed Distribution of Milch Animals

Scheme guidelines stipulated that applications should be called for from the beneficiaries in the month of June-July every year by LDO and forwarded to

DAHO. The beneficiaries were to be selected by the end of September by a Committee headed by Deputy Director, Animal Husbandry of the district duly following the norms prescribed in the Scheme guidelines.

Scrutiny revealed that applications were obtained in the month from June to August every year but the grants were received in the months from August to March. Thereafter, beneficiaries were selected during October to March on the basis of grants received resulting in delay in purchase and distribution of animals. Due to this, animals could be distributed only between January (current financial year) and August (succeeding financial year).

Failure to adhere to the time schedule at various levels resulted in delay of four to 11 months to eligible beneficiaries.

In reply, the DAHOs stated (April 2016) that the delay occurred due to administrative reasons at various levels. The fact remained that the beneficiaries were deprived of the intended benefits due to administrative delay, which could have been avoided.

2.1.2.3 Purchase of Over-aged Cows

As per the report of the Indian Council of Agriculture Research, age of Jersey cow is 26-30 months at the first calving. The Scheme guidelines stipulated that animals that had calved two to three times are to be purchased *i.e.* desirable age at purchase should be three and half years to four and half (first calving - 2.5 years, second calving - 3.5 years and third calving - 4.5 years).

Scrutiny of records of 12 test checked LDOs revealed that out of 364 cows purchased for 217 beneficiaries between 2011-16, 158 (43 *per cent*) were between five and seven years old. Thus, over-aged animals with declining lactating ability were purchased.

In reply, the LDOs stated (March to May 2016) that the animals were purchased according to the choice of the beneficiaries. Reply is not acceptable as the Purchase Committee should have followed the Scheme guidelines while purchasing animals.

2.1.2.4 Distribution of Animals without Maintaining Prescribed Gap

Scheme guidelines stipulated that initially one milch animal would be distributed to the beneficiary and after a period of six months or after cessation of milk production of first milch animal, whichever is earlier, second animal should be distributed to ensure continuous production of milk and consequently, continuous income for beneficiaries.

Scrutiny revealed (March to May 2016) that in five[3] LDOs, 76 beneficiaries were given two animals in one go whereas in eight[4] LDOs, 163 beneficiaries were given the second animal after a gap of 10 to 13 months from distribution of first animal.

In reply, LDO Gadchiroli and Desaiganj stated (April and May 2016) that two animals were given at a time since the beneficiaries were not ready to pay transportation charge twice for both the animals. LDOs, Lakhni, Ramtek and Kalmeshwar stated (March and May 2016) that two animals were given

[3] Desaiganj, Gadchiroli, Kalmeshwar, Lakhni and Ramtek

[4] Bhandara, Chandrapur, Gondia, Hinganghat, Lakhni, Nagbhid, Tiroda and Wardha

simultaneously as there was uncertainty about receipt of adequate funds for second animal after the prescribed gap. In respect of gaps of 10 to 13 months, the LDOs concerned stated (March to May 2016) that purchase procedure was followed after receipt of funds.

Reply is not acceptable as in case of unwillingness of the beneficiaries, wait listed beneficiaries were required to be selected. Besides, funds as demanded by DAHOs were received and hence there was no uncertainty about receipt of funds. This resulted in the beneficiaries not getting benefit of continuous production of milk and regular income.

2.1.2.5 Selling of Animals by Beneficiaries

As per Scheme guidelines, the beneficiary was required to keep the animals up to three years from the date of purchase. In case of failure to keep the animals for three years, government assistance along with interest was to be recovered in lump sum from the beneficiary.

Out of 12 test checked LDOs, only five[5] LDOs had physical verification reports of the sold animals. The Report revealed that during 2011-16, 73 out of 155 beneficiaries sold 107 animals valuing ₹ 42.80 lakh within three years of purchase and no recovery was done in these cases.

During joint physical verification (April and May 2016) of the beneficiaries by the audit, it was observed that in addition to above, six beneficiaries of two LDOs (Chandrapur and Lakhni) sold 10 animals valuing ₹ four lakh within a period of three years of their purchase but there was no recovery. In respect of 12 beneficiaries of five[6] LDOs having 23 animals, 18 animals were not available during joint physical verification and were stated to have gone for grazing. As such audit could not ascertain the existence of animals in these cases.

When enquired, the beneficiaries attributed the sale of animals to non-availability of sufficient fodder, poor health of animal, low milk yield, infertility in animals, difficulty in handling the cows, *etc*. In the above cases, despite specific provision for recovery, the DAHOs failed to recover the same from the defaulted beneficiaries.

In reply, the DAHOs of Bhandara, Gadchiroli, Gondia and Nagpur stated (July 2016) that action would be taken to effect recoveries. The RJC, Nagpur while accepting the facts of non-recovery stated (May 2016) that instructions had been issued (May 2016) to the field offices to take action against the beneficiaries who sold animals within the three years period.

2.1.2.6 Irregular Purchase of Milch Animals

As per Scheme guidelines, the animals were required to be purchased through a Committee that comprised LDO, head of veterinary hospital, member of milk co-operative society of village, bank representative, insurance representative and beneficiary. Audit observed that in LDO, Gadchiroli all 24 animals valuing ₹ 11.20 lakh were purchased by LDOs without forming

[5] Bhandara, Desaiganj, Gadchiroli, Kalmeshwar and Tiroda

[6] Chandrapur, Gadchiroli, Gondia, Hinganghat and Kalmeshwar

Purchase Committee during 2012-15. The RJC, Nagpur stated (May 2016) that the DAHO concerned would be directed to take action.

2.1.2.7 Non-registration of Animals with Maharashtra Animal Identification and Recording Authority

The Maharashtra Animal Identification and Recording Authority (MAIRA) has been set up by the Maharashtra Livestock Development Board to implant tags and register cattle. MAIRA was also responsible for maintaining online animal and premises registration records.

As per Scheme guidelines, it was mandatory to register all the animals purchased with MAIRA with a view to ascertain their locations and keeping online data of animals. In test checked 12 LDOs, it was observed that none of the 627 animals purchased during 2011-16 under the Scheme were got registered with MAIRA.

All the LDOs stated (March to May 2016) that there were no instructions for registration of animals with MAIRA.

The reply is not acceptable since as per Scheme guidelines it was mandatory to register all animals purchased under the Scheme with MAIRA.

2.1.2.8 Delay in Insurance of Milch Animals

Animals distributed under the Scheme were required to be insured jointly in the name of the beneficiary and the DAHO for three years. Audit observed that insurance was made in the name of the beneficiary and the LDO concerned instead of the DAHO. Further, as the LDO could not draw funds for insurance premium at the time of purchase of the animals, there was delay in taking insurance up to 126 days in case of 620 out of 627 animals.

The LDOs concerned stated (March to May 2016) that the delay occurred due to administrative reasons. The reply is not acceptable as the BDOs concerned should have avoided this administrative delay.

2.1.2.9 Training to Beneficiaries

As per Scheme guidelines, every beneficiary should have been imparted training for care of animals. Audit observed that in five[7] DAHOs out of 1,492 beneficiaries, training was imparted to 273 (18 *per cent*) beneficiaries while in Gondia all the 880 beneficiaries were imparted training.

The five DAHOs stated (March to April 2016) that due to non-availability of budget provision, training was not imparted. The fact remained that the five DAHOs did not place demands for fund to Commissioner for imparting training to beneficiaries.

2.1.2.10 Lack of Awareness among Public about the Scheme

Scheme guidelines stipulated that application form for getting benefit under the Scheme should be called for from the beneficiaries by giving wide publicity to the Scheme.

[7] Bhandara, Chandrapur, Gadchiroli, Nagpur and Wardha

Publicity was not given at the DAHO and BDO level except by Bhandara DAHO. As a result, Bhandara alone had received 3,393 applications (39 *per cent*) out of total 8,673 applications in all six districts.

The remaining five[8] DAHOs replied that there was no fund provision for publicity, hence, it could not be done.

Reply is not acceptable as the publicity of the Scheme is an integral part of the Scheme and this could have been factored in while raising demand for fund by the authorities concerned.

2.1.3 Monitoring and Evaluation

2.1.3.1 Inadequate Monitoring

Scheme guidelines stipulated that all animals purchased under the Scheme were to be physically verified quarterly by Veterinary Hospitals (VHs) in villages. LDOs and DAHOs were to verify 25 *per cent* and 10 *per cent* respectively of the animals purchased annually. Records of verification were to be maintained and submitted to the higher authorities *i.e.* by the VH to LDO, by LDO to the DAHO and by DAHO to the RJC. The VH was to provide health and artificial insemination facilities to the animals. VHs were required to record animal history in a separate register *viz.*, date of oestrus (heat) of animal, date of artificial insemination, date of pregnancy test and the result, date of calving, gender of new born calf, weight of calf at the time of delivery and quantity of milk during lactation period. Scrutiny of records of test checked LDOs revealed that:

- Out of 117 VHs under 12 LDOs, only 22 VHs under LDO Chandrapur and Nagbhid had carried out physical verification and submitted reports for the period 2011-2016 to LDOs.
- 117 VHs under 12 LDOs had not maintained separate register to record animal history.
- Out of 12 LDOs, six LDOs Bhandara, Desaiganj, Gadchiroli, Gondia, Lakhni and Tiroda did not carry out physical verification of animals for the period 2011-16, whereas Nagpur and Ramtek did not carry out verification for the period 2011-13.
- None of the six DAHOs submitted physical verification reports to the RJC, Nagpur.

The above position was brought to notice of RJC, Nagpur and the Commissioner. While accepting the observation, the Commissioner replied (July 2016) that directions were issued to field offices to submit the reports.

2.1.3.2 Non-evaluation of Scheme

The purpose of the Scheme was to create source of income for beneficiaries. However, there was no mechanism with the department to measure income generation of the beneficiaries through the Scheme. Thus, audit could not assess the benefits derived from the Scheme.

[8] Gondia, Gadchiroli, Nagpur, Chandrapur and Wardha

Further, the Commissioner was responsible to carry out evaluation of Scheme after every six months from date of completion of financial year by establishing a Committee under the chairmanship of RJC, Animal Husbandry for each division and evaluation report so prepared was required to be submitted to Government along with remarks.

Scrutiny of records of the Commissioner and the RJC, Nagpur revealed (February and May 2016) that the Commissioner had not established any Committee for Nagpur division for evaluation of the Scheme during the period 2011-16 and thus, there was no evaluation of the Scheme.

The Commissioner in the reply stated (July 2016) that the evaluation reports were available with the regional heads. The reply is not tenable as RJC, Nagpur had already replied (May 2016) that no such evaluation was made during the period covered in audit and would be done in future.

2.1.4 Conclusion

The Animal Husbandry Department, Government of Maharashtra introduced (November 2011) a Scheme 'Distribution of two milch animals (cows/buffalos) to the beneficiaries belonging to Scheduled Caste and Scheduled Tribe' under Special Component Plan, Tribal Sub Plan and Other Tribal Sub Plan with a view to create source of income through self-employment. Audit was conducted to assess procedure adopted for selection of beneficiaries, allocation and utilisation of funds and the benefits derived by the beneficiaries. Audit observed that the demands were not placed adequately so as to give maximum coverage to targeted beneficiaries. This led to depriving the benefit to 72 *per cent* of valid applicants. In Gadchiroli and Chandrapur districts (tribal dominated) tribal people were kept out of the ambit of the Scheme as the district authorities failed to demand funds for implementing the Scheme. Delay in receipt of funds, beneficiary selection process and distribution of funds resulted in delay of four to eleven months in purchase and distribution of animals. Over-aged animals were purchased and instances of sale of animals by the beneficiaries were observed. Monitoring at all levels was inadequate. No attempt was made to evaluate the Scheme to ascertain the benefits derived from the Scheme.

The above deficiencies indicated that the implementation of the Scheme was not effective and therefore, the Government needs to evaluate the implementation and monitoring process.

The matter was referred to the State Government in July 2016; their reply was awaited as of February 2017.

RURAL DEVELOPMENT AND WATER CONSERVATION DEPARTMENT

2.2 Unfruitful Expenditure on Construction of Permanent Sale Centres

Poor planning and implementation of the Scheme for construction of Permanent Sale Centres to facilitate marketing of products of rural artisans resulted in unfruitful expenditure of ₹ 14.58 crore and blocking of ₹ 33.65 crore for three to seven years.

Rural artisans do not have wherewithal to access the market as they lack adequate capacity, marketing intelligence and negotiation skills. In order to promote marketing of rural products and boost socio-economic development of the rural poor, GoM introduced (February 2009) a Scheme for construction of Permanent Sale Centres (PSCs) at taluka level for providing marketing facilities to Self Help Groups (SHGs). As per Scheme, 180 taluka-level PSCs were to be constructed in the State at a total cost of ₹ 45 crore (₹ 25 lakh per PSC) in a time frame of three years (February 2012). The Scheme was to be implemented through District Rural Development Agencies (DRDAs).

Scrutiny of Scheme documents (February 2016) in Rural Development Department (Department) revealed the following:

- Of the 180 PSCs, construction of 101 PSCs did not commence as of February 2017 due to non-availability of land. Of the remaining 79 PSCs, only 39 were completed and 40 were being constructed as of February 2017. Of the 39 completed PSCs, only nine PSCs were allotted and the remaining 30 could not be allotted (February 2017) due to non-construction of compound walls, non-provision of electricity and water connection *etc.*
- Of the nine PSCs which were allotted, audit conducted joint inspection of four PSCs with Departmental staff and found that three[9] of them had not been allotted to SHGs. These were being used as office, bank and meeting hall. Only one was being used by a SHG[10].
- Between August 2009 and February 2014, the Department released ₹ 64.12 crore[11] to DRDAs for construction of 180 taluka-level PSCs. Of ₹ 64.12 crore, the DRDAs spent ₹ 16.74 crore on completion of 39 PSCs and ₹ 13.73 crore on 40 ongoing works. The remaining ₹ 33.65 crore pertaining to 101 works (which did not commence) was held by DRDAs for a period ranging from three to seven years as of February 2017.

[9] Ambernath, Mulshi and Shirur

[10] Handed over to Mahila Bachat Gat at Ambegaon for maize corn business

[11] The Department met the additional ₹ 19.12 crore (₹ 64.12 crore - ₹ 45 crore) from Swarnajayanti Gram Swarozgar Yojana (a self-employment Scheme of GoI for rural poor)

The State Government accepted the facts and stated (January 2017) that 30 completed PSCs would be put to use early after provision of necessary facilities and funds available for 101 works would be used for completion of 40 ongoing works.

Thus, poor planning and implementation of the Scheme for construction of taluka-level Permanent Sale Centres not only resulted in unfruitful expenditure of ₹ 14.58 crore on 33[12] completed PSCs and blocking of ₹ 33.65 crore for three to seven years, it also defeated the objective of extending marketing facilities to the Self Help Groups.

2.3 Misappropriation of Government Money of ₹ 2.29 lakh

Failure of the Block Development Officer/Chief Executive Officer to take action led to misappropriation of Government money of ₹ 2.29 lakh.

General Administration Department, Government of Maharashtra framed the Departmental Enquiry Rules, 1991 which states that "preliminary enquiry regarding fixing of responsibility for mistakes, negligence, misappropriation, irregular matters, loss of government money *etc.* is to be conducted as early as possible and in any case, this period was not to exceed two months from the date of taking decision of enquiry".

During the audit (July 2015) of Block Development Officer (BDO), Panchayat Samiti (PS) Aheri, District: Gadchiroli, records of release of grants under Backward Regions Grant Fund (BRGF) were scrutinised. It was revealed that there was misappropriation of money in two Gram Panchayats (GP) under BDO Aheri as detailed below:

- In GP Kishtapur Daud, the then Gram Sevak (GS) withdrew ₹ 0.70 lakh (October 2010) and ₹ 0.10 lakh (December 2010) without any administrative approval for execution of work or authorisation from BDO concerned. The BDO issued three letters in January 2011 to the GS to deposit ₹ 0.80 lakh in the bank account of BRGF and submit explanation for withdrawing fund without any authorisation. The GS did not deposit the amount nor furnished any explanation. However, no action was initiated by the BDO/CEO, though matter was reported to Chief Executive Officer, Gadchiroli.
- In GP Kamlapur, the same GS when posted subsequently, incurred an expenditure of ₹ 1.49 lakh from BRGF for purchase of material *viz.*, metal, steel, sand, cement *etc.* between March and April 2014 but the GS did not submit vouchers in support of expenditure incurred. Physical verification by Engineer, BRGF, PS confirmed (February 2015) about non-availability of above material at work site. Despite knowing the facts, BDO failed to initiate any action against the GS.

[12] 30 completed PSCs which were not at all allotted and three completed PSCs which were not being used for the intended purpose

On this being pointed out, BDO accepted (July 2015) the audit observation and agreed to investigate the matter.

On investigation (September 2015) the BDO accepted that the GS had misappropriated ₹ 2.29[13] lakh. The BDO proposed (December 2015) departmental enquiry against the GS which was initiated by CEO, Gadchiroli in February 2016. The enquiry report was awaited (January 2017). Incidentally, the BDO observed that the same GS while working in three GPs (Kamlapur, Kishtapur Daud and Wadampalli) had misappropriated Government money to the tune of ₹ 32.46 lakh between October 2010 and February 2015 under 11 various types of works/schemes.

The matter was referred to the Government in June 2016; their reply was awaited as of February 2017.

[13] ₹ 0.70 lakh + ₹ 0.10 lakh + ₹ 1.49 lakh

CHAPTER-III

AN OVERVIEW OF THE FUNCTIONING, ACCOUNTABILITY MECHANISM AND FINANCIAL REPORTING ISSUES OF URBAN LOCAL BODIES

SECTION B

CHAPTER- III

An Overview of the Functioning, Accountability Mechanism and Financial Reporting Issues of Urban Local Bodies

3.1 Introduction

In conformity with the 74th Constitutional Amendment (1992), the Government of Maharashtra (GoM) amended (December 1994) the existing Mumbai Municipal Corporation (MbMC) Act, 1888; The Bombay Provincial Municipal Corporations Act, 1949; The Nagpur City Municipal Corporation Act, 1948; and The Maharashtra Municipal Councils, Nagar Panchayats and Industrial Townships Act, 1965. All the Municipal Corporations, except the Municipal Corporation of Greater Mumbai (MCGM) which had its own Act, are governed by the provisions of the amended (2011) Maharashtra Municipal Corporation (MMC) Act, 1949. As of February 2017, there were 27[1] Municipal Corporations and 358 Municipal Councils including 127 Nagar Panchayats (NPs) in Maharashtra.

The demographic and developmental status of the State is given in **Table 3.1.1**.

Table 3.1.1: Important statistics of the State

Population	11,23,74,333
Population density	365 km^2
Gender ratio	929:1000
Urban population	5,08,18,259
Literacy in *per cent* (Urban)	88.69%
Number of ULBs	385
(i) Municipal Corporations	27
(ii) Municipal Councils	231
(iii) Nagar Panchayats	127
Source: Information furnished by Urban Development Department and Census 2011	

3.2 Organisational Setup of ULBs

3.2.1 The organisational structure of ULBs is depicted in **Appendix –3.1**

3.2.2 As per the Census of 2011, the total population of Maharashtra was 11.24 crore of which, 45 *per cent* were in the urban areas. The State has 45 cities/urban agglomerations having a population of over one lakh.

Twenty Seven Municipal Corporations in the State have been created for urban agglomerations having a population of more than three lakh.

[1] Panvel Municipal Corporation was formed in August 2016

These 27 Municipal Corporations have been categorised[2] into five categories namely, A+, A, B, C and D based on the criteria of population and per capita income. At present, only MCGM falls in category A+, two[3] in category A, three[4] in category B, four[5] in category C and 17[6] Municipal Corporations in category D.

Similarly, 358 Municipal Councils including Nagar Panchayats have been created for smaller urban areas and categorised[7] based on their population. At present, there are 17 'A' class, 69 'B' class and 145 'C' class Municipal Councils and 127 NPs in the State.

3.3 Functioning of Urban Local Bodies

3.3.1 The accountability structure of Municipal Corporations is shown in **Table 3.1.2**.

Table 3.1.2: Accountability structure of Municipal Corporations

Sr. No.	Name of the Authority	Accountable for
1.	General Body	Policy decisions related to expenditure from the Corporation's Municipal Fund, implementation of various projects, Schemes *etc.*
2.	Standing Committee	All functions related to approval of budget and sanction for expenditure as per the delegation. It can delegate powers to Sub-Committee/Sub-committees.
3.	Municipal Commissioner	Administration and execution of all Schemes and projects subject to conditions imposed by the General Body.
4.	Municipal Chief Accountant	Preparation of the annual budget and finalisation of accounts and to conduct internal audit.
5.	Municipal Chief Auditor	Audit of municipal accounts, preparation and submission of Audit Reports to the Standing Committee.
Source: The Mumbai Municipal Corporation Act, 1888 and The Maharashtra Municipal Corporation Act, 1949		

3.3.2 Duties and Powers

To function as an institution of self-government and to carry out the responsibilities conferred upon them, the ULBs exercise their powers and functions in accordance with provision of Section 63 to 72 of the MMC Act, 1949 which provides for various functions to be exercised in the sphere of Public Works, Education, Public Health and Sanitation, Town planning and Administration *etc.*

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2 Category A+ (population over one crore and per capita income above ₹ 50,000): one; Category A (population between 25 lakh and one crore and per capita income above ₹ 8,000): two; Category B (population between 15 lakh and 25 lakh and per capita income above ₹ 5,000): three; Category C (population between 10 lakh and 15 lakh and per capita income above ₹ 3,000): four; and Category D (population between 03 lakh and 10 lakh): 17

3 Nagpur and Pune

4 Nashik, Pimpri-Chinchwad and Thane

5 Aurangabad, Kalyan-Dombivli, Navi Mumbai and Vasai-Virar

6 Ahmednagar, Akola, Amravati, Bhiwandi-Nizampur, Chandrapur, Dhule, Jalgaon, Kolhapur, Latur, Malegaon, Mira-Bhayandar, Nanded-Waghala, Parbhani City, Panvel, Sangli-Miraj-Kupwad, Solapur and Ulhasnagar

7 Category A (population between one lakh and three lakh): 17; Category B (population between 40,000 and one lakh): 69; Category C (population between 25,000 and 40,000): 145; and NPs (population between 15,000 and 25,000): 127

3.3.3 Devolution of Funds, Functions and Functionaries to Urban Local Bodies

Article 243W inserted through the 74th Constitutional Amendment envisaged devolution of powers and responsibilities to municipalities in respect of 18 subjects mentioned in XII Schedule of the Constitution.

Of the 18 functions referred to in the XII Schedule of the Constitution of India, 12 functions were assigned to the Urban Local Bodies (ULBs) under Sections 61 and 63 of the MbMC Act, 1888 and Section 63 of the Bombay Provincial Municipal Corporation Act, 1949, prior to the 74th amendment. The remaining six functions were also transferred/assigned to the ULBs after 1994.

Of the State Government's total revenue receipts of ₹ 1,40,031.12 crore during 2015-16 (excluding State's share of Union taxes and duties and Grants-in-aid from GoI), ULBs were allocated ₹ 9,187.23 crore (6.56 *per cent*).

3.4 Formation of various Committees

3.4.1 District Planning Committee

Article 243 ZD of the Constitution of India envisages formation of District Planning Committee (DPC) at district level in every State. The tenure of DPC is five years and it is required to meet at least once in three months. DPCs are constitutionally responsible to consolidate the plans prepared by local self government institutions in the district and to prepare a Draft Development Plan (DDP) for the district as a whole for onward transmission to the Government. The DPC is to monitor the quantitative and qualitative progress, especially its physical and financial achievements during the implementation of the approved DDP. The State Government, while preparing the State plan, considers the proposals and priorities included in DDPs prepared for each district by the DPC.

The status of formation of DPC in 36 districts of the State was awaited from the Urban Development Department (Department) as of February 2017.

3.4.2 Formation of Committees in Urban Local Bodies

The MMC Act, 1949 provides that there shall be two mandatory Committees in each Municipal Corporation *i.e.* Standing Committee and Transport Committee. It also provides that the Corporation may from time to time appoint out of its own body, special Committees which shall conform to any instructions that the Corporation may from time to time give them.

Reply of the Department regarding formation of Committees was awaited (February 2017).

3.5 Audit Arrangement

3.5.1 Primary Auditor

Director, Local Fund Audit (DLFA) is the primary auditor of the accounts of local bodies and discharges duties and responsibilities as per the provisions of The Maharashtra Local Fund Act, 1930.

Placing of Audit Review Report of DLFA

As per Government Resolution of March 2011, DLFA shall audit the accounts of PRIs and ULBs and submit annually a consolidated report of the accounts to the Legislative Assembly. Accordingly, the Audit Review Report on ULBs for the year 2011-12 was placed in the State Legislature in April 2015 while that of 2012-13 was under preparation.

Arrears in Audit/Certification by DLFA

As per the information furnished to audit (December 2016), DLFA completed audit of all the 26 Municipal Corporations up to 2012-13, seven[8] Corporations up to 2013-14 and three[9] Corporations up to 2014-15. However, certification of none of the 26 Municipal Corporations was done by DLFA for the years 2011-12, 2012-13, 2013-14 and 2014-15 due to delayed/incomplete/ non-submission of approved accounts by the Municipal Corporations. Thus, there were significant arrears in audit and certification of annual accounts of the Municipal Corporations.

Further, of the 358 Municipal Councils including NPs, audit of annual accounts for the years 2015-16, 2014-15, 2013-14 was completed in six, 249 and 11 Municipal Councils respectively while audit of one Municipal Council each was completed in 2011-12 and 2010-11. However, certification of one Municipal Council was done for the year 2013-14 and of eight municipal councils for the year 2012-13. The arrears in audit and certification were due to non-submission/delayed submission of approved accounts.

3.5.2 Audit by the Comptroller and Auditor General of India

The GoM entrusted (October 2002) audit of Municipal Corporations to the Comptroller and Auditor General of India under Section 14 of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971. The audit of Municipal Councils and NPs was entrusted (March 2011) to the Comptroller and Auditor General of India by GoM under Technical Guidance and Supervision.

The audit observations on financial irregularities and defects in initial accounts/records noticed during local audits but not settled on the spot are communicated to the heads of offices and Departmental authorities through Inspection Reports. Statements indicating the number of observations outstanding for over six months are also sent to the State Government for action.

The Audit Report (Local Bodies) of the Comptroller and Auditor General of India for the year ended 31 March 2015 was placed in the State Legislature in August 2016 and the Audit Report for the year ended 31 March 2014 has been taken up for discussion by Public Accounts Committee (PAC) along with paragraphs from previous reports pending for discussion.

[8] Bhiwandi-Nizampur City, Sangli-Miraj-Kupwad, Aurangabad, Kalyan-Dombivli, Vasai-Virar and Ahmednagar

[9] Vasai-Virar, Chandrapur and Ahmednagar

3.6 Response to Audit Observations

3.6.1 Outstanding Inspection Reports and Paragraphs of ULBs audited by Accountant General

As of February 2017, 973 Inspection Reports and 5,320 paragraphs of ULBs audited by Principal Accountant General/Accountant General, Maharashtra up to March 2016 were outstanding as shown in the **Table 3.1.3**.

Table 3.1.3: Position of outstanding inspection reports and paragraphs

Year	Inspection Reports	Paragraphs
Up to 2011-12	576	2452
2012-13	92	462
2013-14	81	445
2014-15	58	435
2015-16	166	1526
Total	**973**	**5320**

Source: Information compiled in the offices of the Principal Accountant General/Accountant General, Maharashtra (Mumbai and Nagpur)

3.6.2 Paragraphs Appeared in Audit Reports but Pending for Discussion by PAC

As of February 2017, of the 42 paragraphs pertaining to ULBs that appeared in Audit Reports from 2010-11 to 2014-15, seven paragraphs were discussed in PAC while 35 paragraphs were pending discussion as shown in the **Table 3.1.4**.

Table 3.1.4: Position of paragraphs pending for discussion by PAC

Year of Audit Report	Number of paragraphs in Audit Report	Number of paragraphs discussed in PAC	Paragraphs pending for discussion in PAC
2010-11	12	01	11
2011-12	09	04	05
2012-13	11	00	11
2013-14	06	02	04
2014-15	04	00	04
Total	**42**	**07**	**35**

Source: Information compiled in the offices of the Principal Accountant General/Accountant General, Maharashtra (Mumbai and Nagpur)

Accountability Mechanism and Financial Reporting Issues

Accountability Mechanism

3.7 Lokayukta

The State of Maharashtra has established the institution of Lokayukta in Maharashtra on 25 October 1972 based on the concept of Ombudsman in accordance with The Maharashtra Lokayukta and Upa-Lokayukta Act, 1971. However, the Lokayukta was not exclusively formed for ULBs in Maharashtra.

3.8 Social Audit

Social audit is a continuous and ongoing process which includes verification of quantity and quality of works at different stages of implementation to ensure transparency and public accountability in the implementation of

projects, laws and policies and its results by the community with active involvement of primary stakeholders.

Information regarding social audit of ULBs was awaited from the Department (February 2017).

3.9 Property Tax Board

The 13th FC recommended setting up of a State Level Property Tax Board to assist the ULBs to put in place an independent and transparent procedure for assessing property tax. The FC also recommended that the Board shall enumerate, or cause to enumerate, all properties in the ULBs in the State and develop a database, review the property tax system and suggest suitable basis for valuation of properties, design and formulate transparent procedure for valuation of properties *etc*.

Reply of the Department regarding formation of Property Tax Board was awaited (February 2017).

3.10 Service Level Benchmark

As per 13th FC recommendations, State Governments must notify or cause all the Municipal Corporations and Municipalities to notify the service standards for four service sectors *viz.,* water supply, sewage, storm water drainage and solid waste management proposed to be achieved by them by the end of the succeeding fiscal year.

The Department had notified service level benchmarks up to 2016-17.

3.11 Fire Hazard Response

As per 13th FC recommendations, all Municipal Corporations with a population of more than one million must put in place a fire hazard response and mitigation plan for their respective jurisdictions.

Only seven[10] of 27 Municipal Corporations had published fire hazard response and mitigation plans.

3.12 Submission of Utilisation Certificates

The Bombay Financial Rules, 1959 provide that for the grants provided for specific purposes, utilisation certificates (UCs) should be obtained by the departmental officers from the grantee institutions and after verification, the UCs should be forwarded to the concerned accounting offices *i.e.* Accountant General (Accounts and Entitlements), Maharashtra within 12 months from the dates of their sanction.

Reply of the Department on pending UCs was awaited (February 2017).

3.13 Internal Audit and Internal Control System of ULBs

An effective Internal Control System and strict adherence to Statutes, Codes and Manuals minimise the risk of errors and irregularities, and helps to protect resources against loss due to waste, abuse and mismanagement.

[10] Akola, Amravati, Kalyan-Dombivli, Mira-Bhayandar, Nashik, Pimpri-Chinchwad and Pune

Section 105 of MMC Act, 1949 and Section 135 of the MbMC Act, 1888 provide that the Municipal Chief Auditor (MCA) should audit the municipal accounts and submit a report thereon to the Standing Committee of the Municipal Corporation. This report should comment on the instances of material impropriety or irregularities which the MCA may, at any time, observe in the expenditure or in the recovery of the money due to the Municipal Corporation. Section 136 of the MbMC Act, 1888 further provides that the MCA shall examine and audit the statement of accounts and shall certify and report upon these accounts.

Information furnished by 16 of 26 Municipal Corporations (except Panvel), which had prepared their annual accounts, revealed that audit of accounts for the years 2015-16, 2014-15, 2013-14, 2012-13 and 2009-10 had been completed by MCA in six[11], two[12], three[13], two[14] and one[15] Municipal Corporations respectively and reports submitted to the Standing Committees. Thus, there were arrears in audit by MCA ranging from one to six years in eight Municipal Corporations.

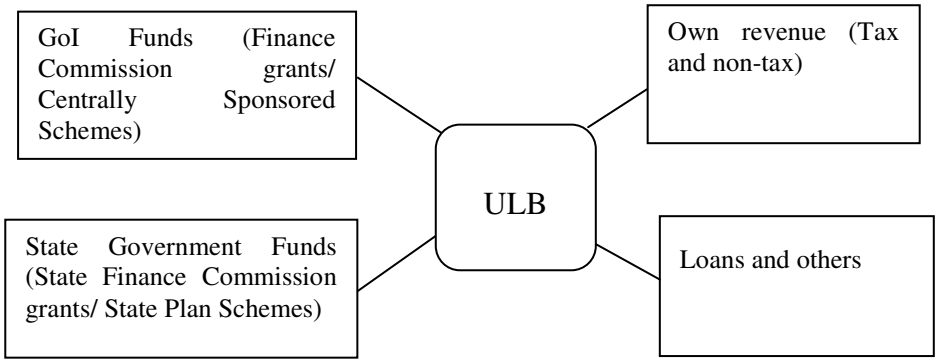
The arrears in certification and audit of the accounts of Municipal Corporations by MCA indicated weak internal controls in the Municipal Corporations.

3.14 Financial Reporting Issues

3.14.1 Source of Funds

The resource base of ULBs consists of own revenues, assigned revenues, Central/State grants and loans as depicted in the **Chart 1**:

Chart 1: Source of Funds



Information regarding receipts and expenditure for the period 2011-16 was awaited from the Department (February 2017).

3.14.2 Recommendation of the State Finance Commission

Article 243 (I) of the Constitution of India requires that the State Finance Commission (SFC) be appointed at the expiration of every fifth year.

The Fourth SFC was constituted in February 2011 and was to submit its report

[11] Akola, Dhule, Malegaon, Mira-Bhayandar, Ulhasnagar and Kolhapur
[12] Navi Mumbai and Pune
[13] Kalyan-Dombivli, Solapur, Sangli Miraj-Kupwad
[14] Ahmednagar and Nashik
[15] Pimpri-Chinchwad

to the State Government by September 2012 for implementation of its recommendations during 2011-12 to 2015-16. However, the date for submission of report was extended by the State Government up to December 2014. The report was under printing (December 2016).

3.14.3 Recommendation of the Thirteenth Finance Commission

The 13th FC recommended grants of ₹ 3,177.71 crore to the ULBs during 2010-15. The position of yearly allocation by 13th FC, actual release by GoI to GoM, subsequent release to ULBs and actual utilisation up to the period ending February 2017 is shown in **Table 3.1.5**.

Table 3.1.5: Release and utilisation of 13th FC grants

(₹ in crore)

Year	Recommendations of 13th FC	Actual grants released by GoI	Grants released by GoM to ULBs	Actual Utilisation of grants by ULBs	Balance to be utilised
2010-11	295.90	292.27	292.27	292.27	00.00
2011-12	460.40	560.49	560.47	560.47	00.00
2012-13	676.23	669.72	669.71	669.71	00.00
2013-14	799.70	851.16	417.71	417.71	00.00
2014-15	945.48	964.67	964.67	157.67	807.00
Total	**3177.71**	**3338.31**	**2904.83**	**2097.83**	**807.00**
Source: Information furnished by the Department					

It may be seen from **Table 3.1.5**, the GoM released grants of ₹ 2,904.83 crore to the ULBs against ₹ 3,338.31 crore released by GoI under 13th FC during 2010-15. However, the ULBs utilised only ₹ 2,097.83 crore leaving an unspent balance of ₹ 807 crore at the end of February 2017. The reasons for short-release of grants by GoM and the details of component-wise[16] expenditure as prescribed by GoI were awaited.

The Records of Finance Department and Urban Development Department along with four[17] Municipal Corporations and seven[18] Municipal Councils were test-checked between January 2016 and June 2016 to ascertain whether the releases and utilisation of the grants were as per the 13th FC guidelines. The findings are given in succeeding paragraphs.

3.14.3.1 Diversion of Funds

As per GoM guidelines of October 2010, the broad categories on which 13th FC grants were to be spent included solid waste management, water supply and sanitation, improvement works, expenditure on salary and wages where financial condition of ULBs was very poor, electricity charges excluding interest on delayed payment *etc.*

Audit observed that Bhiwandi-Nizampur City Municipal Corporation made a payment (April 2015) of ₹ 2.43 crore pursuant to court's order for refund of property tax to an assessee, which was inadmissible as per guidelines. Further, Bhusawal Municipal Council paid ₹ 86.87 lakh (March 2013) towards arrears

[16] Water supply, Sanitation, Solid Waste Management, Drainage, e-Governance, Transportation, Salary and wages, Strengthening of fire services, Strengthening of local fund audit department and others

[17] Bhiwandi-Nizampur, Kalyan-Dombivli, Kolhapur and Solapur

[18] Ambernath, Dahanu, Baramati, Bhusawal, Ichalkaranji, Kulgaon-Badlapur and Palghar

of interest for delayed payment of electricity bills which was inadmissible as per guidelines.

The CAFO stated (February 2016) that the financial condition of the Corporation was not sound and as per the court order, amount was to be released immediately hence, 13th FC grants were utilised and administrative sanction was obtained. The Chief Officer, Bhusawal Municipal Council stated (June 2016) that the matter would be examined.

The reply furnished by CAFO is not acceptable because, expenditure on refund of property tax was inadmissible as per GoM guidelines of October 2010.

3.14.3.2 Pending Utilisation Certificates

As per 13th FC guidelines, release of grants was contingent upon submission of UCs for the previous grants drawn. Audit observed that during 2010-15, six[19] of the eleven test-checked Municipal Corporations/Councils did not furnish UCs amounting to ₹ 35.90 crore to the Department against ₹ 397.71 crore received by them during the same period.

The CAFO and Chief Officers of the concerned units stated (between March 2016 and June 2016) that UCs would be submitted in due course.

3.14.3.3 Unspent Grants

As per GoM guidelines of October 2010, ULBs were to submit UCs to the Department in the prescribed format within four months of receipt of grants. Scrutiny of cash books of 13th FC grants revealed that three Municipal Corporation/Councils[20] did not spend ₹ 10.04 crore received during 2010-15 which was lying idle (June 2016) in their bank accounts.

3.14.3.4 Inadequacies in Utilisation of 13th FC Grants

Audit observed the following inadequacies in utilisation of 13th FC grants by Kolhapur Municipal Corporation:

- The Corporation allocated ₹ 1.50 crore from 13th FC grants during January 2013 to March 2016 for fire-fighting equipment, land acquisition and for 'City free from open defecation' programme. However, the grant was lying idle for more than one to three years as of June 2016. In case of fire-fighting equipment, though the Corporation had allocated ₹ 25 lakh on 31 January 2013 (which was lying unspent) yet another allocation of ₹ 25 lakh was made on 30 March 2016.
- For management of solid waste, the Corporation allocated ₹ 1.5 crore in September 2012 and again ₹ five crore in May 2015 for development of two landfill sites at Tope and Takala. However, of ₹ 6.5 crore, only ₹ 1.27 crore was spent, leaving an unspent balance of ₹ 5.23 crore as of June 2016. Audit observed that the Corporation could not spend the second allocation of ₹ five crore as land for landfill sites could not be acquired.

[19] Solapur, Kalyan-Dombivli, Kolhapur, Bhiwandi-Nizampur City (04 Municipal Corporations); Ichalkaranji and Bhusawal (02 Municipal Councils)

[20] Solapur Municipal Corporation (₹ 7.75 crore), Ichalkaranji Municipal Council (₹ 1.04 crore) and Bhusawal Municipal Council (₹ 1.25 crore)

- The Corporation took up construction of 76 million litres per day (MLD) sewage treatment plant under the Central Scheme of 'National River Conservation Project' to be funded by the GoI and the Corporation respectively on 70:30 basis. However, due to fund constraints, the Corporation could not meet its own share of 30 *per cent* and awarded (January 2011) the work to a concessionaire under Public Private Partnership. Though the project stood fully financed (70 *per cent* under Central Scheme and 30 *per cent* contribution by the PPP partner), yet the Corporation allocated ₹ two crore for the project from 13th FC grants, which was not only irregular but also remained unutilised as of June 2016.

3.14.4 Maintenance of Records

3.14.4.1 Cash Book

As per Rule 98 (2) (ii) of The Maharashtra Treasury Rules, 1968, all monetary transactions should be entered in the cash book as soon as they occur and attested by the head of the office in token of check.

During local audit of ULBs in 2015-16, cash books in nine[21] of 124 test-checked units showed a number of discrepancies such as, separate cash books for various Schemes were not maintained, incomplete cash books, monthly closing of cash books not done *etc.*

3.14.4.2 Advance Register and Assessment Book

As per Rule 189 of Municipal Account Code, 1971, an account of advances shall be maintained in form 147. All balances outstanding at the end of the year shall be worked out to carry over to the register of advances of the next year. The advances were required to be recouped and adjusted regularly and promptly so as to avoid accumulation of the same. These accumulated outstanding advances should be adjusted in the accounts through recovery and recouped. Further, as per the provisions under Rule 21 (2) of Chapter VIII of The Maharashtra Municipal Corporation Act, 1949, the Commissioner shall keep assessment book as per the provisions thereunder.

During audit of ULBs in 2015-16, it was noticed that advance registers (four[22] units) and assessment books (two[23] units) were either improperly maintained or not maintained.

3.14.4.3 Reconciliation of Balances as per Cash Book with Bank Pass Book

As per Rule 24 of The Maharashtra Municipal Account Code, 1971, the balances in bank accounts at the end of each month were required to be

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[21] Chief Officer, Rajura Municipal Council (Chandrapur); Chief Officer, Desaiganj Municipal Council (Gadchiroli); Chief Officer, Ausa Municipal Council (Latur); District Urban Development Authority (DUDA), Parbhani; DUDA, Buldhana; DUDA, Washim; CAFO, Bhiwandi-Nizampur City Municipal Corporation; Market Department, MCGM; and Municipal Corporation of Parbhani

[22] General Administrative Department, Bhiwandi-Nizampur City Municipal Corporation; CAFO, Malegaon Municipal Corporation; Education Department, Mira-Bhayandar; and Health Department, Thane Municipal Corporation

[23] Tax Department, Nashik Municipal Corporation and Tax Department, Thane Municipal Corporation

reconciled with the balances as per cash books. During audit of ULBs in 2015-16, reconciliation of balances as per cash books with bank pass books was not done in eight[24] units.

3.14.5 Maintenance of Accounts by ULBs

Section 93 of The Maharashtra Municipal Corporation Act, 1949 and Section 123 of the MbMC Act, 1888 provide that the accounts of the Municipal Corporations should be maintained in the formats prescribed by the Standing Committees. In pursuance of the 11th FC recommendations, the Ministry of Urban Development, GoI in consultation with the Comptroller and Auditor General of India had finalised the National Municipal Accounts Manual (NMAM) for implementation of accrual based accounting system by ULBs in November 2004.

The GoM adopted (July 2005) the NMAM for implementation from 2005-06. As per the NMAM guidelines, all Municipal Corporations were to maintain their accounts on accrual basis from 2005-06. The Steering Committee constituted by the GoM also recommended (January 2007) implementation of accrual system of accounting in the ULBs. However, the GoM published (January 2013) the Maharashtra Municipal Account Code, 2013 prescribing the procedure for maintenance of accounts of receipts and disbursements for the Municipal Councils only. No such Account Code was prepared by the Director, Municipal Administration (DMA) for the Municipal Corporations even after 11 years of adoption of NMAM for implementation from 2005-06. Further, the notification for the implementation of Maharashtra Municipal Account Code, 2013 was issued by GoM in November 2014 *i.e.* after a delay of nearly two years. Further information regarding maintenance of accounts as per Maharashtra Municipal Account Code, 2013 was awaited from the Department (February 2017).

Information furnished by 17 of 26 Municipal Corporations (except Panvel) revealed that the accounts for the years 2015-16, 2014-15, 2013-14, 2012-13 and 2009-10 had been prepared by six[25], two[26], three[27], two[28] and one[29] Municipal Corporations respectively. Thus, preparation of accounts by ULBs were in arrears.

Of the total 358 Municipal Councils including NPs, the Department furnished information of annual accounts in respect of 239 Municipal councils. Of these, one, two, five and 181 Municipal Councils had finalized their accounts for the years 2009-10, 2012-13, 2013-14 and 2015-16 respectively.

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[24] CAFO, Malegaon Municipal Corporation; Health Department, Bhiwandi-Nizampur City Municipal Corporation; CAFO, Nashik Municipal Corporation; CAFO, Thane Municipal Corporation; Chief Officer, Desaiganj Municipal Council (Gadchiroli); Chandrapur Municipal Corporation; DUDA, Aurangabad and DUDA, Nanded

[25] Akola, Dhule, Malegaon, Mira-Bhayandar, Ulhasnagar and Kolhapur

[26] Navi Mumbai and Pune

[27] Kalyan-Dombivli, Solapur, Sangli-Miraj-Kupwad

[28] Ahmednagar and Nashik

[29] Pimpri-Chinchwad

Recommendation: The Department may ensure that all ULBs finalise their accounts as per the prescribed time schedule so that the certification of accounts is done in time.

3.14.6 Issues related to Abstract Contingent and Detailed Contingent Bills

As per the Maharashtra Treasury Rules, 1968, the Drawing and Disbursing Officers were required to submit Detailed Contingent (DC) bills (comprising vouchers in support of final expenditure) drawn against Abstract Contingent (AC) bills, within 30 days to the office of the Accountant General (Accounts and Entitlements), Maharashtra.

As of March 2016, DC bills in respect of 11 AC bills involving ₹ 0.03 crore pertaining to the Department were outstanding.

CHAPTER-IV

PERFORMANCE AUDITS (URBAN LOCAL BODIES)

CHAPTER IV

PERFORMANCE AUDITS

URBAN DEVELOPMENT DEPARTMENT

4.1 Management of Municipal Solid Waste by Select Municipal Corporations

Executive Summary

Solid Waste Management is a part of public health and sanitation since it poses a threat to the environment and human life if not handled or disposed of properly.

A Performance Audit conducted on 'Management of Municipal Solid Waste by Select Municipal Corporations' revealed that the selected seven Municipal Corporations (MCs) had neither prepared comprehensive city plan for management of Municipal Solid Waste (MSW) in accordance with the MSW Manual, nor had they met the timelines for improvement of existing landfills and for setting up of new waste processing and disposal facilities in their jurisdiction. Generation of MSW was not assessed properly in all the MCs for want of weigh bridges. Budget provisions were not fully utilized in all the selected MCs, though there were shortages of vehicles for transportation of MSW.

All the MCs, except Amravati and Nagpur MC, had provided separate vehicles for collection of waste generated by hotels. Facility for collection of construction and demolition waste was not available in Amravati and Kalyan-Dombivli MCs. Except Municipal Corporation of Greater Mumbai (MCGM) and Pune MC, where partial segregation was available, segregation of waste at household level was not in place. Different coloured Community bins were not provided by any of the selected MCs for collection of segregated waste. Open body vehicles were used for transportation of MSW in all the MCs except Pune MC.

MSW processing facility was not available in Amravati, Kalyan-Dombivli and Kolhapur MCs. Though MCGM had a plan for installation of three processing plants, only one could be installed till date (January 2017) mainly due to land lease issues. Sanitary Landfills were developed only by Nagpur and Pune MCs. Waste inspection facility to monitor waste brought in for landfill was not in place at the landfill sites except Kanjur in MCGM. No records on the baseline data of ground water quality near landfill site were maintained nor was any test of quality of underground water conducted.

4.1.1 Introduction

In urban areas, the responsibility of management of Municipal Solid Waste (MSW) is vested with Local Self Government Institutions (Section 61 (c) of the Mumbai Municipal Corporation Act, 1888). Municipal Corporations (MCs) in Maharashtra collect waste generated from residential and

commercial establishments and the same is first transported to an intermediate refuse transfer station[1] (RTS) and from there transported to dumping yard/Sanitary Landfill site (SLF) for segregation and processing. Inert[2] segregated at the site is disposed of at the designated site within the dumping yard/SLF. Municipal Solid Wastes (Management and Handling) Rules, 2000 (MSW Rules) provide the legal framework for disposal and management of the solid waste.

The State had 26 MCs that accommodated 32 *per cent* of the total population of the State[3]. During 2015-16, these MCs generated 18,968 Metric Tonnes per Day (MTD) of MSW which constituted 87 *per cent* of the total waste generated in the Urban Local Bodies (ULBs) in the State (21,867 MTD).

The Principal Secretary, Urban Development Department (UDD) is the head of the Administrative department of ULBs. Municipal Commissioner of each Corporation is the administrative head of the body and is assisted by the Deputy Municipal Commissioner and Assistant Commissioners for the management of the MSW. Monitoring of compliance to the MSW Rules by the Corporations/local bodies rests with Maharashtra State Pollution Control Board (MPCB).

4.1.2 Audit Objectives

The audit objectives were to examine whether:

- planning and compliance with the extant rules and provisions for management of MSW were adequate and effective;
- the entire process of collection, segregation, transportation processing and disposal of solid waste was executed effectively, economically and transparently;
- an effective and adequate monitoring and evaluation mechanism existed for compliance with prescribed rules and norms.

4.1.3 Scope and Methodology of Audit

The Performance Audit was conducted during April 2016 to September 2016. An entry conference was held (June 2016) with the Principal Secretary, UDD in which scope and methodology of audit was discussed. The audit covered the period 2011-12 to 2015-16. Test check of records of UDD and seven[4] of 26 MCs was selected using random sampling. Besides, joint physical inspection of MSW management sites (collection, dumping/landfill and processing) in the selected MCs was conducted by audit along with the officials of MCs. The exit conference was held (January 2017) with the Principal Secretary, UDD and representatives of MCs in which audit observations were discussed in detail. The response of the UDD has been incorporated while finalising the Report on Performance Audit.

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1 RTS is an intermediate waste collection point where MSW is brought from all the wards for final transportation to dumping/landfill site

2 Part of MSW that cannot be processed

3 11.24 crore as per 2011 census.

4 Amravati, Kalyan-Dombivli, Kolhapur, MCGM, Nagpur, Pune and Thane

4.1.4 Audit Criteria

The following were the audit criteria:

- The Mumbai Municipal Corporation (MbMC) Act, 1888 and The Maharashtra Municipal Corporation Act, 1949 (Amended 2011);
- Manual of Municipal Solid Waste Management, 2000 issued by Government of India (GoI) and The Municipal Solid Wastes (Management and Handling) Rules, 2000; and
- Instructions, guidelines, policies issued by Central Pollution Control Board (CPCB), Maharashtra Pollution Control Board, GoI/Government of Maharashtra (GoM), on solid waste management from time to time.

Audit Findings

4.1.5 Planning

4.1.5.1 Absence of City Plan for Management of MSW

As per Manual on Municipal Solid Waste Management, 2000, there should be Short-term plan (two to five years), Medium-term plan (five to15 years) and Long-term plan (15 to 25 years) for solid waste management. Paragraph 15 below Schedule III of MSW Rule provided that facility for weighing MSW should be made at dumping/landfill site. Paragraph 19.7 of Manual on MSW of the GoI, envisages the entire administration of MSW management under one umbrella to avoid the problems of lack of coordination and states that it is necessary to have one person exclusively in charge of SWM in the city to have overall control on the management of MSW. We noticed that;

- None of the seven MCs had prepared comprehensive City Plan for management of MSW. The various parameters namely identification of problems, gap analysis of services and involvement of stakeholders in planning process though essential for effective planning were not observed.
- Except MCGM and Nagpur, other MCs did not have facility for weighing of MSW at dumping/landfill sites. The Nagpur MC did not even have the correct data on generation of MSW for the period 2011-16. In Pune and Thane MCs, weighing machines were provided in the RTSs. In Amravati, Kalyan-Dombivli and Kolhapur MCs, generation of MSW was worked out by weighing MSW on random dates, and, the calculation of MSW by these three[5] MCs was on approximation basis only. Thus the assessment of MSW in selected MCs could not be said to be reliable. This affected the planning for transportation and disposal of MSW.
- In three[6] of seven MCs, separate departments for solid waste management did not exist, and, the Solid Waste Management (SWM) wing was functional under the Health Department (headed by the Health

[5] Amravati, Kalyan-Dombivli and Kolhapur
[6] Amravati, Kolhapur and Nagpur

Officer) of the MCs since their establishment. Kolhapur MC had submitted (December 2010) its proposal to UDD for sanction of additional post for separate department. UDD had directed (April 2015) Kolhapur MC to follow the staffing pattern as specified in Government Resolution. No further progress was noticed (January 2017). Amravati and Nagpur MCs did not make any attempt for creation of a separate department for SWM.

- Four[7] MCs had selected technology for processing and disposal of MSW, of which only Municipal Corporation of Greater Mumbai (MCGM) did (2005) a comprehensive study while selecting the waste process technology. The planning for SLF was done only by Nagpur and Pune MCs.

The UDD apprised (January 2017) that comprehensive City Plan would be prepared under Swachh Bharat Mission[8] (SBM) and the aspect of separate department would be addressed.

4.1.5.2 Planning for Execution of Projects under JNNURM

Under 'Jawaharlal Nehru National Urban Renewal Mission' (JNNURM), eight cities[9] in Maharashtra were required to prepare Detailed Project Report (DPR) for improving basic services including management of MSW during the mission period of 2006-13. The DPRs were required to be submitted to GoI through the State Nodal Agency for obtaining funds as per prescribed sharing pattern[10].

We observed that MCGM and Thane prepared DPR between November 2007 and November 2009 for improvement of collection, storage and transport system, closure of old dumping site, infrastructure for processing facility. However, there were deficiencies in DPR which affected setting up of the planned facilities as discussed below:

- In case of MCGM, GoI approved (November 2007) the DPR for partial closure of Deonar and Mulund dumping site, establishing waste management facilities at Deonar and Kanjur and bio-methanation plant at Mulund, for ₹ 178.79 crore out of which ₹ 134.09[11] crore was released to MCGM during May 2008 to March 2012. However, due to improper planning, the processing plants at Mulund and Deonar could not be installed and there was delay of 54 months in installing the processing plant at Kanjur as discussed in **Paragraph 4.1.6.3 (B).**
- For improvement in management of MSW[12], Thane MC had submitted (November 2009) a DPR for ₹ 88.62 crore. But it was not

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7 MCGM, Nagpur, Pune and Thane

8 Swachh Bharat Mission is a national campaign by the GoI to clean the streets, roads and infrastructure of the country

9 MCGM, Kalyan-Dombivli, Mira-Bhayandar, Navi Mumbai, Ulhasnagar, Thane, Pimpri-Chinchwad and Nagpur

10 To be shared among GoI, GoM and MC in the ratio of 35:15:50 in MCGM and in the ratio of 50:20:30 for Kalyan-Dombivli and Thane MC

11 GoI ₹ 46.93 crore + GoM ₹ 20.11 crore + MCGM ₹ 67.05 crore = ₹ 134.09 crore

12 Includes collection, segregation, transportation, processing and disposal of MSW

approved (February 2010) by GoI as the earlier directions (August 2009) for preparation of city specific strategy were not followed by the MC. As a result, the MC lost the opportunity to avail Central and State assistance of ₹ 62.03 crore under JNNURM. Unscientific dumping of MSW was still continuing (January 2017) on unauthorized land and large quantity of leachate is polluting Thane creek as discussed in **Paragraph 4.1.6.4.**

4.1.5.3 Non-adherence to the Timelines by Municipal Corporations

As per Rule 4(2) Schedule I of MSW Rules, a Municipal Authority was required to improve existing landfill sites by 31.12.2001 or earlier and set up waste processing and disposal facilities by 31.12.2003 or earlier. The purpose was to reduce the environmental pollution.

We noticed that none of the test checked MCs met the timeline set for improving existing landfill sites. Though four[13] MCs did set up waste processing facilities, these were not operating at full capacity **(Paragraphs 4.1.6.3 (B), (D), (E) and (F**)). Thane MC had installed processing facility to the extent of three per cent of generation of MSW. Kolhapur MC had set up a compost plant in 2000 but it was non-operational since 2011 whereas Amravati and Kalyan-Dombivli MCs did not set up any such facility so far (January 2017). Partial closure of existing landfill site and development of sanitary landfill was done only by Nagpur (2009) and Pune (2010) MCs.

The MCs had therefore deprived the citizens of the intended benefits of prevention of environmental pollution, reducing burden on landfill site and its use for longer period by not developing processing facilities**.**

The UDD stated (January 2017) that new timeline fixed in the revised MSW Rules, 2016[14] would be adhered to.

The UDD stated (January 2017) that mandates of MSW Rules, 2016 would be implemented in stages under the flagship programme of SBM.

4.1.5.4 Non-utilisation of Budget Provision

MCs mainly used their own budget allocations for meeting the expenses for management of MSW. Besides, funds from other sources such as Maharashtra Suvarna Jayanti Nagarotthan Mahabhiyan (MSJNA)[15], 13th Finance Commission (13th FC) - a 100 *per cent* GoI Scheme and JNNURM were also received by Kalyan-Dombivli MC, Kolhapur MC and MCGM, respectively. The budget provision, expenditure incurred and unutilised fund during 2011-16 in respect of the selected MCs is given in **Appendix 4.1**. An analysis of the budget and expenditure figures indicated the following:

- Seven MCs did not utilize the full budget provision on MSW during the period 2011-16. The extent of utilization of Budget showed fluctuating trend and the unutilized budget ranged from two *per cent*

[13] MCGM, Nagpur, Pune and Thane
[14] Applicable w.e.f. 08 April 2016
[15] Scheme of GoM on the line of JNNURM for implementation of long term plans in ULBs having sharing pattern of 50:50

to 37 *per cent* of budgeted MSW amount of MCs. In Nagpur MC, the amount of expenditure exceeded the budget allocation on MSW during 2011-13 and 2015-16 and the same trend was noticed in Amravati MC during 2013-14. The details of funds received from other sources by three MCs and the utilisation are shown in **Table 4.1.1**.

Table 4.1.1: Funds received under MSJNA, 13th FC and JNNURM

(₹ in crore)

Corporation	Kalyan-Dombivli (2011-16)			Kolhapur (2011-15)	MCGM (2008-12)[16]			
Scheme	MSJNA			13th FC	JNNURM			
Source of Fund	GoM	MC	Total	GoI	GoI	GoM	MC	Total
Sanctioned Fund	43.75	NA	43.75	18.33	62.58	26.82	89.39	178.79
Sharing Pattern	21.875	21.875	43.75	18.33	62.58	26.82	89.39	178.79
Received Fund	10.94	10.94	21.88	18.33	46.93	20.11	67.05	134.09
Utilised fund	10.94	5.91	16.85	17.47	46.93	20.11	67.05	134.09
Unspent Balance	0	5.03	5.03	0.86	0	0	0	0
Source: Information furnished by the MCs								

- Kalyan-Dombivli MC did not utilise the balance amount of ₹ 5.03 crore[17] under MSJNA for purchase of vehicles and bins for improvement in collection and transportation system. The GoM, consequent on non-submission of utilization certificates by the MC, did not release the balance amount of ₹ 10.94 crore till date (January 2017).
- In Kolhapur MC, out of funds received under 13th FC ₹ 0.86 crore remained unspent and kept in Current Account of the MC instead of purchasing required vehicles for improving collection of MSW.
- In MCGM, out of the sanctioned fund of ₹ 178.79 crore under JNNURM, GoI and GoM did not release their share of ₹ 15.65 crore and ₹ 6.71 crore respectively. Consequently, MCGM could not release the matching funds of ₹ 22.34 crore.

In reply, the UDD stated (January 2017) that the budget allocation was huge in MCGM and there were practical problems in implementation of projects. The reply is not tenable as discussed in **Paragraph 4.1.6.3**.

Recommendation 1: MCs may prepare City Plan to recognize the problems in management of MSW and devise mechanism to ensure proper utilisation of budget allocations and funds received from GoI and GoM for strengthening the infrastructure.

4.1.6 Collection, Segregation, Transportation, Processing and Disposal of Solid Waste

The compliance criteria prescribed in MSW Rules for collection, segregation, storage, transportation, processing and disposal and present status of compliance of the parameters in seven selected MCs is shown in **Appendix-4.2**.

[16] Implementation period of JNNURM was from 2006 to 2013 but funds were released to MCGM during 2008-12

[17] ₹ 10.94 crore less actual amount utilised from its own fund ₹ 5.91 crore = ₹ 5.03 crore

4.1.6.1 Collection and Segregation of MSW

As per Schedule II appended to MSW Rules, 2000, the MCs have to organize house-to-house collection of MSW by using community bin/musical vehicle to prevent littering and facilitate compliance. The MCs have to provide differently coloured community bins[18] with lid to ensure collection of segregated waste at household level. The waste collected from residential areas, commercial areas including slums and squatter areas, hotels, restaurants, slaughter houses, flower and vegetable markets were to be recycled to make use of such waste. The manual handling of waste should be carried out only under proper protection with due care for safety of workers. Construction and Demolition (C&D) waste or debris should be collected separately and disposed of adhering to the norms.

The objective of segregation of MSW can be achieved when there are facilities available for treatment/processing of segregated waste. As per Table 3.4 of MSW manual, average compostable matter in MSW generated in Indian cities with population of five lakh and above was 40 *per cent*. In order to encourage the citizens, municipal authority should organize awareness programmes for segregation of wastes. MSW Manual also envisaged ULBs to mobilize voluntary organisations, Non-Governmental Organisations (NGOs) or co-operatives to take up the work of organising street rag-pickers and elevate them to door step waste collectors.

As regards the collection and segregation of MSW, Audit observed that;

- Door to door system of collection of MSW was in place only in respect of independent houses in all the selected MCs. Co-operative housing societies had their own arrangements for door to door collection and this was further collected by all the MCs from the gate of the Co-operative society. In Pune, the MC appointed (September 2008) a co-operative society namely 'Solid Waste Collection and Handling (SWACH)' having 2,300 members for door to door collection and segregation of MSW. Out of the 9,16,886 households in Pune MC, SWACH covers 3,87,666 (42 *per cent*) households. No such arrangement for engagement of organized waste pickers or NGOs for collection and segregation of MSW was in place in other MCs.
- Segregation of waste at household level was not in place in any of the MCs except in MCGM and Pune MC wherein partial segregation existed. MCGM had 31 dry waste collection centres and 46 separate vehicles were engaged for collection of dry waste.
- The selected MCs kept 9,251[19] community bins for collection of MSW from slum and squatter areas and fruit and vegetable markets. However, coloured bins for segregation were not placed in any of the MCs and hence only mixed waste could be collected through these bins.

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[18] Green for biodegradable waste, white for non-biodegradable and black for other waste organic and inorganic waste

[19] Amravati - 332; Kalyan-Dombivli - 549; Kolhapur - 700; MCGM - 6433; Nagpur - 170; Pune - 917; and Thane - 150

- All the MCs had provided separate vehicles for collection of waste generated by hotels, except in Amravati and Nagpur. Further, except for Kalyan-Dombivli, the other MCs did not have separate arrangements for collection of waste from slaughter houses. In absence of processing facility for slaughter house waste in six MCs[20], the possibility of this waste getting mixed with MSW could not be ruled out.
- Though facility for collection of C&D waste was available in five MCs[21], in absence of treatment facility, it was finally dumped with MSW.
- In all the selected MCs, during joint site visit by Audit, it was seen that staff engaged in collection of MSW were not using personal protective equipment such as masks, gumboots and hand gloves in violation of the requirements.

Workers without personal protective equipments

Kolhapur MC

Nagpur MC

- In five MCs[22], rate of segregation ranged from zero to 32 *per cent* for different categories of waste, however, details of efforts made for creating public awareness were not available. In Kolhapur MC and Pune MC, though efforts were made for public awareness the extent of segregation in Kolhapur MC ranged between 18 and 37 *per cent* whereas in Pune MC, it ranged between 13 and 40 *per cent* **(Appendix-4.3)**.
- The objective of segregation of MSW also could not be achieved by all the MCs due to absence of appropriate facilities for treatment/processing of segregated waste. This led to burden on the landfill site to the extent of 7.59 million tonnes[23] on account of biodegradable waste.

[20] Amravati, MCGM, Kolhapur, Nagpur, Pune and Thane

[21] Kolhapur, MCGM, Nagpur, Pune and Thane

[22] Amravati - Nil; Kalyan-Dombivli - 0.91 to 6.26 *per cent*; MCGM - 1.61 to 2.86 *per cent*; Nagpur - 10 *per cent*; and Thane - 15.79 to 31.58 *per cent*

[23] Total MSW generated in the seven MCs during 2011-16 = 2,04,81,533 MT x 40 *per cent* = 96,32,614 MT less processed by five MCs of 20,42,905 MT = 75,89,709 MT

- As of March 2016, the efficiency in collection and extent of segregation of MSW in the selected MCs ranged from 88 to 100 *per cent* and zero to 40 *per cent* of collected waste, respectively **(Appendix-4.3)**. In respect of Nagpur MC, the efficiency of collection was not reliable as the MC did not have the correct data on generation of MSW for the period 2011-16.

In addition to non-compliance with provisions of MSW Rules in collection and segregation of MSW, irregular execution of agreement was noticed in Nagpur MC as discussed below.

A) Irregular Execution of Agreement and Sub-letting of Work

Nagpur MC had a plan for Door to Door collection and transportation of MSW up to dumping site directly and/or through intermediate transfer stations for making Nagpur bin-free city in 10 years period. For this purpose, the MC invited tenders (September 2007) from parties, including consortium, having experience of three years in the management of MSW. The work of collection and transportation of MSW was awarded (January 2008) to a Joint Venture Company[24] on payment of tipping fee of ₹ 449 per MT.

We noticed that Centre for Development & Communication (CDC), a trust, was the successful bidder and the work order was issued (January 2008) to a Joint Venture (JV) of CDC and IL&FS Waste Management and Urban Services Limited. However, the MC executed the agreement with M/s Kanak Resources Management Limited (KRML), a Special Purpose Vehicle (SPV) formed (26 November 2007) out of the JV. MC Nagpur also paid ₹ 174 crore to KRML during 2008-16. According to the scope of work of tender clause, the bidder should not re-assign the work under the contract to any other party without prior written approval of the Nagpur MC. As there was no participation of the JV/SPV in the entire bidding process, execution of Agreement with KRML without approval of MC was irregular and so was the expenditure of ₹ 174 crore.

We further noticed that Health officer of the MC, without approval from MC contrary to the tender terms, permitted KRML (May 2008) to engage a sub-Contractor for execution of the work, which was irregular.

The UDD assured (January 2017) a detailed examination of the issue.

4.1.6.2 Transportation of MSW

As per MSW Rules, 2000, vehicles used for transportation of waste should be covered to prevent the MSW from littering the streets and waste should not be visible to public nor exposed to open environment. MSW collected in primary collection system[25] was brought to the Refuse Transfer Station for disposing in the dumping site/SLF. The vehicle should be designed and

[24] M/s Centre for Development & Communication (CDC) and M/s Infrastructure Leasing & Finance Services (IL&FS) Waste Management and Urban Services Limited for the period 10 years from the date of award of work/agreement subject to renewal

[25] A collection system that includes door to door collection, collection through bins, *etc.* and transfer of the same to the collection points

synchronized[26] with primary collection system to avoid multiple handling of waste prior to final disposal. The bins or containers wherever placed should be emptied before they start overflowing. The details regarding vehicles for collection and transportation of MSW in the seven MCs are shown in **Table 4.1.2**.

Table 4.1.2: Availability of vehicles for collection and transportation of MSW as on December 2016

Name of the MCs	Number of Vehicles required		Number of vehicles available					Shortage of vehicles/*per cent*	
			For collection		For Transport		Total		
	Collection	Transport	Owned by MC	Owned by Contractor	Owned by MC	Owned by Contractor		Collection	Transport
Amravati	542	53	485	Nil	4	34	523	57/ 11	15/ 28
Kalyan-Dombivli	142	110	64	Nil	67	Nil	131	78/ 55	43/ 39
Kolhapur	610	19	310	Nil	15	Nil	325	300/ 49	4/ 21
MCGM	Not available		382	1246	35	307	1970	Not available	
Nagpur	Not available		Nil	743	Nil	32	775	Not available	
Pune	Not available		297	Nil	238	Nil	535	Not available	
Thane	Not available		44	161	29	30	264	Not available	
Source: Information furnished by the MCs									

Our scrutiny revealed:

- Four of seven selected MCs did not assess the requirement of vehicles for collection and transportation of MSW. The remaining three[27] MCs assessed the requirement but there was shortage of vehicles ranging from 11 to 55 *per cent* for collection and 21 to 39 *per cent* for transportation.
- In six[28] MCs, vehicles such as trucks and tippers used in secondary[29] collection were not synchronized with the primary collection system leading to multiple handling of MSW.
- In Kalyan-Dombivli and Kolhapur MCs, there was requirement of 121 and 304 additional vehicles, respectively, for collection and transportation of MSW. Though funds of ₹ 5.03 crore and ₹ 86 lakh, respectively, were available (**Table 4.1.1**) these were not utilized for purchase of required number of vehicles (December 2016). Instances of open transportation, overflowing bins and littering of MSW were noticed during joint visits in four[30] MCs in violation of MSW Rules.

[26] Two vehicles are synchronized if MSW in the smaller one can be transferred to the larger vehicle by mechanical means and no manual handling is required

[27] Amravati - August 2016, Kalyan-Dombivli - February 2016, Kolhapur - 2015-16

[28] Amravati, Kolhapur, Kalyan-Dombivli, Nagpur, Pune and Thane

[29] In Secondary collection system, the MSW is collected from smaller vehicle to a larger vehicle for further transportation to landfill site

[30] Kalyan-Dombivli, Nagpur, Pune and Thane

Open body transport in Kalyan-Dombivli MC

Open Body transport in Thane MC

Recommendation 2: MCs may ensure use of protective equipment by people handling MSW. They may also devise mechanism for maximum segregation. MCs may use synchronized and covered vehicles for collection of MSW to avoid its multiple handling and open littering.

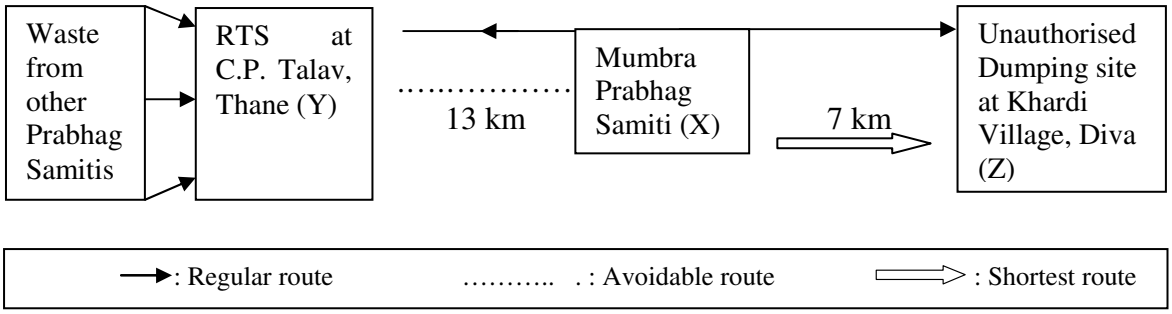
Besides, there were instances of undue favour to contractor and additional expenditure due to injudicious management of transportation in Amravati and Thane MCs.

(A) Injudicious Management of Transport of MSW in Thane MC

Thane MC appointed (March 2012) Contractor "A" for collection of waste from 150 community bins placed at different areas of the 10 Prabhag Samitis[31] of the Corporation. The waste so collected was to be transported to Refuse Transfer Station (RTS) at C.P. Talav, Thane by compactors engaged by the contractor. As per the agreement (March 2012), the contractor was to be paid ₹ 7,100 per trip from the nine Prabhag Samitis to RTS. We noticed that yet another agency, Contractor "B" was appointed (March 2012) for transporting the waste received from all Prabhag Samitis at the RTS to the dumping yard at Khardi village, Diva (an unauthorized site) at the agreed rate ranging from ₹ 226.50 to ₹ 290.85 per MT during the period from October 2012 to March 2016. The RTS is 20 km away from the dumping site. The MSW of Mumbra Prabhag Samiti (Point X) was carried by Contractor "A" to RTS at C.P Talav (Point Y), from where the MSW was further carried by Contractor "B" to the dumping site (Point "Z") as shown in the diagram below. Scrutiny of records and joint inspection (06 February 2016) by Audit along with officials of the MC revealed that Point X falls between Point Y and Point Z.

[31] A Prabhag Samiti is an administrative division of a Corporation comprising some wards

Schematic Diagram of MSW transportation in Thane MC



It would be cost effective to transport MSW directly from point X to point Z, as the distance was only 7 kms, being the shortest route. However, Thane MC's plan to transport MSW from Point X to Point Y, instead of transporting directly to Point Z, resulted in additional expenditure ₹ 1.56 crore[32] during October 2012 to March 2016[33].

Thane MC stated (September 2016) that due to bad condition of road and opposition of local people, MSW was not directly taken to the dumping site. Reply was not tenable as the same road was being used by Contractor "B" for transport of MSW from the RTS to the unauthorized dumping site at Khardi village.

(B) Extending Work without Inviting Tender and Irregular Payment of Price Escalation in Amravati MC

Amravati MC had executed (September 2008) an agreement with a contractor for transportation of MSW from four zones of the MC to the dumping site at Sukali. The agreement was for a period of five years and there was no clause for payment of price escalation. According to clause 17 of the contract, the contractor should carry the MSW at same rates without any change in terms and conditions of contract, after completion of contract period till the MC made any new arrangement for the same. As per the standard practice, tenders for appointment of new contractor should be initiated well before expiry of earlier contract. Further, as per clause 26 of the agreement, if any notifications or directions were issued by the Government, the Commissioner was empowered to include new terms and conditions in the ongoing contract. The agreed rates of transporting MSW in open trucks ranged from ₹ 850 to ₹ 910 per trip and for dumper placer, the same ranged from ₹ 840 to ₹ 900 per trip for the four zones of the Corporation.

We observed that even in absence of direction or notification by GoM on price escalation, in accordance with clause 26 of the agreement, the Standing Committee approved (February 2013) payment of price escalation of ₹ 1.04 crore for the period from April 2011 to October 2013 which was irregular. Further, the contract for transportation of MSW had expired in

[32] ₹ 2.11 crore – ₹ 1.14 crore = ₹ 0.97 crore + ₹ 0.59 crore = ₹ 1.56 crore

[33] The proportionate amount of expenditure for 7 kms from point X to Z works out to ₹ 1.14 crore (Contractor "A" was paid ₹ 2.11 crore for 2,978 trips @ ₹ 7,100 per trips for 13 kms from Point X to Point Y) plus amount paid to Contractor "B" of ₹ 59.02 lakh for transporting waste from Point Y to Z

August 2013 and the MC did not initiate tender procedure well in advance and continued with the same contractor by giving extensions and finally extended the same contract from November 2013 to October 2016, without calling for tenders. The MC also included a new clause for payment of price escalation in the second contract, which was also irregular. The MC paid price escalation of ₹ 3.04 crore in the new agreement, for the period November 2013 to June 2016. Payment of price escalation in absence of any specific clause in the first agreement, irregular continuation of agreement with the same contractor without inviting tender and inclusion of a new clause for payment of price escalation in the second agreement was irregular and an undue favour to the contractor.

The UDD admitted (January 2017) that the extension of contract and payment of escalation was not in public interest and that it should have been sent to GoM for final decision.

4.1.6.3 Absence of facilities for Processing of MSW

The implementation schedule (Schedule IV) of the MSW Rules stipulated that the Municipal authorities should adopt suitable technology for processing of biodegradable MSW such as composting, vermi-composting, aerobic digestion or any other appropriate biological processing so as to minimize the burden on landfill.

- It was noticed that no processing facility existed in Amravati MC, Kalyan-Dombivli MC and Kolhapur MC. Only three *per cent* of MSW generated at Thane MC (691 MTD) was processed, though segregated waste from hotels was available with all the MCs (except Amravati MC) for processing. In Nagpur MC and Pune MC, though the processing facility of the required capacity was available (Nagpur 600 MTD and Pune 1,705 MTD), the desired results as per the plan were never achieved due to non-operation of processing plants in full capacity (Nagpur MC) or due to non-functioning of the plants (Pune MC) as discussed in sub-paragraphs (D), (E) and (F) below.
- In Kalyan-Dombivli MC, we noticed that in an operational plastic recycle plant, erected (2009) at a cost of ₹ 25 lakh under Suvarna Jayanti Urban Employment Scheme (50:50 GoM Scheme and self help group), plastic raw materials used in the machine were not from municipal solid waste but were procured from outside the MC area. Thus, the facility created at a cost of ₹ 25 lakh was not being utilized for the intended purpose.
- For management of MSW in Mumbai, MCGM planned (2005) to close the existing site at Gorai and establish processing facility of approved technology at three sites *viz.,* Mulund, Kanjur and Deonar. For this purpose, MCGM appointed (May 2005) a Consultant, who proposed Biomethanation[34] for Mulund site and Compost[35] processing technology for Kanjur and Deonar.

[34] A type of biological processing technology that decomposes feedstock in absence of oxygen

Prior approval from the GoM under Section 92 DD of the MbMC Act, 1888, was required to lease the land to any private party. We noticed that in anticipation of getting this permission from GoM, MCGM went ahead with the tendering process (June 2006) allowing use of land at annual lease rent. The GoM granted approval belatedly (September 2015) to Kanjur site. It was, however, denied (January 2015) for Mulund and Deonar.

The UDD accepted (January 2017) that in Mulund and Deonar, permission for leasing the land was denied as prior permission was not obtained by MCGM. However, some of the instances indicating the consequential impact of delay/non-permission of lease of land are mentioned below.

(A) Non-installation of Processing Plant at Mulund

The work of relocation of existing dumped MSW to a designated area at the Mulund site, construction of biomethanation plant of 500 MTD on reclaimed area and other site development works[36]was awarded (March 2010) to a JV contractor on DBOOT[37] basis. The contract envisaged payment of tipping fee[38] @ ₹ 525 per MT for the first year with admissible escalation for subsequent period. The entire cost of the project for the concessionaire for 25 years was ₹ 654.84 crore and the installation of biomethanation plant was to be completed by September 2011. The letter of acceptance (LoA) was issued to the concessionaire on 30 March 2010.

Scrutiny revealed that concessionaire had cleared (March 2011) an area of 3.5 ha by relocating the existing waste (2,33,703 MT) for which MCGM paid ₹ 5.75 crore. The processing plant, however, could not be installed since GoM did not approve leasing of land at concessional rates. In absence of processing plant, fresh MSW was again dumped on the reclaimed area, thereby resulting in wasteful expenditure of ₹ 5.75 crore incurred on relocation of MSW. Besides, the purpose of scientific treatment of MSW was not achieved. The contract for installation of biomethanation plant was thereafter terminated (September 2015) without any outcome.

(B) Delay in Installation of Processing facility at Kanjur

MCGM floated tenders for installation of Compost plant of 4,000 MTD[39] for processing of MSW. MCGM awarded the work costing ₹ 4,116.65 crore (September 2009) to a JV for 25 years. As against 4,000 MTD capacity compost plant, the tender offer for setting up Bioreactor landfill plant (3,000 MTD) and Windrow Composting technology (1,000 MTD) was finalised (September 2009) on the grounds of less availability of land. The plants were to be completed by August 2010. While the bioreactor plant was commissioned (March 2015), Windrow composting plant was not installed (January 2017).

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35 A type of biological processing technology that decomposes feedstock in presence of oxygen

36 Construction of peripheral bund with core wall, storm water drainage system, water supply system, construction of road and boundary wall *etc*.

37 Design Build Own Operate and Transfer

38 Tipping fee is payable by MCGM to the concessionaire on a given quantity of MSW received at processing facility or landfill site to offset the cost of operation and maintenance

39 The consultant had recommended 4,500 MTD compost plant

We noticed that MCGM had 65.96 ha at Kanjur that was sufficient for installation of 4,000 MTD capacity plant as against requirement of 52 ha land. Further, National Environmental Engineering Research Institute (NEERI) had suggested (April 2005) composting was the most suitable processing technology for MCGM. Hence, the change in technology from Compost plant to Bioreactor landfill, on the grounds of less availability of land, was perhaps not justifiable. Consequently, the project got delayed as MCGM had to obtain fresh authorization from MPCB and Environmental Clearance from Ministry of Environment and Forest, GoI (December 2014) which led to litigations. Non-obtaining of the permission from GoM to lease the land to the concessionaire before floating the tender further delayed the project, by almost 54[40] months.

As a result, during the period September 2010[41] to February 2015[42], the MC failed to process 6.56[43] million tonnes of waste at Kanjur and the entire quantity of 6.56 million tonnes of waste was dumped at Deonar site, thus overburdening it beyond its capacity[44]. Further, extension was granted for the Compost processing plant of 1,000 MTD up to March 2017, due to delayed approval of GoM for lease land, which led to dumping of this additional 1,000 MTD at Deonar even after March 2015.

In addition to delay in installation of processing plant, MCGM had planned to shift three High Tension towers passing across the landfill site. Before obtaining the No Objection Certificate (NOC) from Forest Department as required under Section 2 of the Forest Conservation Act, 1980, the MCGM remitted ₹ 14.48 crore in advance (March 2012) to Maharashtra State Electricity Transmission Company Limited (MSETCL). As MCGM did not obtain the NOC from the Forest Department till date (January 2017), MSETCL could not shift the HT towers and the fund remitted to MSETCL remained blocked for last four years.

The UDD confirmed (January 2017) that the work was held up due to want of NOC from forest department.

(C) Non-installation of Processing Plant at Deonar

MCGM had planned (2006) partial closure of 65 ha area at Deonar and clearing of 55 ha area by relocating 3.88 million tonnes of existing dumped MSW at Deonar site for installation of 2,000 MTD compost plant. They awarded (October 2009) the contract to a contractor at a cost of ₹ 4,408.96 crore. The scope included partial closure and infrastructure works[45] to be completed by November 2011. The installation of the compost plant was to be completed by November 2012. The tipping fee of ₹ 225 per MT was payable by MCGM for receiving fresh waste at the site.

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[40] Period beyond stipulated completion of August 2010 and actual commencement of plant on 06 March 2015 *i.e.* from September 2010 to February 2015 = 54 months

[41] Month of commencement of plant as per contract

[42] The bioreactor plant was commissioned in March 2015

[43] Period between stipulated commencement of plant as per Agreement (September 2010) and the preceding month of actual commencement of plant (February 2015) = 1,640 days x 4,000 MT per day = 6.56 million tonnes

[44] 4,500 MTD for two years as per Consultants report

[45] Such as fencing, construction of peripheral bund and compound wall, *etc*.

We observed that the dumping of 6.56 million tonnes of waste from Kanjur site, as discussed in the preceding paragraph, coupled with non-approval by GoM for land lease had the following consequences on Deonar site.

a) Contractor had shifted (December 2011) 3.27 million cum (85 *per cent*) of existing waste for which MCGM paid ₹ 50.37 crore. The area so cleared was again filled with dumping of Kanjur MSW, thereby rendering the expenditure of ₹ 50.37 crore wasteful.

b) As the Compost processing plants at Kanjur (1,000 MTD) and Deonar (2,000 MTD) could not be installed, dumping of 3,000 MTD of waste continued at Deonar even after March 2015.

c) Consequent on unscientific dumping of MSW (12.45 million tonnes) at Deonar site, a major fire broke out on 28 January 2016. As per the Fire Investigation Report (February 2016), the Deonar site had neither provided overhead water tanks nor ring hydrant system, for extinguishing and control of fire. The emission of Methane gas increased the intensity of fire and it could be extinguished only on 05 February 2016 after nine days. As per Report of Environmental Information System (ENVIS) (February 2016), Air Quality Index[46] during that period was very poor and reached a hazardous level of 341 which compelled MCGM to shut down 74 schools for two days.

Outbreak of fire at Deonar dumping site, Mumbai

During the joint visit of Deonar (13 August 2016) dumping ground by Audit with officials of MCGM, we noticed that none of the prescribed fire safety measures were installed at the dumping ground.

(D) Wasteful Expenditure on Shifting of MSW and Non-realisation of Revenue in Nagpur MC

Nagpur MC had a plan for processing of MSW, relocation of MSW, partial closure of existing dumping site and development of SLF. A contract for installation of processing plant of 600 MTD capacity and other works was awarded (April 2009) to a Joint Venture Company (JV) on Build Own Operate Transfer (BOOT) basis for 12 years for ₹ 26.78 crore. The scope of work included, establishing a comprehensive mechanism to avail carbon

[46] Air Quality Index is a number used by Government agencies to communicate the pollution level in air

credit derived from Clean Development Mechanism (CDM) by selling the Certified Emissions Reduction (CERs). As per the proposal of the JV, the assured CDM benefit of the project was ₹ 48.64 crore[47] to be shared between concessionaire and Nagpur MC in the ratio of 20:80. As per the agreement, if the concessionaire failed to process the agreed quantity of MSW, the MC was empowered to process MSW through a third party at the risk and cost of the contractor. Repair and maintenance of the plant caused by an emergency, accident or fire was the responsibility of the Concessionaire.

Scrutiny of records of Nagpur MC revealed that the plant was operational from May 2010. Two fire accidents occurred in May 2011 and June 2013. As per report of MPCB (July 2013), a part of segregation unit and plastic recycling unit were destroyed in fire and hence were not in operation since 2012. As a result, the efficiency of the processing plant was reduced and it could process 200 MTD MSW only against the capacity of 600 MTD and approximately 400 MT MSW was dumped per day. The concessionaire also did not take any initiative to increase the capacity of the processing plant. The concessionaire was paid ₹ 6.06 crore for relocation of MSW from the existing dumping site to partial closure site.

However, fresh MSW (3,00,000 MT) was dumped on the reclaimed area up to April 2015, though designated landfill site was available on the premises. Further, during the period 2011-16, the JV could process MSW of 5,07,715 MT only leaving 5,87,285 MT[48] of MSW unprocessed. The MC also did not get the MSW processed by augmenting the efficiency of the existing MSW processing plant at the risk and cost of the contractor.

Thus, failure of the JV to make up for the reduced capacity of the processing plant and improper management not only resulted in wasteful expenditure of ₹ 6.06 crore on shifting of MSW but also non-realisation of potential revenue on carbon credit.

(E) Non-functioning of Compost Plant in Pune MC

The GoI sanctioned (March 2005) construction of two integrated MSW compost plants at Devachi Uruli, Pune, one for 100 MTD[49] (Plant No.1) and another for 500 MTD (Plant No.2) capacity under a Scheme "Solid Waste Management and Drainage in 10 selected Airfield Towns" to be implemented by National Building Construction Corporation Ltd. (NBCC)[50]. The NBCC awarded the work to a contractor at a cost of ₹ 4.02 crore and ₹ 13.88 crore respectively. The scope of work included operation and maintenance of both plants and sanitary landfill for 30 years. Accordingly, on completion of the construction, two separate agreements valuing ₹ 61.69 crore were executed (July 2009 and July 2010) with the

[47] Total CERs estimated to be available from partial closure work (Euro 15,53,057) and MSW processing facility (Euro 60,47,580) = Euro 76,00,637 x 64 (prevailing rate of conversion into Indian rupees) = ₹ 48.64 crore

[48] 5 years x 365 days = 1,825 days x 600 MT = 10,95,000 MT less quantity of waste actually processed by the Concessionaire 5,07,715 MT = 5,87,285 MT

[49] Subsequently the capacity was increased to 500 MTD by the contractor by incurring own expenses on approval (May 2010) from the Standing Committee

[50] A nodal agency appointed by GoI for implementing the Scheme

contractor for operation and maintenance of Plant No. 1 and Plant No. 2 respectively and sanitary landfill for 30 years.

Scrutiny of records of Pune MC revealed that due to frequent breakdown of machinery, both the plants were not working at full efficiency since commissioning. The contractor stopped operation of Plant No.2 in November 2013 and Plant No.1 in February 2014. Although the Pune MC provided assistance of ₹ 20 lakh to the agency to run Plant No.1 and paid ₹ 66.72 lakh towards electricity charges on behalf of the agency, the plant was not made fully operational, whereas Plant No.2 never restarted after November 2013.

As per agreement, the contractor had to take comprehensive insurance policy of ₹ four crore towards the cost of plant and machinery, submit bank Guarantee of ₹ 2.5 crore from a nationalized bank towards performance guarantee valid for the entire period (up to 2040) and the Monitoring Committee (headed by Municipal Commissioner and representative of the MC and the contractor) was to ensure smooth operation of the plant through periodical review. In case the contractor did not perform as per the terms of contract, the municipal authority could get the same completed by a third party, at the risk and cost of the operator.

We observed that the contractor did not insure the plant and machinery, and the Bank guarantee of ₹ 50 lakh submitted initially was also not renewed in Pune MC after July 2014. The Monitoring Committee neither ensured smooth operation of the plant nor proposed to get the job of processing completed by a third party at the risk and cost of the operator.

Poor maintenance of plant and machinery by the agency and inadequate monitoring by the Monitoring Committee resulted in malfunctioning of both the plants erected at a cost of ₹ 17.90 crore reducing them to scrap value of ₹ 3.62 crore (March 2016) in just six years of its construction. As a result, Pune MC could process only 1.46 million tonnes of MSW as against 2.28 million tonnes[51] envisaged, thereby leading to dumping of 0.82 million tonnes of MSW into the landfill site, defeating the very purpose of the project, besides, causing environmental losses which could not be ascertained.

Pune MC accepted (April 2016) that the bank guarantee was not renewed after its expiry and financial assistance was given after approval of the Standing Committee. After evaluation of the performance of the agency, show cause notice (June 2014) followed by termination letter was issued (December 2014) to the contractor.

The UDD stated (January 2017) that due to problems in marketing of compost produced from the plant, the contractor faced financial hardship and could not run the compost plant.

[51] Plant 1: – from 15 July 2009 to 31 March 2016 = 2,466 days
Plant 2: – from 23 July 2010 to 31 March 2016 = 2,101 days
Total 4,567 days x 500 MTD = 22,83,500 MT

Reply of the Department was not tenable as due to non-adherence to the contract conditions and inadequate monitoring by the MC, the plants erected at a cost of ₹ 17.90 crore remained idle.

(F) Loss due to Mechanical Problem in the Waste to Energy Plant in Pune MC

Pune MC had a plan for disposal of MSW by using any processing technology for which expression of interest for erecting a MSW processing plant of 700 MTD on BOOT basis for 30 years was called for (July 2009). The offer of a private Company (concessionaire) for installation of a waste to energy plant on payment of tipping fee of ₹ 300 per MT was accepted as the technology offered 50 *per cent* revenue sharing realised from CERs (estimated at ₹ 1.5 crore per year to Pune MC) and requirement of land was low (2.5 acre). Letter of Intent (LoI) was issued (July 2010), for installation of the plant within 12 months from the date of issue of LoI *i.e.* up to June 2011. Penalty up to 10 *per cent* of the tipping fee on the unprocessed MSW was recoverable from the concessionaire.

We observed that the concessionaire had installed the waste to energy plant of capacity 300 MTD as against the envisaged capacity of 700 MTD. As a result, the concessionaire had processed only 1,95,387 MT of waste as against 9,44,720[52] MT resulting in a shortfall in processing 7,49,333 MT waste during the period 2011-16. Further, there was technical deficiency, particularly mechanical problems in gasification area, due to which the plant could never produce energy from the waste. Since the concessionaire could not generate CER, financial benefit of approximately ₹ 6.75 crore[53] was not passed on to the MC as per contract condition. The MC, however, did not levy penalty of ₹ 2.25 crore[54] on the unprocessed MSW as per the conditions of the Agreement.

Pune MC admitted (April 2016) that the plant was not in operation at full capacity owing to which notices were issued as per the tender conditions and the concessionaire had given assurance to increase the capacity. Out of ₹ 2.25 crore, the MC in the meantime has recovered ₹ 11.67 lakh as penalty from the agency and proposal for imposition of penalty from the date of inception was submitted to the Commissioner (April 2016).

The UDD accepted (January 2017) the facts.

4.1.6.4 Disposal of MSW

As per provisions of the Schedule III of MSW Rules, it should be the responsibility of development authorities to identify the landfill sites and hand over the sites to the concerned municipal authority for development, operation and maintenance. The MCs were also required to obtain authorization from the State Pollution Control Board for a landfill site which should be properly fenced and had facilities like weigh bridge, fire protection and pollution monitoring equipments. We observed that:

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[52] From 11 August 2011 to 31 March 2016 = 1,687 days x 700 MT x 80 *per cent*= 9,44,720 MT

[53] ₹ 1.5 crore per year for four and half years *i.e.* August 2011 to March 2016

[54] Unprocessed waste 7,49,333 MT x tipping fee @ ₹ 300 per MT = ₹ 2,24,79,990 x 10 *per cent* = ₹ 2.25 crore

- MPCB issues authorisation for development of scientific landfills, installation of processing plants and for scientific dumping of MSW. We saw that only Amravati and Nagpur MCs had valid authorization from MPCB for approved landfill sites up to January and April 2017 respectively. In remaining five MCs, the earlier authorisation of MPCB had lapsed during 2014-16 and was not renewed.
- Though MPCB had approved (December 2011 to June 2015) six sites for development of SLF in three MCs[55], they did not develop SLF but were dumping unprocessed waste at unauthorised sites. Similarly, Amravati and MCGM, did not develop SLF and dumped waste at authorised site. In Nagpur MC, though SLF was developed, MSW was being dumped on both authorised as well as an unauthorized site at Bhandewadi.
- Except Pune MC, dumping sites were not properly fenced nor equipped with fire-fighting measures. Further only MCGM and Nagpur MC had provided weigh bridges at the landfill/dumping sites.
- Waste inspection facility to monitor wastes brought in for landfill, office building for record keeping, equipment and machinery such as pesticide spraying machine, masks, gloves and other personal protective equipment were not in place in Kolhapur MC and Thane MC.
- Pollution monitoring equipments were also not installed at the dumping/landfill sites except at Kanjur in MCGM.

Further, during joint visit of the landfill site at Khardi Village, Diva under Thane MC, it was noticed that waste was being dumped on the bank of Mumbra creek violating the norms of Coastal Regulation Zone Rules. No provision for leachate collection and treatment facility was made at the dumping site which could badly affect the environment of the coastal zone.

Unauthorized dumping in private land at Khardi Village, Diva, Thane MC

Untreated leachate flowing in the Mumbra Creek, Thane MC

[55] Kalyan-Dombivli, Kolhapur and Thane

Unauthorized dumping at Kasaba Bawada, Kolhapur MC

Broken compound wall at Adharwadi dumping site, Kalyan-Dombivli MC

The UDD stated (January 2017) that application for renewal of authorisation had already been sent to MPCB. Regarding provision of fire-fighting equipments at Deonar site, it was stated that the regulations in this regard would be examined.

Our scrutiny also revealed that Kalyan-Dombivli MC could not close the unauthorised dumping site and develop SLF which not only led to continuous environmental pollution but also cost escalation and non-realisation of development charges.

(A) Failure of Kalyan-Dombivli MC to control environmental pollution

As per MSW Rules (Schedule III), MC should develop sanitary landfill sites for scientific disposal of MSW. Since its inception (1983), Kalyan-Dombivli MC was dumping MSW at unauthorised site at Adharwadi.

Kalyan-Dombivli MC submitted (March 2010) the DPR for ₹ 43.75 crore sanctioned under JNNURM Scheme to GoM for obtaining funds under MSJNA. The MC did not include the component of closure of the unauthorised dumping ground at Adharwadi in the DPR submitted to GoM. Till date (January 2017) the work of closure of dumping site has not been commenced by the MC and large quantity of leachate generated at the dumping site was causing environmental pollution near Thane creek which was evident during a joint physical verification (01 June 2016).

The cost of the components of closure of dumping site and development of SLF estimated at ₹ 13.83 crore in 2008 under JNNURM has increased to ₹ 61.37 crore as per the latest estimate submitted (February 2016) to GoI under SBM.

The UDD stated (January 2017) that contract for the works of closure of dumping site and development of SLF was being finalised.

Recommendation 3: MCs may initiate timely action to obtain clearances from the concerned authorities before floating tender. Land lease proposals for development of scientific landfill sites need to be actively pursued for clearance. MCs may also devise mechanism for optimum utilisation of installed processing facilities besides developing of SLF for scientific disposal of MSW.

4.1.7 Internal Control Mechanism

4.1.7.1 State Level Control Mechanism

As per Municipal Solid Waste Manual (Paragraph 25.2), the State Government should frame appropriate policies to guide the local bodies and take a lead role in activating the local bodies to perform their obligatory duties effectively.

In Entry Conference (June 2016), the UDD mentioned that MSW Rules, 2000 were being implemented in the State. There was no separate Scheme for management of MSW. During performance audit, it was observed that the UDD had not given any policy; guidelines on management of MSW to the MCs. Guidelines for any contractual arrangements for outsourcing the management of MSW were also not in place. On the contrary when MCGM had sought assistance for starting processing facilities, the application for lease of land for setting up the facilities were either not approved or belatedly approved resulting in piling of MSW at sites.

4.1.7.2 Non-submission of Annual Report of the Municipal Corporation to UDD

As per Rule 4(4) of the MSW Rules, in case of a metropolitan city, every municipal authority should furnish its annual report in Form-II to the Secretary-in-charge of the Department. In case of all other towns and cities, the report in the same format was required to be submitted to the District Magistrate or the Deputy Commissioner concerned with a copy to the MPCB.

We observed that during the period 2011-16, out of the five metropolitan MCs (Kalyan-Dombivli, MCGM, Nagpur, Pune and Thane), only MCGM had submitted the Report in Form II to the Secretary-in-charge of the Department, whereas other MCs namely, Amravati and Kolhapur who were required to submit Report to the Collector or District Magistrate, did not submit the Reports. The concerned authorities also did not ensure the submission of these Reports by the MCs.

4.1.7.3 Absence of Water Quality Monitoring of Landfill Sites

As per the MSW Rule (Paragraph 23 of Schedule III), the MCs should collect baseline data of ground water quality in the area before establishing any landfill site and keep on record for future reference. The MCs should periodically monitor the quality of ground water within 50 metres of the periphery of landfill site to ensure that the ground water was not contaminated beyond acceptable limit.

We observed that MCGM had the baseline data of ground water quality in respect of Kanjur site only. The remaining six selected MCs had not collected the baseline data of ground water quality near dumping/landfill site and maintained the related records.

Except MCGM and Nagpur MC, other five MCs did not conduct any test of underground water as per the norms.

4.1.7.4 Non-existence of Air Quality Monitoring Mechanism

MSW Rules (Paragraph 28 of Schedule III) provide that installation of landfill gas control system including gas collection system should be made at landfill site to minimize odour generation, prevent off-site migration of gases and to protect vegetation planted on the rehabilitated landfill surface. Ambient air quality at the landfill site and at the vicinity should be monitored twice, four times or six times in a year depending on the size of population of the MC.

We observed that except at Kanjur site in MCGM, none of the MCs had installed the gas monitoring system including gas collection system at the dumping/landfill site. Further, as per the Annual reports of MPCB for the year 2015-16, Amravati, Kolhapur, Nagpur and Thane MCs had not conducted ambient air test throughout 2015-16.

The UDD stated (January 2017) that monitoring aspects would be strengthened as per the mandate of MSW Rules, 2016.

Recommendation 4: Government may frame guidelines on contract arrangements/outsourcing for proper management of MSW in MCs. MCs may also ensure regular testing of ground water and ambient air quality so as to adhere to the environmental norms in the management of the MSW.

4.1.8 Conclusion

The selected seven MCs had neither prepared comprehensive city plan for management of MSW in accordance with the MSW Manual, nor had they met the timelines for improvement of existing landfills and for setting up of new waste processing and disposal facilities in their jurisdiction. Generation of MSW was not assessed properly in all the MCs for want of weigh bridges. Budget provisions were not fully utilized in all the selected MCs, though there were shortages of vehicles for transportation of MSW and other measures required for SWM. Door to door collection was in place in respect of all households but requirement of community bins was not assessed by any of the MCs. Staff engaged in handling of MSW were not using personal protective equipment. Segregation at household level was not in place except partially in MCGM and Pune. Primary and secondary collection systems were not synchronized and instances of open transportation of MSW by vehicles were noticed.

Facility for processing of MSW was either non-existent or inadequate. Wherever processing plants were installed, they were either non-functional or the efficiency was not at the desired level. Three MCs did not develop SLFs and were dumping their MSW unscientifically on unauthorised sites. Though Nagpur MC developed SLF, it dumped MSW both on the SLF and unauthorized site. Infrastructure at the landfill/dumping site in terms of fire-fighting equipment, *etc.* was inadequate. GoM did not approve proposal of MCGM for leasing land to concessionaires due to which processing plants could not be installed at two sites and delayed approval for one site led to delay in installation of processing plant by 54 months. Due to mismanagement of MCGM, there was wasteful expenditure of ₹ 56.12 crore as fresh MSW was again dumped on the site meant for

installation of processing plant which was reclaimed by shifting of existing MSW. Consequently, major fire incident occurred at Deonar site in January 2016. Kalyan-Dombivli MC failed to close the unauthorised dumping site resulting in release of large quantity of leachate into Thane creek causing environmental pollution.

There were instances of wasteful/additional expenditure, loss due to non-realisation of CER, poor maintenance of plant and machinery, irregular payment of price escalation during execution of contract in four MCs. Waste inspection facility to monitor wastes brought in for landfill, office building for record keeping, equipment and machinery were not in place at the dumping/landfill sites except at Kanjur in MCGM. No records on the baseline data of ground water quality near landfill site were maintained nor was any test of quality of underground water conducted. Ambient air test was not conducted in four MCs.

The matter was referred (December 2016) to the State Government and they accepted (January 2017) the audit views and recommendations.

ENVIRONMENT DEPARTMENT

4.2 Management of Bio-medical Waste in Municipal Hospitals

Executive Summary

Government of India framed the Bio-medical Waste (Management and Handling) Rules, 1998, under the provisions of the Environment (Protection) Act, 1986 which prescribed the procedures for treatment and disposal of bio-medical waste (BMW) generated by hospitals, nursing homes, blood banks and veterinary institutions. Bio-medical waste is any waste, which is generated during diagnosis, treatment or immunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biological.

The management of bio-medical waste in Municipal Hospitals was audited between February and June 2016 for the years from 2011 to 2016. Audit emphasized on the implementation of BMW Rules with an adequate administrative and regulatory framework. Audit revealed that enforcement of the bio-medical waste (Management and Handling) Rules in the Municipal Hospitals was found to be inadequate. Out of 22 Health Care Establishments (HCEs) inspected, 20 HCEs operated without valid authorisation due to delay in issue of authorisation from Maharashtra Pollution Control Board (MPCB) up to 1,492 days. Only eight HCEs maintained the record of collection of BMW.

Five HCEs at Nashik and Mumbai did not segregate BMW as per BMW Rules. Three HCEs in Nashik did not use blue/white translucent puncture proof containers; instead they used plastic bags. In two HCEs at Mumbai sharp wastes were mixed with incinerable waste. BMW containers/poly bags were not labelled as prescribed in BMW rules, in 16 out of 22 inspected HCEs. Consequently, common facilities disposed un-segregated BMW in an un-scientific manner. In three HCEs, BMW was stored in the vicinity of patient's bed. Only two out of 22 HCEs test checked had carried out chemical analysis of waste effluent, which showed BOD (77 to 227 mg per litre) and COD (280 to 1,044 mg per litre) parameters much beyond the accepted norms. Effluent high in BOD/COD would deplete oxygen in the receiving waters thereby affecting aquatic life and the eco-system.

Inspection of hospitals and common facilities by Maharashtra Pollution Control Board was inadequate. The Advisory Committee for advising the Government and the MPCB on the implementation of the BMW Rules, 1998 did not meet during 2011-16.

The above deficiencies were pointers to the fact that the enforcement needs to be strengthened to ensure effective implementation of BMW Rules.

4.2.1 Introduction

Government of India framed the Bio-medical Waste (Management and Handling) Rules, 1998 (BMW Rules) under the provisions of the

Environment (Protection) Act, 1986 prescribing the procedure for collection, segregation, transportation, treatment and disposal of BMW. The BMW Rules require the BMW generating establishments to comply with the provisions of the Rules.

BMW Rules, 1998 defines bio-medical waste (BMW) as any waste, which is generated during diagnosis, treatment or immunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biological. Occupiers such as hospitals, nursing homes, clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories and blood banks are BMW generating establishments. During 2010-14, all India average generation of BMW[56] ranged between 194 to 283 grams per bed per day and in Maharashtra it ranged between 188 to 255 grams per bed per day.

There were 140 Municipal Health Care Establishments (HCEs) with in-patient facility in the State under the administrative control of Urban Development Department**.** The Maharashtra State Pollution Control Board (MPCB), under the administrative control of Environment Department of the Government of Maharashtra (GoM) is designated as the prescribed authority for granting authorisation, conducting inspection and enforcing proper implementation of BMW Rules in the State.

4.2.2 Organisational Setup

The Principal Secretary, Environment Department, who also acts as the Chairman, MPCB, is assisted by Principal Scientific Officers, Regional Officers (ROs) and Sub-regional Officers (SROs). MPCB is responsible for implementation of the Rules in the districts.

Municipal hospitals are administratively controlled by Municipal Corporations headed by the Commissioners and assisted by Health Officers in ensuring implementation of the BMW Rules.

4.2.3 Scope and Methodology of Audit

The performance audit was conducted from February 2016 to June 2016 covering the period of five years from 2011-12 to 2015-16. Out of 140 municipal HCEs with in-patient facility in the State, 22[57] were selected employing stratified sampling method. The selected HCEs were located in

[56] As per Central Pollution Control Board data

[57] 1. K.E.M.Hospital & Medical College, Mumbai; 2. Lokmanya Tilak General Hospital & Medical College, Mumbai; 3. G.T. B. Hospital, Mumbai; 4. K. B. Bhaba Rugnalaya, Mumbai; 5. M. T. Agarwal Rugnalaya, Mumbai; 6. M. W. Desai Rugnalaya, Mumbai; 7. Mother and Child Hospital Maternity Home, Mumbai; 8. Smt Kesarbai Chhabildas Lallubhai Bhansali Maternity Home, Mumbai; 9. Matoshri Ramabai Ambedkar Maternity Home, Mumbai; 10. Charkop Maternity Home, Mumbai; 11. Kasturba Cross Road Maternity Home, Mumbai; 12. Bai Rukhminibai Rugnalaya, Kalyan; 13. Bharatratna Pandit Bhimsen Joshi Hospital, Mira-Bhayandar; 14. J.D.C. Bytco Memorial Hospital, Nashik; 15. Upanagar Maternity Home, Nashik; 16. Jijamata Maternity Home, Nashik; 17. General Hospital, Navi Mumbai; 18. YCMH PCMC Hospital, Pimpri-Chinchwad; 19. Bhosari Hospital, Pimpri-Chinchwad; 20. Kamla Nehru Hospital, Pune; 21. Bharatratna Rajiv Gandhi Hospital, Pune; and 22. Chhatrapati Shivaji Maharaj Hospital, Thane

eight[58] Municipal Corporations. Six[59] common bio medical waste treatment and disposal facilities (common facilities) and selected HCEs were jointly inspected with the officials of Municipal Corporations. Eight[60] Sub-Regional Offices of MPCB corresponding to the selected HCEs were also audited. At State level, offices of Principal Secretary, Environment Department and Principal Scientific Officer, MPCB were also visited. Questionnaires and interviews were employed in the field exercise in addition to collection of photographs and documentary evidences. An exit conference was held with Additional Chief Secretary, Environment Department, Government of Maharashtra on 31 January 2017 and Government response was taken into consideration while drafting the report.

4.2.4 Audit Objectives

The objectives of the performance audit were to examine whether:

- Execution of various stages of BMW management *viz.,* handling, segregation, collection, transportation and disposal was effective; and
- Regulatory, Monitoring and Enforcement mechanisms were effective.

4.2.5 Audit Criteria

The main criteria used for the performance audit were derived from the following:

- Bio-Medical Waste (Management and Handling) Rules, 1998;
- Central Pollution Control Board (CPCB) guidelines for Common Bio Medical Waste Treatment and Disposal Facility, 2003;
- Government of India/Government of Maharashtra orders/Government Resolutions issued from time to time; and
- Agreements between Municipal Corporation and Common Bio-Medical Waste Treatment and Disposal Facility (common facility) operators.

Audit Findings

4.2.6 Identification and Authorisation

4.2.6.1 Identification of BMW generating HCEs

As per BMW Rules (Rule 8), every occupier of an institution generating, collecting, receiving, storing, transporting, treating, disposing and/or handling BMW in any manner except such occupier of clinics, dispensaries, pathological laboratories, blood banks providing treatment/service to less

[58] Greater Mumbai, Kalyan-Dombivli, Mira-Bhayandar, Nashik, Navi Mumbai, Pimpri-Chinchwad, Pune and Thane

[59] Mumbai, Navi Mumbai, Thane, Pimpri-Chinchwad, Pune and Nashik

[60] Kalyan, Mira-Bhayandar, Mumbai, Nashik, Navi Mumbai, Pune, Pimpri-Chinchwad and Thane

than 1,000 patients per month shall make an application to the prescribed authority for grant of authorisation.

MPCB carried out a survey in 2009 and 26,525 HCEs were identified in the State. However, no survey was conducted by MPCB for identification of HCEs thereafter.

4.2.6.2 Issue of Authorisation

In accordance with Rule 8 of BMW Rules, 1998, every occupier/operator of BMW facility shall make an application in Form I to the MPCB for grant of authorisation. The authorisation to operate a common facility shall be issued in Form IV for a period of three years.

Every application for authorisation shall be disposed off by the prescribed authority within 90 days from the date of receipt of the application. The prescribed authority may cancel or suspend an authorisation, if for reasons, to be recorded in writing, the occupier/operator failed to comply with any provision of the Act or these rules. Authorisation document mentioned that application for renewal may be made prior to its expiry.

- **Authorisation to Healthcare Establishments**

Out of 22 HCEs inspected, only two[61] in Mumbai had valid authorisation from MPCB up to March 2016. Four[62] HCEs did not apply for authorisation from MPCB and were operating without authorisation. Remaining 16 HCEs though had applied between December 2011 and November 2015 but MPCB did not issue authorisation to them till March 2016, involving a delay of up to 1,492 days.

- **Authorisation to Common Facilities**

A common bio-medical waste treatment facility is a set up where BMW generated from HCEs is imparted necessary treatment to reduce adverse effects that this waste may pose. The treated waste may finally be sent for disposal in a landfill or for recycling purposes.

Out of six common facilities[63] inspected, only three (Mumbai, Nashik and Navi Mumbai) had valid authorisation covering the period 2011-16. Remaining three facilities (Pimpri-Chinchwad, Pune and Thane) had applied during December 2013 to August 2015 for renewal of authorisation. However, this was not granted by MPCB till March 2016, involving delay of up to 749 days. The common facility at Pune was granted authorisation in May 2016.

Government while accepting the fact stated (January 2017) that for granting authorisation it was pre-requisite for MPCB to assess the HCEs record as to

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[61] M. T. Agarwal Rugnalaya and Lokmanya Tilak General Hospital and Medical College, Mumbai

[62] 1. J.D.C. Bytco Memorial Hospital, Nashik; 2. Upanagar Maternity Home, Nashik; 3. Jijamata Maternity Home, Nashik; and 4. Bhosari Hospital Bhosari, Pimpri-Chinchwad

[63] The selected 22 HCEs located in eight Municipal Corporations are disposing their BMW through six common facilities. Each Municipal Corporation has one common facility, however Mira-Bhayandar MC is using facility at Thane and Kalyan-Dombivli MC is using facility at Navi Mumbai

number of beds, quantity of BMW generated and disposed in different categories. Further, it was stated that from the year 2012, a system of combined consent[64] and authorisation was introduced and thus there was delay.

The reply is not tenable as every application for authorisation is to be disposed off by the prescribed authority within 90 days from the date of receipt of the application.

Recommendation 1: The State Government may issue instructions to MPCB to conduct survey at regular intervals to assess the number of HCEs and for timely issue of authorisation.

4.2.6.3 Functioning of Common Facility without Agreement and Authorisation

Kalyan-Dombivli Municipal Corporation (KDMC) in April 2013 selected an agency to operate the common facility. The agency was to upgrade the existing facility and obtain authorisation from MPCB. In May 2013, MPCB granted a temporary authorisation for one month to the agency pending finalisation of the tender by KDMC. However, within the stipulated timeframe, the agency did not sign agreement with KDMC despite notice issued (June 2013) by the latter. Based on the irregularities noticed (June to December 2013) about untimely lifting of BMW, irregular utilisation of common facility and complaints from citizens, Corporators and Indian Medical Association of Kalyan-Dombivli, KDMC cancelled (January 2014) the tender. Eventually, KDMC entered (August 2014) into agreement with another agency, which started services only from March 2015.

Thus, from May 2013 to March 2015, the old agency whose tender was cancelled was handling BMW without executing agreement with KDMC and authorisation from MPCB.

Government while accepting the fact stated (January 2017) that notices were issued to the defaulter but its activity could not be stopped owing to social obligations.

The reply is not acceptable as MPCB failed to enforce the provisions of BMW Rules while KDMC did not act timely despite receipt of complaints from various quarters.

4.2.6.4 Location of Common Facilities

As per CPCB's guidelines of 2003 adopted by MPCB, common facilities were required to be located at places which were reasonably far away from residential and sensitive areas so that they had minimal impact on these areas. However, audit observed that out of six common facilities, two at Pimpri-Chinchwad and Thane were located in hospital premises/residential areas.

Comptroller and Auditor General's Report for the State of Maharashtra for the year ending 31 March 2008 had pointed out presence of common

[64] Consents given to Occupiers under the Water (Prevention And Control of Pollution) Act, 1974 and the Air (Prevention And Control of Pollution) Act, 1981 and Authorisation under BMW Rules, 1998

facility at Pimpri-Chinchwad in residential area. Audit observed (February 2016) that MPCB renewed authorisation to the common facility thrice between February 2010 and October 2014, with the condition to shift the site to land allotted by Pimpri-Chinchwad Municipal Corporation at Moshi and approved by MPCB in January 2012. However, the common facility was still operating in the residential area. In Thane, the common facility was situated in the premises of Chhatrapati Shivaji Maharaj Hospital, which was in a thickly populated residential area.

During exit conference the Government stated (January 2017) that the facility at Pimpri-Chinchwad would be shifted after getting environmental clearance while in respect of Thane, the process of shifting the facility at Diaghar was under process.

The reply is not acceptable as Environment Department itself is the authority for granting environmental clearance and appropriate action should have been taken before renewing the authorisation.

4.2.7 Collection, Segregation, Storage and Labelling of BMW

4.2.7.1 Collection

As per Rule 11 (1) of BMW Rules, every authorised person is to maintain records related to the generation, collection, storage, transportation, treatment, disposal and/or any form of handling of BMW. All records shall be subject to inspection and verification by MPCB at any time.

Out of 22 HCEs, only eight HCEs maintained collection registers showing quantity and category of BMW handed over to common facility operators. Remaining 14[65] HCEs had not maintained any record relating to BMW generated and stated (Feb-May 2016) that henceforth records would be maintained. In absence of record of quantity/category-wise BMW generated by HCEs, the treatment given to different categories of BMW and its quantity disposed off could not be ascertained.

Government while accepting the fact stated (January 2017) that the issue would be addressed in new BMW Rules of 2016. The reply is not acceptable as the BMW Rules, 1998 were explicit about maintenance of BMW records.

4.2.7.2 Segregation

Improper Segregation of Bio-Medical Waste

As per rule 6 (2) of BMW Rules, read with Schedule II, BMW was to be segregated into appropriate colour coded containers/bags at the point of

[65] 1) Bhosari Hospital, Pimpri-Chinchwad; 2) J.D.C. Bytco Memorial Hospital, Nashik; 3) Jijamata Maternity Home, Nashik; 4) Upanagar Maternity Home, Nashik; 5) Kasturba Cross Road Maternity Home, Mumbai; 6) Charkop Maternity Home, Mumbai; 7) Chhatrapati Shivaji Maharaj Hospital, Thane; 8) Smt Kesarbai Chhabildas Lallubhai Bhansali Maternity Home, Mumbai; 9) G.T.B. Hospital, Sewree, Mumbai; 10) Bharatratna Rajiv Gandhi Hospital, Pune; 11) Kamla Nehru Hospital, Pune; 12) Bai Rukhminibai Rugnalaya, Kalyan; 13) Lokmanya Tilak General Hospital & Medical College, Mumbai; and 14) K.E.M. Hospital & Medical College, Mumbai

generation in the HCEs, in accordance with a colour code scheme prior to its transportation, treatment, and disposal as shown in **Table 4.2.1**.

Table 4.2.1: Statement showing colour code for waste category

Colour code	Waste category	Mode of treatment
Yellow	Human anatomical waste, animal waste, micro-biological and bio-technological waste, soiled waste contaminated with blood *etc.*	Incineration/deep burial
Red	Soiled waste such as dressings soiled plaster casts, beddings *etc.*	Autoclaving/Microwaving/ Chemical Treatment
Blue/White translucent	Needles, syringes, scalpels, blades, glass, tubes, catheters *etc.*	Autoclaving/Microwaving/ Chemical Treatment and destruction/shredding
Black	Discarded medicines and cytotoxic drugs, incineration ash and chemical waste	Disposal in secured landfill
Source: BMW Rules, 1998		

It was observed that out of 22 HCEs inspected, five HCEs at Nashik and Mumbai did not segregate BMW as per BMW Rules. As per BMW Rules, 1998 sharp wastes should be collected in blue/white translucent puncture proof containers. Three selected HCEs in Nashik[66] did not use blue/white translucent puncture proof containers; instead they used plastic bags provided by Nashik Municipal Corporation. In two[67] HCEs at Mumbai, sharp wastes were mixed with incinerable waste. HCEs record showed incidences of needle stick injuries to the staff while handling BMW.

Mixing of BMW with Municipal Solid Waste

According to Rule 6 (1) of BMW Rules, BMW was not to be mixed with other wastes. Joint inspection revealed mixing of BMW with municipal solid waste in two out of 22 test checked HCEs (Kamla Nehru Hospital, Pune and J.D.C. Bytco Memorial Hospital, Nashik).

[66] J.D.C. Bytco Memorial Hospital, Upanagar Maternity Home and Jijamata Maternity Home, Nashik

[67] Lokmanya Tilak Municipal General Hospital and K.E.M. Hospital, Mumbai

Picture 1 and 2: BMW mixed with municipal solid waste in J.D.C. Bytco Memorial Hospital, Nashik

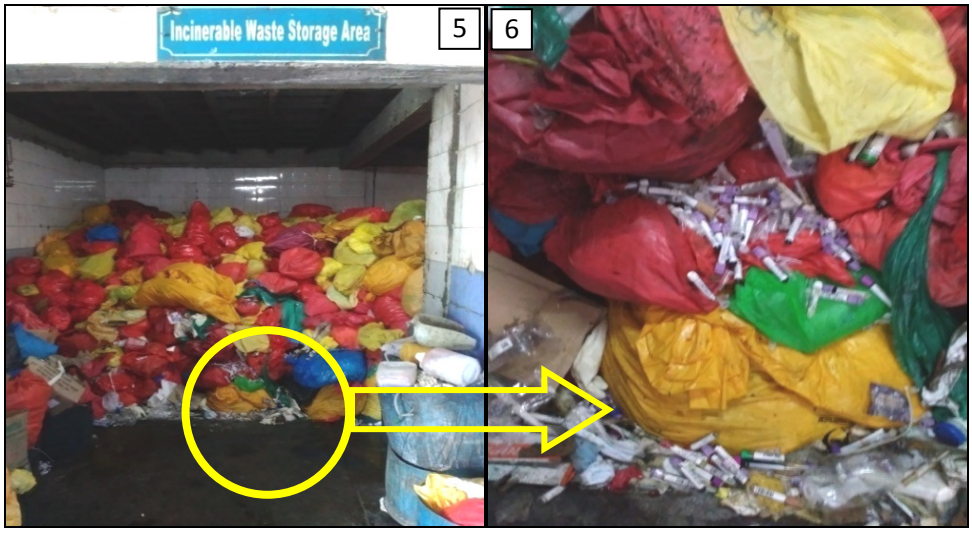
Health Officers at Nashik and Pune Municipal Corporations stated (March 2016) that the hospital staff would be trained in proper handling of BMW.

Receipt of Un-segregated BMW

As per CPCB 2003 guidelines adopted by MPCB, a common facility operator should not accept non-segregated BMW and such incident was to be reported to Maharashtra Pollution Control Board (MPCB).

Audit observed that common facility operators at Mumbai and Nashik had lodged complaints with the Municipal Corporations and MPCB pointing out non-segregation of BMW by the HCEs as per the colour code, mixing of BMW with Municipal Solid Waste, illegal selling of untreated plastic and glass BMW to scrap vendors. During joint inspection of common facilities at Nashik and Mumbai, audit observed that un-segregated BMW was received by the operators which was incinerated as seen from the pictures 3 to 6 below.

Picture 3 and 4: Differently coloured BMW bags lined up for incineration at common facility, Nashik



Picture 5 and 6: Differently coloured BMW bags along with sharps lined up for incineration at common facility, Mumbai

Nashik Municipal Corporation accepted (March 2016) that segregation of BMW was not done by some HCEs to whom notices were issued. Regional Officer, MPCB Mumbai stated (June 2016) that instructions to carefully segregate BMW were issued to the erring HCEs.

Colour Code Protocol not Displayed in HCEs

BMW Rule 6 and Schedule II prescribe colour coding of containers for disposal of BMW. Joint inspection revealed that colour coded segregation protocol was not displayed in seven[68] out of 22 HCEs inspected. Accepting the observation, these HCEs agreed (March to June 2016) to put up the protocol posters at suitable places in their premises.

During exit conference Government stated (January 2017) that as majority of the staff working in Municipal HCEs was on contractual basis, awareness and overall compliance with BMW Rules was low.

Recommendation 2: The Government may ensure proper segregation of BMW at the point of generation by providing training to the staff concerned.

4.2.7.3 Storage

Storage of BMW near Patient Beds

According to Rule 4 of BMW Rules, it is the duty of occupier (HCEs) to take all steps to ensure that BMW is handled without any adverse effect to human health and the environment.

[68] 1) J.D.C. Bytco Memorial Hospital, Nashik; 2) Jijamata Maternity Home, Nashik; 3) Upanagar Maternity Home, Nashik; 4) Kasturba Cross Road Maternity Home, Mumbai; 5) Charkop Maternity Home, Mumbai; 6) Smt Kesarbai Chhabildas Lallubhai Bhansali Maternity Home, Mumbai and 7) G. T. B. Hospital, Mumbai

Joint inspections in three[69] of 22 HCEs revealed that, BMW was being stored in the vicinity of patients' beds as shown in picture 7. This practice of storing BMW could pose a risk to patients.

In Kamla Nehru Hospital, Pune, plaster cast and unwashed linen were kept in store room along with other BMW, and human anatomical waste was put in the open bins as shown in picture 8, increasing the risk of exposure to patients/visiting persons.

The Health Officers, Municipal Corporation Nashik and Pune stated (March 2016) that instructions would be issued to the respective hospitals-in-charge to keep BMW away from the patients. The Medical Superintendent, Smt Kesarbai Chhabildas Lallubhai Bhansali Maternity Home, Mumbai stated (May 2016) that an appropriate place would be identified for storing BMW.

Picture 7: BMW near patient's bed at J.D.C Bytco Memorial Hospital, Nashik
Picture 8: Category 1 BMW in open bin in Kamla Nehru Hospital, Pune kept in corridor

Storage at Common Facilities

As per the CPCB, 2003 guidelines (Clause 4), waste storage area in common facility should be properly ventilated and so designed that BMW may be stored in racks and washing may be done easily. The waste storage room is to be washed and chemically disinfected daily. The floor and inner walls of the incinerator and storage rooms are to have outer covering of impervious and glazed material so as to avoid retention of moisture and for easy cleaning. Separate rooms should be provided for untreated and treated BMW. The treated BMW/incineration ash prior to being disposed in a secured landfill should be stored in a closed sturdy container in a masonry room to avoid any pilferage.

Three[70] out of six common facilities did not store BMW as per the norms laid down by CPCB. In Nashik common facility, the floor and inner walls of incinerator and storage rooms did not have outer covering of impervious

[69] 1) J.D.C. Bytco Memorial Hospital, Nashik; 2) Kamla Nehru Hospital, Pune; and 3) Smt Kesarbai Chhabildas Lallubhai Bhansali Maternity Home, Mumbai

[70] Nashik, Navi Mumbai and Thane

and glazed material. The BMW bags were lying on the floor with oozing BMW fluid and needles and other wastes were scattered on the floor.

The treated ash was put in gunny bags and kept outside the incinerator chamber in the open as shown in pictures 9 and 10 below.

Pictures 9 and 10: Common facility Nashik: Improper storage area for untreated BMW and the floor scattered with BMW

In Navi Mumbai and Thane, the BMW bags were not stored in racks as prescribed. During joint inspection, it was observed that BMW was lying in open on floor, as seen in pictures 11 and 12 below.

Picture 11: Common facility Navi Mumbai Picture 12: Common facility Thane Improper storage of untreated BMW

In common facility, Pimpri-Chinchwad, it was observed that a separate room for treated BMW was not constructed and the same was stored in the entry passage to the facility as seen from picture 13, where untreated BMW was also unloaded.

Picture 13: Common facility Pimpri

During exit conference, the Government assured (January 2017) to conduct training and awareness programme and issue instructions to the common facilities.

The fact remains that HCEs and common facilities did not take necessary steps to ensure proper handling and storage of BMW in accordance with BMW Rules, 1998.

Recommendation 3: The Government may instruct MPCB to organise trainings and awareness programmes to train staff in proper handling and storage of BMW.

4.2.7.4 Labelling

BMW containers/bags are to be labelled at the time of segregation and transportation to waste treatment facility, according to Schedules III and IV appended to BMW Rules[71]. As per CPCB, 2003 guidelines, such labelling is imperative for identifying HCEs that are not segregating BMW as per the rules. The common facility operator should not accept non-segregated BMW and report such incident to MPCB.

Joint inspection revealed that BMW containers/polybags were not labelled as prescribed in BMW rules, in 16[72] of 22 inspected HCEs. In absence of labelling, it was not possible for common facility operators to identify

[71] Schedule III (Label for bio medical waste containers/bags) prescribes such label to have **biohazard cytotoxic** hazard symbols with words '**HANDLE WITH CARE'**. As per Schedule IV (Label for transport of bio medical waste containers/bags), the containers/bags should carry information such as date of generation, waste category number, waste class and its description, sender's name/address with contact person and phone number, receiver's name/address with contact person and phone number, name/address of person to be contacted in emergency, *etc*. Both such labels should be non-washable and prominently visible.

[72] 1. K.E.M. Hospital & Medical College, Mumbai; 2. Lokmanya Tilak General Hospital & Medical College, Mumbai; 3. G.T.B. Hospital, Mumbai; 4. K.B. Bhabha Hospital, Mumbai; 5. M.T. Agarwal Rugnalaya, Mumbai; 6. Mother and Child Hospital Maternity Home, Mumbai; 7. Smt Kesarbai Chhabildas Lallubhai Bhansali Maternity Home, Mumbai; 8. Matoshri Ramabai Ambedkar Maternity Home, Mumbai; 9. Charkop Maternity Home, Mumbai; 10. Kasturba Cross Road Maternity Home, Mumbai; 11. Bai Rukhminibai Rugnalaya, Kalyan; 12. Bharatratna Pandit Bhimsen Joshi Hospital, Mira-Bhayandar; 13. J.D.C. Bytco Memorial Hospital, Nashik; 14. Upanagar Maternity Home, Nashik; 15. Jijamata Maternity Home, Nashik; and 16. General Hospital, Navi Mumbai

HCEs sending improperly segregated BMW and lodge complaint against them with MPCB.

During exit conference the Government stated (January 2017) that as per new BMW Rules 2016, now barcode system would be introduced.

Good Practice

The common facility operator in Pune and Pimpri-Chinchwad, has devised a barcode system of labelling the BMW bags. The barcode is unique for every HCE which indicated registration number, colour, size and serial number of bag. The information is integrated with the weight of the bag and time of collection, as a Data Capture Unit in the collection vehicle picks up these parameters, when a BMW bag with barcode sticker is received. The captured data is downloaded in the main computer at the common facility. Thus a comprehensive database is generated and updated on daily basis with the facility operator, which is time saving and proving useful in instilling confidence in individual HCEs about correctness of weight, time, *etc*.

The operator had also introduced a Global Positioning System (GPS) based vehicle tracking system. All registered HCEs can log in to the operator's website and track the collection vehicles. A live feed of the system is also given to MPCB for monitoring.

4.2.8 Treatment and Disposal of Bio Medical Waste

BMW Rules classify bio-medical waste in ten categories *viz.*, (i) human anatomical waste, (ii) animal waste, (iii) microbiology and biotechnology waste, (iv) waste sharps, (v) discarded medicines and cytotoxic drugs, (vi) soiled waste, (vii) solid waste, (viii) liquid waste, (ix) incineration ash and (x) chemical waste.

4.2.8.1 Treatment of Waste Sharps

As per the Rule 5 of BMW Rules read with Schedule I and II, BMW of category No. 4 *viz.,* needles, syringes, scalpels, blades, glass *etc*. that may cause punctures and cuts should be disinfected in one *per cent* sodium hypochlorite solution or any other chemical reagent. During joint inspection in three HCEs in Nashik, it was noticed that the waste was put into other category bags without treating with hypochlorite solution. At Kamla Nehru Hospital, Pune, it was observed (February 2016) that sharp waste was not disinfected with one *per cent* hypochlorite solution. When pointed out, the hospital staff stated that it did not have hypochlorite solution since last three months. Improper handling and treatment of BMW of category 4 in these HCEs posed threat of infection amongst staff handling BMW.

In reply Municipal Corporation, Nashik stated (March 2016) that instructions would be issued to the concerned staff and Municipal Corporation, Pune stated (March 2016) that buffer stock of hypochlorite solution would be maintained. During exit conference, Government accepted the fact; but did not furnish any reply.

4.2.8.2 Treatment of Liquid Waste

The status of treatment of liquid waste at HCEs and common facilities was as under.

At Healthcare Establishments

According to Schedule V of the BMW Rules, the effluents generated from hospitals should conform to the specified standards of pH, suspended solids, oil and grease, Biochemical Oxygen Demand (BOD) (norm 30 mg per litre), Chemical Oxygen Demand (COD) (norm 250 mg per litre) and Bio-assay test (90 *per cent* survival of fish after 96 hours in 100 *per cent* effluent). These limits are applicable to those hospitals which are either connected with sewers without terminal sewage plant or not connected to public sewers. Advisory Committee had prescribed (March 2011) installation of Effluent Treatment Plants (ETPs) in HCEs having bed capacity of 100 or more and these instructions were passed on by MPCB to its regional offices to ensure compliance.

Audit scrutiny revealed that only two[73]out of 22 HCEs test checked had carried out chemical analysis of waste effluent, which showed BOD (77 to 227 mg per litre) and COD (280 to 1044 mg per litre) parameters much beyond the accepted norms. Effluent high in BOD/COD would deplete oxygen in the receiving waters thereby affecting aquatic life and the eco-system. The effluent was needed to be treated before release in the drain. Scrutiny of records and joint inspection revealed that 13 HCEs[74] out of 22 test-checked HCEs had bed strength of 100 or more and none of them had ETPs for treatment of liquid waste. It was disposed into the municipal drain which released it into creek/rivers routing through terminal sewage treatment plants, without following the prescribed standards. This may adversely impact the environment and lead to water-borne diseases.

Principal Scientific Officer, MPCB stated (August 2016) that Regional Officers of MPCB were instructed to ensure treatment of effluent to prescribed discharge standards. During the exit conference, the Government stated (January 2017) that due to space constraints, ETP could not be installed at Municipal HCEs.

At Common Facilities

As per the CPCB guidelines, 2003 for common facility, every time a vehicle carrying BMW is unloaded, the vehicle and empty waste containers are to be washed and disinfected on an impermeable surface and effluent so generated is to be collected and treated in ETP. ETP was to be installed to

[73] Lokmanya Tilak Municipal General Hospital and K.E.M. Hospital, Mumbai

[74] 1. K.E.M.Hospital & Medical College, Mumbai; 2. Lokmanya Tilak General Hospital & Medical College, Mumbai; 3. G.T.B. Hospital, Mumbai; 4. K.B. Bhabha Rugnalaya, Mumbai; 5. M.T.Agarwal Rugnalaya, Mumbai; 6. M.W.Desai Rugnalaya, Mumbai; 7. Bai Rukhminibai Rugnalaya, Kalyan; 8. Bharatratna Pandit Bhimsen Joshi Hospital, Mira-Bhayandar; 9. J.D.C. Bytco Memorial Hospital, Nashik; 10. General Hospital, Navi Mumbai; 11. YCMH PCMC Hospital, Pimpri-Chinchwad; 12. Kamla Nehru Hospital, Pune; and 13. Chhatrapati Shivaji Maharaj Hospital, Thane

ensure that liquid effluent generated during the process of washing containers, vehicles, floors, *etc.* is disposed after due treatment.

Audit scrutiny revealed that the common facility in Pimpri-Chinchwad, liquid effluent generated after washing of vehicles was directly released into the municipal drain instead of being treated in ETP.

Municipal Corporation, Pimpri-Chinchwad stated (March 2016) that since there was no scope to connect the vehicle discharge to the ETP of common facility, it was being discharged into municipal drains.

During exit conference, it was stated (January 2017) that necessary checks would be carried out by MPCB.

4.2.8.3 Manual Feeding of BMW in Incinerator and Absence of Programmable Logic Control Panel

As per the CPCB guidelines, 2003 adopted by MPCB for 'Design and construction of Bio-medical waste incinerators', BMW is to be charged through automatic feeding device and not by any manual handling during charging of waste into the primary chamber of the incinerator. The automatic device should prevent leakage of hot gas and any backfire.

On inspection of common facility, Thane and Nashik, it was noticed that BMW was being charged manually into primary chamber of incinerator. This resulted in direct exposure of furnace atmosphere to the machine operator and chances of leakages of gas and backfire.

In these two common facilities, Programmable Logic Control (PLC) based control system required for maintaining the requisite temperature and pressure of incinerator and autoclave were not installed. This was in-contravention of CPCB guidelines, 2003 and may result in inadequate treatment of BMW due to inappropriate temperature and pressure of incinerator and autoclave respectively.

During exit conference, the Government stated (January 2017) that Thane facility had now stopped incineration and common facility at Nashik was upgraded with the latest equipments recently.

4.2.9 Inspection, Monitoring and Enforcement

4.2.9.1 Inspection by MPCB

According to Rule 11 of the BMW Rules, all records maintained by the HCEs under the Rules were subject to inspection and verification by MPCB at any time. The State Advisory Committee on BMW suggested (March 2011) monitoring frequency of HCEs and common facility by MPCB as follows:

(i) HCEs above 200 beds - once in three months; (ii) HCEs with bed strength between 50 and 200 - once in six months; and (iii) HCEs with less than 50 beds - once in a year. Common facilities were to be monitored once in a month.

The region-wise position of visits during 2011-16 as stated by the Sub Regional Officers (SROs), MPCB is given in **Appendix-4.4**.

The sub-region wise shortfall in visits of HCEs and common facilities are summarized in **Table 4.2.2**.

Table 4.2.2: Sub-Region wise shortfall in visits during 2011-16

MPCB Sub-Region		Shortfall in percentage	MPCB Sub-Region		Shortfall in percentage
Pune	HCEs	76	Nashik	HCEs	90
	Common facilities	73		Common facilities	18
Mumbai	HCEs	89	Kalyan*	HCEs	0
	Common facilities	0		Common facilities	0
Thane	HCEs	35	Mira-Bhayandar*	HCEs	95
	Common facilities	25		Common facilities	0
Navi Mumbai	HCEs	70	Pimpri-Chinchwad	HCEs	67
	Common facilities	11		Common facilities	62

Source: Information furnished by SROs, MPCB
* Common facility at Navi Mumbai is used by Kalyan HCEs and that at Thane by Mira-Bhayandar HCEs

However, the SROs did not produce any inspection notes in support of the visits made to the HCEs.

The Principal Scientific Officer, MPCB stated (August 2016) that the Board carried out verification/inspection of HCEs mostly on receipt of application for obtaining consent and authorisation from HCEs and upon specific issues/complaints received.

The reply is not tenable as MPCB should have carried out inspections as per norms without waiting for renewal of authorisation. Lack of proper inspections resulted in non-observance of the provisions of the rules by the hospitals and common facilities as brought out in the preceding **Paragraphs from 4.2.6 to 4.2.8.**

During exit conference, the Government stated (January 2017) that due to manpower constraints only large HCEs and common facilities were inspected.

4.2.9.2 Monitoring

Submission of Annual Reports

As per the Rule 10 of BMW Rules, every occupier/operator was required to submit an Annual Report to MPCB by 31 January every year, to include information about the categories and quantities of BMW handled during the preceding calendar year. MPCB should send this information in a compiled form to the CPCB by 31 March every year.

It was observed that out of 22 HCEs test checked, only seven[75] had sent Annual Reports to MPCB during the period covered. Without Annual

[75] 1. K.E.M. Hospital & Medical College, Mumbai; 2. Lokmanya Tilak General Hospital & Medical College, Mumbai; 3. M.T. Agarwal Rugnalaya, Mumbai; 4. Kasturba Cross Road Maternity Home, Mumbai; 5. General Hospital, Vashi, Navi Mumbai; 6. YCMH PCMC Hospital, Pimpri-Chinchwad; and 7. Bhosari Hospital, Pimpri-Chinchwad

Reports, the breakup of BMW generated and disposed in various categories by the remaining 15 HCEs could not be ascertained by MPCB.

During the years 2011-14, there was a delay in submitting of the State Annual Reports to CPCB. MPCB submitted the State Annual Report for the year 2011 with a delay of 87 days, 2012 with a delay of 215 days, 2013 with a delay of 87 days and 2014 with a delay of 349 days. The State Annual Report for the year 2015 was not forwarded to CPCB till date (March 2016).

During exit conference, the Government stated (January 2017) that collection and compilation of annual reports submitted by HCEs was a huge task and hence annual reports were prepared on the basis of annual reports submitted by common facilities. No data from HCEs was taken into consideration in preparation of annual reports.

The reply is not tenable as it is mandatory for every occupier to prepare and submit annual reports to MPCB for compilation and onward submission to CPCB.

Advisory Committee

As per the Rule 9 of BMW Rules, the State Government was to constitute an Advisory Committee comprising experts in the field of medical and health, animal husbandry and veterinary sciences, environmental management, municipal administration, and any other related department or organisation including non-governmental organisations. The Committee was to advise the Government and MPCB about matters related to the implementation of these rules.

Advisory Committee in the State was constituted in January 2003 after four years of the introduction of BMW Rules, 1998. Between 2003 and March 2016, it was re-constituted intermittently. In its meeting of March 2011, the Committee advised GoM and MPCB on issues like collection of BMW within 48 hours from HCEs, technical feasibility of common facility in terms of available BMW, installation of ETP at HCEs with bed capacity 100 and above and monitoring frequency of HCEs (bed capacity wise) by MPCB. During the period 2011-16, the Committee did not meet. Thus, Advisory Committee though constituted in the State, was non-functional, defeating the very purpose of its existence.

During exit conference, it was stated (January 2017) that necessary circular was issued to regional offices of MPCB regarding implementation of recommendations of the Committee. No reply was given on convening of meetings of Advisory Committee.

The reply is not acceptable as the State was deprived of the advantage of expertise on implementation of the Rules.

4.2.9.3 Enforcement Mechanism by MPCB

MPCB while reviewing implementation of BMW Rules found a wide gap between the authorisation conditions and their compliance. Consequently, MPCB issued (April 2013) guidelines linking operation and maintenance, record keeping and performance of BMW generators, transporters and facility operators with bank guarantees (BG). These guidelines became

effective from 01 April 2013.The common facilities and HCEs were to furnish bank guarantees as tabulated in **Table 4.2.3**.

Table 4.2.3: Amount of bank guarantee **(₹ in lakh)**

Common facility	HCEs with 500 and above beds	HCEs with 100 to 500 beds	HCEs with 5 to 99 beds
10.75	5.25	3.00	1.50
Source: MPCB Circular dated 10 April 2013			

Out of the 22 inspected HCEs, MPCB demanded bank guarantees from K.E.M. Hospital and Medical College, Mumbai; Lokmanya Tilak General Hospital and Medical College; and M.T. Agarwal Rugnalaya, Mulund. None of the HCEs furnished bank guarantee. The bank guarantees demanded by MPCB and those furnished by the common facilities is tabulated in **Table 4.2.4**.

Table 4.2.4: Bank guarantees furnished by the common facilities

Sr. No.	Common facility	BG as per Circular (₹ in lakh)	BG demanded (₹ in lakh)	BG furnished (₹ in lakh)
1	Mumbai	10.75	5.25	5.50
2	Navi Mumbai	10.75	No demand	Nil
3	Nashik	10.75	5.50	Nil
4	Thane	10.75	1.50	1.50
5	Pune	10.75	5.50	2.50
6	Pimpri-Chinchwad	10.75	5.50	3.25
Source : Information furnished by facility operators				

Principal Scientific Officer, MPCB stated (August 2016) that in case of old HCEs and common facilities, the bank guarantee would be obtained during renewal of their authorisations.

The reply is not tenable as the guidelines became effective from 1 April 2013; MPCB should have demanded bank guarantee without waiting for renewal of authorisation so as to enforce provisions under BMW Rules.

While accepting the fact in exit conference the Government reasoned (January 2017) that owing to no budgetary provision Municipal HCEs were unable to furnish BG. BMW Rules 1998 did not have any penal clause. The defaulters were prosecuted in the court of law under Section 5 of Air (Prevention and Control of Pollution) Act, 1981. The fact remained that the enforcement mechanism was not very effective.

Recommendation 4: The Government may strengthen the monitoring mechanism with deterrent penalties for effective enforcement and implementation of BMW Rules.

4.2.10 Conclusion

Government of India framed the Bio-Medical Waste (Management and Handling) Rules, 1998 under the provisions of the Environment (Protection) Act, 1986 prescribing the procedure for collection, segregation, transportation, treatment and disposal of BMW. The BMW Rules require the BMW generating establishments to comply with the provisions of the Rules. Performance Audit on Management of Bio-Waste in Municipal Hospitals revealed that MPCB, the enforcement authority for

implementation of BMW Rules in the State, did not conduct survey after 2009 for identification of HCEs. Most of the selected HCEs and common facilities were operating without authorisation from MPCB. They did not maintain record of quantity of BMW generated and disposed. BMW in HCEs was found mixed with solid municipal wastes and in some HCEs, BMW was stored in close proximity to patients' beds. It was not being segregated as per rules in the HCEs leading to unscientific disposal while in common facilities it was improperly stored. Only two out of 22 HCEs test checked had carried out chemical analysis of waste effluent, which showed BOD (77 to 227 mg per litre) and COD (280 to 1,044 mg per litre) parameters much beyond the accepted norms. Effluent high in BOD/COD would deplete oxygen in the receiving waters thereby affecting aquatic life and the eco-system. Inspection and enforcement by MPCB was deficient and it failed to monitor implementation of BMW Rules by the common facilities/HCEs.

The above deficiencies indicate that enforcement needs to be strengthened to ensure effective implementation of BMW Rules.

URBAN DEVELOPMENT DEPARTMENT

4.3 Sewage Management by Municipal Corporation of Greater Mumbai

Executive Summary

A performance audit of Sewage management by Municipal Corporation of Greater Mumbai (MCGM) was conducted to ascertain the status of management of sewage by MCGM. Three Departments *viz*., Sewage Project (SP), Sewage Operation (SO) and Mumbai Sewage Disposal Project (MSDP) under MCGM are responsible for sewage management in Greater Mumbai. MCGM generates 2,146 million litres per day (MLD) sewage of which 1,098 MLD was being treated and 1,048 MLD untreated sewage was directly discharged to sea and creeks as of July 2016.

A master plan was prepared by MCGM (2002) which suggested capital works worth ₹ 5,570.40 crore (2001 price) for all the three departments in five phases up to 2025. The MCGM, however, selected feasible works for execution as suggested by the Ministry of Environment and Forests (MoEF) and Jawaharlal Nehru National Urban Renewal Mission (JNNURM) to provide zone wise point to point solution for collection, conveyance and treatment of generated sewage.

SP identified 105 feasible works (115.67 kms), for laying new sewer lines and upsizing of existing lines. 44 works (49.81 kms) were executed as of July 2016. Besides, out of total 35.52 sq. kms in isolated areas, new sewage network was laid in 7.08 sq. kms areas. However, in respect of 30.3 sq. kms in unsewered slums, SP could not make any comprehensive plan for laying sewer lines.

Rate analysis for the execution of work was prepared in such a manner that excess payments of ₹ 44.36 crore were released to contractors as of July 2016. After spending ₹ 124.03 crore on micro-tunnelling works, these works could not be commissioned by SP.

Out of total 363 kms proposed sewer lines in the Master Plan, SO could rehabilitate only 62.01 kms of old dilapidated sewer lines. Instances of incorrect preparation of estimates of rehabilitation works were also noticed that resulted in excess payment of ₹ 22.05 crore to contractors. As of July 2016, SO also executed condition assessment works of 1,256 kms old dilapidated sewer lines incurring an expenditure of ₹ 89.25 crore, but it did not formulate any time bound programme for rehabilitation of identified dilapidated stretches of sewer lines. Though MSDP was responsible for construction of Waste Water Treatment Facility (WWTF), priority sewers works, improvement in pumping station works, no works were awarded except a pumping station at Shimpoli. However, ₹ 141.78 crore was expended on Project Management Consultancy. There was

almost no change in position of untreated discharge into the sea/creeks.

There was severe contamination of sea water around Mahim creek due to the highly polluted Mithi river. Besides, all the installed aerators at the lagoons of Versova, Bhandup and Ghatkopar WWTFs were not operational which affected the quality of sewage treatment.

Against the assessed shortage of 20,195 toilet seats as of March 2016, MCGM could construct only 5,797 toilet seats. Out of 8,594 available toilet blocks, only 2,476 toilet blocks were connected with sewer lines. The objective of the MSDP for reducing open defecation was not achieved.

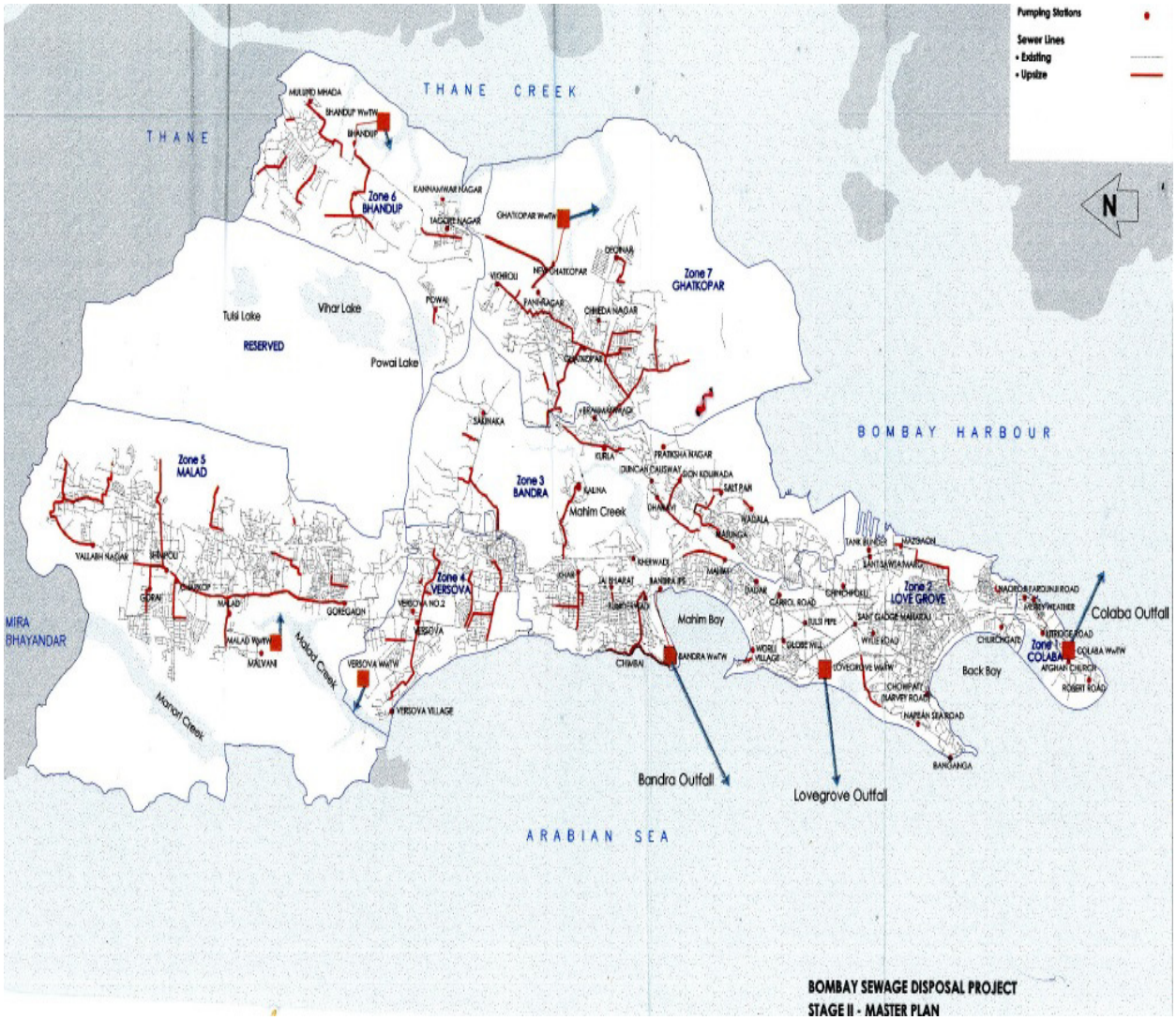
4.3.1 Introduction

The management of sewage comprises collection of sewage through sewer lines at generation points, its conveyance to Waste Water Treatment Facility (WWTF) and treatment of sewage at par with regulatory norms before its disposal into water bodies or other available sites. This also includes monitoring of quality of receiving water at the disposal point in terms of fixed receiving standards. Greater Mumbai has been divided into seven zones[76], for the purpose of collection, transportation, treatment and disposal of sewage. Each zone has one WWTF for treatment of sewage. The treated sewage from Colaba, Worli and Bandra WWTFs is discharged into the Arabian Sea through marine outfalls[77] and from Versova, Malad, Bhandup and Ghatkopar WWTFs into creeks[78] which eventually flow into the sea.

[76] Colaba (Zone-I), Worli (Zone-II), Bandra (Zone-III), Versova (Zone-IV), Malad (Zone-V), Bhandup (Zone-VI) and Ghatkopar (Zone-VII)

[77] Treated Sewage is discharged through tunnels into the deep sea at a distance of 1.2 kms to 3.7 km

[78] A stream or channel in a coastal marshland



Zone wise division of Mumbai city for sewage collection, conveyance and disposal of treated sewage by MCGM

The norms/standards for discharge of treated sewage and water quality standards of receiving water/sea are regulated as per Water (Prevention and Control of Pollution) Act, 1974, the Environment (Protection) Act, 1986 and the Environment (Protection) Rules, 1986. The Maharashtra Pollution Control Board (MPCB) and the Central Pollution Control Board (CPCB) are Regulatory Authorities who fix the treatment standards to be followed by Municipal Corporation of Greater Mumbai. As per MPCB norms, the levels of Biochemical Oxygen Demand (BOD)/Suspended Solids (SS) of treated sewage discharged into creeks should not exceed 100/100 mg/l and level of Dissolved Oxygen (DO) of receiving water at sea should never be less than 3.5 mg/l and BOD level should not exceed 3 mg/l respectively in conformity with Saline Water - II standards as shown in **Appendix-4.5**. The most important parameter of sewage treatment at WWTF *i.e.* level of BOD and SS was revised by MPCB from 100/100 mg/l to 20/30 mg/l in January 2011. These parameters were again made more stringent at 10/20 mg/l in April 2015 and 10/10 mg/l in October 2015 along with some other treatment parameters as detailed in **Appendix-4.6.**

The city had a network of 1,391 kms of sewer lines, 51 sewage pumping stations and seven WWTFs and had generated 1,659 million litres per day (MLD) sewage as of 2001. Only 538 MLD was collected and treated through existing sewage system and 1,121 MLD of untreated sewage was discharged into the sea/creek. Out of 538 MLD treated sewage, 448 MLD sewage was subjected to preliminary treatment[79] and remaining 90 MLD sewage was given secondary treatment[80] meeting the fixed treatment standards.

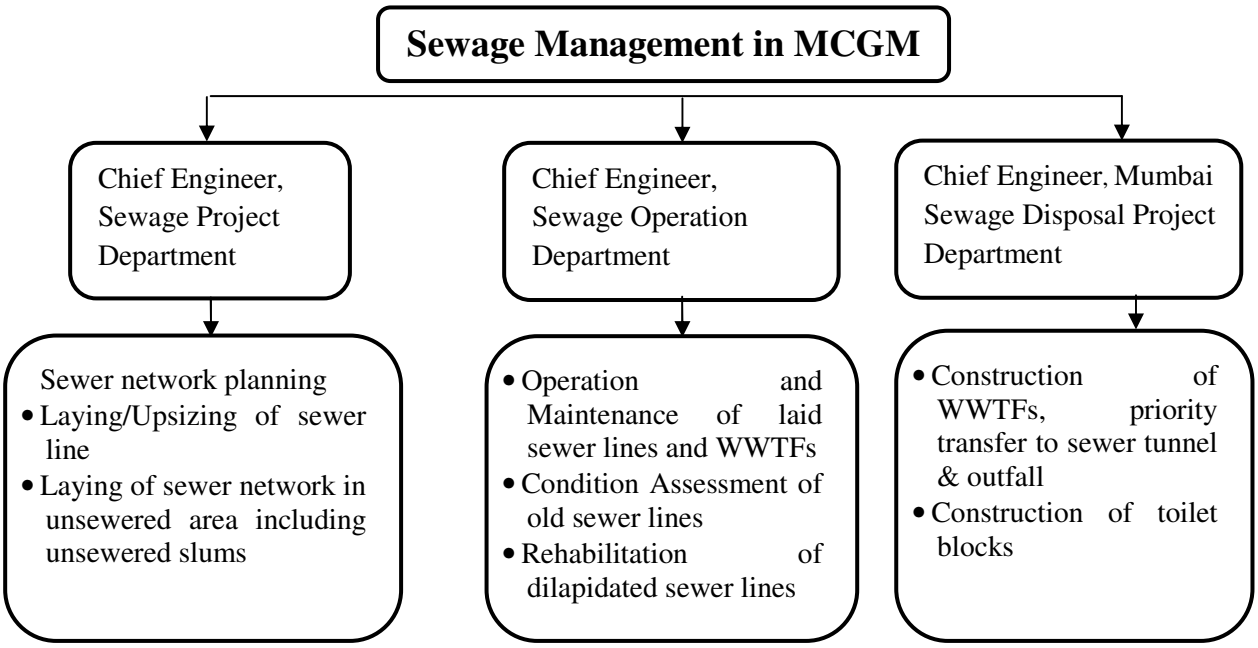
MCGM had prepared (2002) a Master Plan for augmentation of the sewage management system considering the design horizon of 2025, trend of population growth of Mumbai city and water quality of sea around Mumbai so that overall improvement in quality of life could be achieved. The Master Plan Report (2002) proposed execution of capital works worth ₹ 5,570.40 crore (2001 price) to be executed by all the three departments in five phases till 2025 **(Appendix-4.7)** for collection, conveyance and treatment of total sewage. Execution of all proposed works was subject to clearances and approvals from the respective authorities *viz*., MPCB, CPCB and Ministry of Environment and Forest (MoEF), Government of India (GoI) and on availability of land. MCGM however, did not implement the Master Plan for want of funds till advent of Jawaharlal Nehru Urban Renewal Mission (JNNURM) in December 2005. Thereafter, MoEF and JNNURM cell of GoI suggested (2007-08) MCGM to provide point to point collection, conveyance and treatment of sewage. Thus, MCGM selected a number of feasible works from all the five phases for execution and did not follow phase wise implementation of Master Plan.

4.3.2 Organisational Setup

The MCGM, an Urban Local Body, functions under the administrative control of Principal Secretary, Urban Development Department-II, (UDD), Government of Maharashtra (GoM). The Municipal Commissioner is the administrative head of MCGM who is assisted by Additional Municipal Commissioner (Projects). The Management of Sewage is done through three Departments of MCGM *i.e.* Sewage Project (SP), Sewage Operations (SO) and Mumbai Sewage Disposal Project (MSDP) each headed by a Chief Engineer.

[79] Removal of floating materials and grit only by mechanical means
[80] Method of reducing BOD and SS by using lagoons for sewage treatment

The functions of all the three Departments under MCGM are shown in the chart below:



4.3.3 Audit Objectives

The audit objectives were to examine whether;

- any comprehensive plan for Management of Sewage was implemented in an effective, efficient and economical manner;
- the collection and treatment of Sewage was done efficiently and effectively as per norms; and
- an effective internal control and monitoring system exists.

4.3.4 Audit Criteria

The audit criteria for the Performance Audit were derived from the following:

- Mumbai Municipal Corporation Act, 1888;
- Water (Prevention and Control of Pollution) Act, 1974 of Government of India (GoI);
- The Environment (Protection) Act and Rules 1986;
- Circulars and orders issued by the Government of India and GoM;
- Resolutions of MCGM and orders issued by MCGM;
- Relevant reports prepared by MCGM, MPCB, National Institute of Oceanography, National Environmental Engineering Research Institute (NEERI) and Council of Scientific and Industrial Research Institute; and
- Master Plan 2002, Mumbai City.

4.3.5 Audit Scope and Methodology

The Performance Audit conducted (between April 2015 and August 2015) covers the management of sewage by MCGM for the period 2010-15. The facts and figures were subsequently updated till July 2016. The methodology adopted for attaining audit objectives with reference to audit criteria and scope of audit were discussed with the Secretary, Urban Development Department and Commissioner, MCGM in the Entry conference held in April 2015. An Exit conference was held in December 2015 to discuss the audit findings and recommendations wherein the Secretary, Urban Development Department and Commissioner, MCGM were present. The replies of the Government (January 2016) have been considered while finalising the Report.

4.3.6 Financial Position

The works[81] were executed through MCGM's budget and funds received from GoI and GoM under JNNURM. The position of funds allocated and utilised on capital works during 2010 to 2016 were as given in **Table 4.3.1**.

Table 4.3.1: Capital budget and expenditure for Sewage Management in MCGM (2010-16) **(₹ in crore)**

Year	SP		SO		MSDP		Total	
	Budget estimate	Expend-iture	Budget estimate	Expend-iture	Budget estimate	Expend-iture	Budget estimate	Expend-iture
2010-11	140.57	101.61	100.49	73.11	66.00	45.57	307.06	220.29
2011-12	178.07	103.21	77.30	53.82	50.50	41.54	305.87	198.57
2012-13	123.07	76.39	78.98	52.93	77.50	45.75	279.55	175.07
2013-14	98.68	59.72	99.40	84.12	83.91	52.81	281.99	196.65
2014-15	173.18	56.44	101.65	71.55	47.91	10.80	322.74	138.79
2015-16	184.56	137.36	70.11	48.84	137.70	10.70	392.37	196.90
Total	**898.13**	**534.73**	**527.93**	**384.37**	**463.52**	**207.17**	**1889.58**	**1126.27**
Source: Information furnished by the respective departments								

The total fund available for execution of capital works between 2010 and 2016 for the three Departments was ₹ 1,889.58 crore[82] of which ₹ 1,126.27 crore[83] could be utilised. This included grants of ₹ 50.25 crore from GoI and ₹ 35.21 crore from GoM under JNNURM.

The GoI had also sanctioned (2010) a Detailed Project Report (DPR) for ₹ 365.44 crore for construction of Bhandup WWTF. GoI share was to be released after finalisation of tender. As per funding pattern of JNNURM, MCGM had to contribute its share of ₹ 182.72 crore (50 *per cent).* The share of GoI was ₹ 127.90 crore (35 *per cent*) and of GoM ₹ 54.82 crore (15 *per cent*). MCGM, however, could not finalize the tender of Bhandup WWTF, and GoI did not release funds. As a result, MCGM could not avail the funding of ₹ 182.72 crore from GoI and GoM as of March 2016.

[81] The works include capital works for laying of new sewer pipelines, rehabilitation of old sewer lines and consultancy services taken for construction of WWTF

[82] SP ₹ 898.13 crore, SO ₹ 527.93 crore and MSDP ₹ 463.52 crore

[83] SP ₹ 534.73 crore, SO ₹ 384.37 crore and MSDP ₹ 207.17 crore

Audit Findings

4.3.7 Execution of Works by Sewage Project Department

Sewage Project (SP) Department of MCGM is responsible for construction and laying of new sewer lines in existing sewered area; upsizing of existing sewer lines; laying of sewer lines in isolated areas and laying of sewer lines in slums under Slum Sanitation Programme (SSP) for improvement in collection of sewage from generating points.

SP had to construct new sewer lines of 60 kms; upsize 110 kms of existing sewer lines (₹ 442.38 crore); lay new sewer lines in isolated areas (35.52 sq.km) and construct sewer lines (₹ 476.39 crore) in slums covering an area of 30.3 sq. km under SSP for entire collection of sewage across the city as per Master Plan. The SSP had two main objectives *viz.,* connection of toilet blocks with sewer lines in slums to be executed by SP and construction of toilet blocks/seats by MSDP. The details of execution of feasible works out of proposed works is summarised in **Table 4.3.2**.

Table 4.3.2: Works enlisted and executed by SP in Master Plan

(Length in kilometres)

Sl. No.	Description	New sewers		Upsizing works		Total position	
		No.	Length	No.	Length	No.	Length
1.	Total Proposed works	65	59.70	101	113.82	166	173.52
2.	Feasible works	25	25.59	80	90.08	105	115.67
3.	Work completed	12	13.01	32	36.80	44	49.81
4.	Work in progress	7	7.08	15	16.95	22	24.03
5.	Balance works were at planning stage	6	5.50	33	36.33	39	41.83
Source: Information provided by SP							

As of July 2016, SP completed 12 works of new sewer lines (13.01 kms) in existing sewered areas and 32 works of upsizing the existing sewer lines (36.80 kms) after incurring an expenditure of ₹ 20.19 crore and ₹ 245.66 crore respectively. Master Plan had proposed laying of sewer lines in isolated areas admeasuring 35.52 sq. km, of which, SP laid sewer lines of 22.64 kms and covered 8.19 sq. kms by incurring an expenditure of ₹ 83.03 crore on 66 completed works.

Out of above, 71 works[84] were executed (completed/work in progress) by SP during 2010-16. Of which, 34 works were selected for test check audit. The findings are discussed below.

4.3.7.1 Undue Financial Benefit to Contractors

SP prepared estimates for execution of sewer lines through Micro-tunnelling Boring Machine (MTBM) considering various items rates from different schedule of rates prepared by MCGM. One of the main items of work was excavation of tunnel through MTBM and laying of sewer pipes therein. The per running metre rate of laying of pipe lines through MTBM was arrived at by considering per running metre costs of various components such as cost of MTBM machine, auxiliary machines, snappers

[84] Laying of new pipelines and upsizing-44 works and 27 works of laying sewer lines in isolated areas

and cutters, cost of Jacking and Rescue (J/R) pits, cost of labourers, applicable taxes *etc.* Bidders also submitted their bids in the same manner.

Incorrect estimates, payment for work not executed and acceptance of inflated rates resulted in undue benefit of ₹ 44.36 crore to the contractors as of July 2016, as detailed in succeeding paragraphs.

i) Overpayment in Execution of Jacking and Rescue Pits in Micro-tunnelling Works

While preparing the completed item rate for laying of sewer line through MTBM, SP presumed requirement of two J/R pits at an interval of 80 metres along the entire alignment of work. This method of estimation was incorrect and inflated the estimated rate.

Audit noticed that as per approved working plans, J/R pits were actually dug at an average distance of 100 to 225 metres. Thus, the number of J/R pits as per estimates was always higher than the approved working plan. The SP, however, did not verify the actual number of J/R pits excavated.

Incorrect methodology for preparation of estimate and release of payments as per estimate rather than the actual number of J/R pits excavated, resulted in excess payment of ₹ 29.95 crore to contractors in six ongoing works as of July 2016.

The Government stated (January 2016) that payments were released as per conditions of contract; however, the cases would be examined.

ii) Overpayment due to Overstating the Cost of Auxiliary Machines

SP awarded a work (Micro-19) for laying of sewer lines (4,360 metres) using MTBM at ₹ 64.33 crore (at premium of 17.90 *per cent*). Contractor submitted rate analysis of item of work through MTBM which included the cost of auxiliary machines. It was observed that SP did not compare the cost invoices of auxiliary machines submitted along with the tender against its quoted cost. The SP awarded (February 2014) the work to the contractor after negotiated discount of ₹ 3.87 crore without analyzing the quoted rates properly.

Our scrutiny of rates submitted by the contractor revealed that the cost of auxiliary machines was ₹ 54,250 per running metre. However, the rates for auxiliary machines, as per purchase invoices, submitted along with bid documents were ₹ 7,237.53 per running metre. The excess amount involved was ₹ 16.63 crore for entire length of work (4,360 metres) to be executed, considering the discount offered by the contractor. The contractor was already paid an excess amount of ₹ 9.92 crore for execution of 2,109.50 metres of sewer line work through MTBM as of July 2016.

The SP stated (October 2015) that the cost of auxiliary machines of ₹ 7,237.30 per metre considered by audit did not include cost of spares, cutter heads, fuel, cost of man power, operation and maintenance *etc.* The reply of SP was not tenable as cost of above machines and consumables as stated by SP were separate items of works included in the estimate.

The Government stated (January 2016) that payments were made as per contract, however, case would be examined.

iii) Overpayment due to Wrong Application of MTBM Rate for Pit Lengths

Three works[85] for laying of sewer lines for 14,593 running metre for various diameters were awarded (February 2008 and August 2010) to a contractor. As per the working plan, contractor had to excavate 61 jacking and 59 rescue pits by open cut method of length 6.5 metres and five metres respectively. Thus, boring and laying of pipelines of length 691.5 metres by using MTBM was not required in these stretches as J/R pits were already dug by open cut method.

Our scrutiny revealed that contractor was paid at completed item rates of MTBM for entire length of work without reducing the length of said J/R pits (691.5 metres). This resulted in overpayment to the contractors of ₹ 4.49 crore as of July 2016.

The Government stated (January 2016) that the payments were made as per agreement of contract however, cases would be examined.

4.3.7.2 Blocking of Funds of ₹ 124.30 Crore on Un-commissioned Works

SP laid various sewer lines through trenchless technology (micro-tunnelling method) in locations where laying of sewer lines was not possible through open cut method. SP had executed 13 works in intermittent stretches covering 12.68 kms through micro-tunnelling method which was part of new/upsizing sewer line works proposed in the Master Plan. These sewer lines laid at a cost of ₹124.30 crore could not be put to use since 2012. The reasons for non-commissioning of executed works were incomplete down-stream work, non-execution of connecting mains passing through railway lines, want of connectivity with main sewers, non-execution of rest of alignment work due to existence of utility services *etc*. The hindrance arose because the alignment of works was not fixed taking required numbers of trial pits and analysis of geotechnical data before awarding of works. This had resulted in suspension of works leading to blocking of funds amounting to ₹124.30 crore.

The Government stated (January 2016) that the works were stuck due to a pillar of Metro rail that came into the alignment junction at Tembhe bridge. Correspondence with Mumbai Metro was going on and it might take two years to finalise the matter. The reply only confirms that works were awarded without any integrated planning.

4.3.7.3 Failure to coordinate with the MMRDA

The Master Plan proposed upsizing of existing sewer line (from 1,200 to 1,800 mm dia) along Link Road from Vallabh Nagar Pumping Station to Kandarpada junction (1,950 metre), Dahisar (W). Simultaneously, MMRDA had a separate plan to concretize the entire stretch of Link main

[85] Micro 10, 11 and 15

road from Marve Road junction to Dahisar. MMRDA had sought approval (November 2004) from the MCGM for the said work.

It was noticed that MCGM had requested (November 2004 to December 2005) the MMRDA to either lay the sewer line before concretisation of link road or leave a stretch of 5.25 metre width in flexible pavement so that sewer line could be laid by open cut method. However, MCGM failed to pursue the matter with MMRDA and the stretch of Link Road where sewer line was planned to be laid was concretised by MMRDA in October 2005. The SP awarded the work (February 2014) at cost of ₹ 37.80 crore through micro-tunnelling method which was originally planned to be executed through open cut method. The cost of work with open cut method was estimated at ₹ 28.69 crore[86] in 2014. A total of 1,765 metres of sewage pipes had been laid till July 2016 at a cost of ₹ 32.97 crore.

The Government stated (January 2016) that MMRDA without informing MCGM had made concrete road along the entire stretch. The reply was not tenable since MMRDA had agreed to leave adequate space along the road line but MCGM delayed taking up the work in time despite knowing that the entire road was up for 'concretisation' as evident from the correspondence made between them. Thus, there was additional burden due to the lack of coordination between MMRDA and MCGM.

4.3.7.4 Delayed Finalisation of Tender

SP invited tender (July 2012) for providing and laying RC pipe sewer line through MTBM at various locations in the western suburbs at an estimated cost of ₹ 56.93 crore. The Tender Committee recommended (02 November 2012) acceptance of the offer (₹ 49.18 crore) of the lowest bidder. The offer was valid for 150 days *i.e.* up to 22 December 2012. In view of the delay in scrutiny of documents and the recommendation of the Tender Committee, the SP requested the contractor to extend the validity of his offer for 45 days up to 05 February 2013.The contractor accepted the SP Department's request and extended the validity. The SP, however, failed to award the contract to the contractor within the extended time limit.

SP re-invited the tender and awarded (06 February 2014) the work to the lowest bidder[87] at a tendered cost of ₹ 67.17 crore (18 *per cent* premium). Thus, inability of SP in finalising the earlier tender within stipulated period resulted in increase of ₹ 17.99 crore in tender cost.

The Government stated (January 2016) that the contractor was a foreign Company, examining of various submissions took time and when the contractor did not respond for third time extension, the bid process was cancelled and re-tendering was done. The reply is an acceptance of the fact of undue delay in processing the tender.

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[86] Per running metre cost of laying sewer pipes of 1,950 metre in 2009 was ₹ 1,18,419 Rate was increased by 7.5 *per cent* per annum up to 2012-13 *i.e.* ₹ 1,47,111 per metre and total cost worked out ₹ 28.69 crore

[87] M/s Michigan RPS JV

4.3.8 Execution of Works by Sewage Operation Department

Sewage Operation Department (SO) is assigned the work of operation and maintenance of laid sewer lines, intermediary sewage pumping stations, treatment of sewage at WWTFs and disposal of treated sewage into the sea/creek. The work of augmentation of efficiency of pumps and construction of new pumping stations for conveyance of sewage, was assigned to MSDP.

Several stretches of sewage network in Mumbai city were extremely old and were made up of clay brick sewer pipes. SO was required to do condition assessment of these old sewer lines and rehabilitate identified dilapidated stretches of sewer lines.

SO had conducted condition assessment of 150 kms of old sewer lines (1997). Based on this, the Master Plan had estimated 363 kms of old sewer lines needed rehabilitation. The Master Plan had also proposed the condition assessment of sewage network of 1,241 kms[88]. Cost of condition assessment and rehabilitation works was estimated at ₹ 1,174.70 crore (2001 price).

As of July 2016, SO had assessed the condition of 1,256 kms (four works) of old sewer lines during 2010-16 incurring an expenditure of ₹ 89.25 crore. However, out of this condition assessment, stretches of dilapidated sewer lines were not identified for preparation of any time bound rehabilitation plan. As of July 2016, the SO had rehabilitated old sewer lines of 62.01 kms against the total rehabilitation plan of 363 kms. Of the 62.01 kms, SO had taken up five rehabilitation works[89] for execution at a cost of ₹ 210.22 crore (37.31 km) during 2010-16. Two works[90] were completed at a cost of ₹ 22.79 crore; two works[91] were in progress after incurring expenditure of ₹ 42.76 crore and one work[92] awarded at a cost of ₹ 73.63 crore was terminated after incurring an expenditure of ₹ 1.80 crore, as the contractor did not adhere to the safety measures while executing the work.

We selected all the five rehabilitation works and two condition assessment works out of four executed works for test check. The findings noticed in execution of these works are discussed in the paragraphs below.

4.3.8.1 Excess Payments to Contractors

SO invited (2010-15) item rate tenders for execution of rehabilitation works by Pipe Bursting machines, Machine Wound Spiral Lining and Glass Reinforced Pipe lines (GRP liners). Composite rates for execution of works

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88 1,391 kms proposed for condition assessment in Master Plan and assessed 150 kms, thus remaining was 1,241 kms line

89 Executed by M/s MEPL (General Ledger code 505100173 and 358 part), M/s Shriram EPC- Perco JV (General Ledger code -174 part, JNNURM), M/s NPV JV (General Ledger code 174 part, JNNURM), and M/s Shriram EPC Ltd (General Ledger code-358 part)

90 M/s M/s MEPL (General Ledger code 358 part) and M/s Gipsum Structural India Pvt. Ltd (505100174/ JNNURM)

91 M/s Shriram EPC- Perco JV (General Ledger code -174 part, JNNURM) and M/s NPV JV (General Ledger code 174 part, JNNURM)

92 M/s Shriram EPC Ltd (General Ledger code -358 part)

with said machines included cost of machines, snappers and cutters, auxiliary machines, cost of GRP liners, transportation charges, applicable taxes *etc*. As per tender conditions, contractors were to provide details of quoted rates and if required the Department could call for any clarification of rates items. The payments were made to contractors based on item rates finalised and executed length of works.

Our scrutiny revealed various shortcomings in departmental assessment of quoted rates. This resulted in overpayment to contractors of ₹ 22.05 crore as of July 2016 in two cases.

- In works (SO4-09-T-3 & 07-T-1) at 20 locations, GRP liners are used to strengthen dilapidated pipe lines. Payment to the contractors for purchase of GRP per RMT was made at rates ranging between ₹ 21,200 and ₹ 66,920. Based on the Tax Invoice appended to the octroi slips of the material used on the work and other incidental charges, we noticed that the actual per running metre cost of GRP ranged between ₹ 10,345 and ₹ 42,518. Due to inclusion of inflated rates of GRP liners in the contract, the SO made excess payment of ₹ 17.73 crore to the Contractors (between 2012-14 final bill payment). The SO had not taken any action to recover the excess payment made.
- Considering the period of deployment of pipe bursting machines on the work and life time capacity of the machine, proportionate cost of machine was required to be included in the estimate of the works (SO 4-10-T-3 &12-T-3) at 18 locations. Audit analysed that in one case the machine was capable of laying 60,000 metres of pipeline in its entire working life and work order for 8,045 mtrs only was awarded to the contractor. In another case, machine deployed on the work was for 16 months only. However, the contractor included the entire cost of the machines instead of proportionate cost, resulting in excess payment of ₹ 4.32 crore (July 2016).

The Government stated (January 2016) that the cost mentioned in the Excise invoice included only bare fabrication charges and not the other incidental charges. The reply was not acceptable as the amount of overpayments was calculated after allowing all charges for fabrication, transportation and profit elements of contractor. Engineers-in-charge were required to obtain detailed supplementary schedule of rates before award of work and call for supporting documents for the contractor's claims before payment. They were also required to supervise and certify the actual works carried out.

4.3.8.2 Award of Contract at Higher Rates

SO prepared an item rate tender[93] for execution of condition assessment and local repair of man-entry sewers in western suburbs amounting to ₹ 14.45 crore. The tender consisted inter-alia of similar items for execution in Slice-A and Slice-B as a single contract. Work was awarded to two lowest bidders for Slice-A and Slice-B at ₹ 7.62 crore and ₹ 6.29 crore respectively. Work

[93] Contract No. SO4-12-T-2

orders were issued in October 2013 with scheduled completion in December 2015.

Scrutiny of departmental estimates and award of contract for both the slices revealed that the bidder had quoted lower rates for most of the items in Slice-B compared to bidder in Slice-A. SO ignored the difference in rates and awarded the contracts to both the contractors at their quoted rates.

SO did not analyse the rates quoted for Slice-A. The bidder had submitted only block rates of bill of quantities. Considering the awarded rates of individual items of both the contractors, SO had awarded the work for Slice-A at a higher cost of ₹ 1.10 crore.

The Government stated (January 2016) that site conditions for both the works were different. However, the Government, accepted that point was with reference to broader perspective and was well taken. The fact remained that in the absence of proper analysis of rates/break up of rates; the SO awarded the work at higher cost.

4.3.8.3 Execution of Sewage Pumping Station and Priority Tunnels Works

Master Plan identified that the capacity of intermediary sewage pumping stations had reduced up to 48 *per cent* and due to reduction in capacity of pumps and insufficient carrying capacity of sewer lines, 298 MLD sewage generated in Zone-IV[94] and Zone-V was not reaching Malad and Versova WWTFs and the same was discharged untreated in Malad creek.

MSDP engaged (April 2007) a Project Management Consultant (PMC)[95] for preparation of detailed engineering designs and execution works of 15 pumping stations and two priority tunnel works. The Master Plan estimated the cost of pumping works at ₹ 547.58 crore and priority tunnels[96] (Zone-V-Malad) at ₹ 246.52 crore on 2001 price. As of July 2016, the SO, however, could not execute any of the above works except a drop shaft and Shimpoli pumping station at Malad (₹ 29.27 crore) due to unresolved land issues, change in plans, designs and capacity of proposed pumping stations and environmental issues. Thus, there was no improvement in intermediary pumping of sewage and condition of sewage bypass in priority Zone IV and V and this was continuously degrading the water quality of Malad creek.

Recommendation 1: MCGM may ensure analysis of the rates quoted by the contractors with reference to the supporting documents as per tender conditions so as to prevent excess payment.

4.3.9 Failure to Improve Level of Sewage Treatment by MSDP

As per Master Plan, Mumbai Sewage Disposal Project Department (MSDP) was to construct seven WWTFs, two transfer sewers from Malad and Versova WWTFs to Erangal and an outfall from Erangal to the sea at cost

[94] Zone IV Versova and Zone-IV Malad

[95] M/s Mott MacDonald consortium comprising M/s Mott MacDonald Limited, R V Anderson Associates Ltd., Mott MacDonald Pvt. Ltd and PHE Consultants

[96] One tunnel (4.15 km) from Don Bosco School to existing Malad Influent Pumping Station and another from Goregaon Pumping Station to proposed Malad Influent Pumping Station

of ₹ 1,304.10 crore. MCGM appointed (April 2007) PMC for analysis of sewage related data of MCGM, preparation of designs for all the WWTFs as per technology proposed in the Master Plan, preparation of tender documents and procedures related to finalisation of tender. PMC was appointed for a period of five years *i.e.* up to April 2012 at a cost of ₹ 82.36 crore. Based on environment clearance (January 2008) from MoEF and JNNURM cell, MCGM revised (between 2009 and 2012) its plan for construction of all WWTFs simultaneously. The scope of services of PMC was also revised for ₹ 180 crore and the contract was extended up to April 2015.

MCGM could not ensure encumbrance free sites and forest clearances except for Colaba WWTF project. The tendering process for Colaba WWTF started in May 2011 could not be finalised till July 2016 due to deviations in design parameters proposed by the PMC. The PMC was paid ₹ 141.78 crore for designing work done up to April 2013 and the contract terminated in April 2015. As of July 2016, MSDP could not commence any of the proposed WWTF works and 840 MLD sewage was being discharged from Colaba, Worli, Bandra and Malad WWTFs after removal of floating materials and grit causing continued pollution of sea water. The installed infrastructure at Versova, Bhandup and Ghatkopar WWTFs were underutilised. Resultantly 258 MLD sewage could not meet the norms fixed by MPCB/CPCB[97].

4.3.9.1 Huge Un-treated Sewage Discharge into the Sea

The city generated 2,146 MLD Sewage per day[98] during 2015-16. Of this, 1,098 MLD[99] sewage was being collected through 1,860 kms of existing sewer network as stated above. The remaining 1,048 MLD sewage (49 *per cent*) was discharged into the sea without any treatment. The main sources of untreated discharge were sewage received from Mithi river (219.49 MLD), untreated bypass of sewage from Versova and Malad zones (298 MLD), unsewered slum area (178.40 MLD) and 60 open Nallahs (120 MLD). The remaining 233.11 MLD sewage was being discharged from various points not known to MCGM. Thus, approximately 49 *per cent* sewage was discharged into sea and creek without any kind of treatment.

The pollution level of Mithi river, from Powai and Vihar lakes to Mahim creek was alarming and severely polluted the sea around Mahim creek.

MCGM engaged IIT, Mumbai seeking suggestions on the issue. IIT, Mumbai in its report (June 2006) suggested that 37 small Sewage Treatment Plants (STPs) along the Mithi river may be set up. MPCB also accepted (December 2013) the report of IIT, Mumbai. However, MCGM did not act

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97 The norm of sewage treatment was 100/100 mg/l of BOD/SS which was revised by MPCB to 20/30 mg/l in January 2011. The said norm was further revised to 10/20 mg/l in April 2015 and 10/10 mg/l in October 2015 by CPCB

98 Total water supply was 3,748 MLD in 2015-16. After considering industrial consumption and transit losses (27 *per cent)* the net supply worked out to be 2,683 MLD. Sewer generation to be 80 *per cent* of net supply *i.e.* 2,146 MLD

99 80 *per cent* of total sewage collected (1,372.18 MLD) due to reduction in pumping capacity by 20 *per cent*. The WWTF wise breakup of 1,098 MLD collected sewage: Colaba (17.60 MLD), Worli (294.78 MLD), Bandra (355.78 MLD), Malad (171.60 MLD), Versova (67.16 MLD), Bhandup (90.86 MLD) and Ghatkopar (99.95 MLD)

on the report till date (July 2016) citing financial problems, encroachment and its slum programmes. The reasons were not tenable considering the availability of funds with the Corporation and the fact that MCGM was responsible for removing the encroachments. MCGM also did not have any time bound programme for slum development along the entire stretch of Mithi river. Meanwhile, the BOD level of sea water had been increasing with unchecked untreated discharge from Mithi river around Mahim creek. MPCB noticed (2011-13) that the level of BOD of sea water ranged from 33.7 mg/l and 71.7 mg/l against the set norms of 3 mg/l.

4.3.9.2 Under-utilisation of Installed Infrastructure at Bhandup, Ghatkopar and Versova WWTFs

Versova, Bhandup and Ghatkopar WWTFs provided secondary treatment[100] to 258 MLD sewage collected and treated at lagoon system. These WWTFs could meet the discharge standards fixed (100/100 mg/l) by the MPCB during March 2010 to January 2011 by operating[101] four to six aerators. The higher discharge norms could not be met at this level of aerator operations.

The NEERI (October 2008) and Dadar laboratory (in all test reports between 2010 and 2015) suggested MCGM to operate more aerators for better results, however, MCGM failed to do so till date (July 2016).

MCGM initiated tender (November 2015) for replacement of 38 aerators at a cost of ₹ 48.24 crore in lagoon at Versova WWTF in order to achieve the set standards of BOD/SS of 20/30 mg/l treatment by the MPCB. The tendering process was kept pending by MCGM for administrative reasons (January 2017).

The Government stated (January 2016) that due to change in norms, standard set for other parameters of Sewage treatment by the CPCB could not be achieved. Hence they had decided to go ahead with construction plans as proposed in the Master Plan.

The Government's reply did not address the issue of running optimum number of aerators.

Recommendation 2: MCGM may take proper initiative to make all the installed aerators operational at Versova, Bhandup and Ghatkopar WWTFs to safeguard the environmental interest at large and watch the results thereof under expert supervision.

4.3.9.3 Delay in Finalisation of Tender for Colaba WWTF

The Master Plan proposed construction of Colaba WWTF with 85 MLD capacity for treatment of influent Sewage of 31 MLD flow (ADWF[102]) having BOD load of 265 mg/l with Activated Sludge Process (ASP) technology to get desired result of 20/30 mg/l BOD/SS. However, during tendering (May 2011) the values of extant ADWF and BOD load of influent

[100] High rate aerobic or anaerobic system used for reduction in BOD/SS *viz*., Activated Sludge Process, lagoons system *etc*.

[101] Number of aerators installed and operated at a time – Bhandup : 56/4, Ghatkopar : 64/4 and Versova : 57/6

[102] Average dry weather flow (ADWF) is measurement of average sewage generated three days before and after excluding holidays

were changed to 37 MLD and 250 mg/l respectively and cost of construction was estimated at ₹ 75 crore.

The MSDP invited (May 2011) bids on Design Built and Operate basis for ASP and Sequential Batch Reactor (SBR) technologies. The Contractors were required to submit designs for primary and secondary treatment of Sewage, management of sludge, electrical and mechanical design for gas storage and power generation. After technical evaluation of the bids, the Consultant stated that the SBR technology was not capable of treating quantity and BOD load of influent Sewage received at Colaba WWTF. MSDP cancelled the tender process in December 2013. MCGM also sought opinion from a Technical Advisory Committee (TAC)[103] on technology and various vital parameters. The TAC concluded that SBR technology was not suitable for Colaba WWTF and was energy intensive. The MSDP retendered the work in February 2014. Change in design parameters delayed the process of tendering and finally after financial evaluation, the cost of work was found to be on higher side. So this tender process was again cancelled in June 2015.

MCGM again invited tenders in August 2015 wherein option of technology was kept open with criteria of discharge of treated sewage with 10/10 mg/l of BOD/SS. The tendering process was not finalized as of July 2016. Delay in execution of work resulted in continuous discharge of effluent Sewage not complying with MPCB standards.

4.3.9.4 Failure to Recycle and Reuse of Treated Sewage

As suggested by MoEF (January 2008), MCGM conducted a feasibility study (July 2009) to explore recycle and reuse of treated sewage in MCGM. The Consultant after cost benefit analysis/availability of water in the region, extent of safe use of recycled sewage in domestic, agriculture and industrial uses, topography around Mumbai city *etc*. opined (July 2009) that this was not feasible.

Despite this, MCGM constructed (June 2014) a Sewage treatment plant of three MLD at Banganga Pumping station at cost of ₹ 2.59 crore, as a pilot project, for water conservation and to construct STPs in decentralised manner at various Sewage pumping stations. The standard of treatment was fixed at the level of 5 mg/l of BOD/SS along with other parameters. The SO had decided (March 2012) to use the treated waste water for the non-potable uses. Treated Sewage was proposed to be stored at the highest point and the same was to be distributed by separate supply lines. Storage tank and distribution network was to be constructed by Hydraulic Department. The SO prepared a payback calculation after commissioning of the project on assumption basis.

The plant was commissioned in September 2014. However, work of storage tank and distribution network could not be started till date (July 2016) and treated sewage was being discharged into sea despite an expenditure of ₹ 2.59 crore. SO did not intimate any time plan by which treated sewage could be recycled.

[103] TAC- representative from MCGM, NEERI, IIT Mumbai

Recommendation 3: MCGM may ascertain level of implementation of Master Plan works and prepare a road map for completion of balance feasible works besides ensuring elimination of non-point untreated discharge and treatment quality of sewage at par with standards fixed by the Regularity Authorities (MPCB & CPCB).

4.3.10 Poor Implementation of Slum Sanitation Plan

The Master Plan had proposed the construction and rehabilitation of toilet blocks. A comprehensive working plan was to be prepared to provide approach roads, water and electricity connections along with connectivity with main sewer lines to all the toilet blocks. MSDP did not prepare any such comprehensive plan. However, it was mandatory for contractors to bid for toilet block works along with one experienced Non-Governmental Organisation (NGO).

According to census 2011, out of total slum population of 52.07 lakh, 12.20 lakh people had no access to septic toilet. MSDP (Slum Sanitation Programme) had assessed requirement of 25,992[104] toilet seats considering one toilet seat to be used by 50 persons. However, MSDP could construct 5,797 toilet seats leaving deficit of 20,195 toilet seats as of March 2016. It was also observed that out of total available 8,594 toilet blocks only 2,476 toilet blocks were connected with sewer lines and electricity. There was no water connection in 6,464 toilet blocks. As per survey reports[105] user ratio was not maintained as per set norms and it varied from 11 to 417 persons per toilet seat.

It was noticed that out of 477 work orders issued (between 2006 and 2015), 134 work orders were cancelled (28 *per cent*) due to various issues such as, site issues, community disputes, non-formation of Community Based Organisations, objections raised from other departments relating to site of work, refusal of no objection certificate by concerned ward office of Corporation. This adversely affected the objective of the MSDP of reducing open defecation and increased non-point untreated discharges.

Recommendation 4: MCGM may prepare a comprehensive plan for improvement in slum areas thereby providing optimum numbers of toilet blocks along with sewage connection, electricity and water connections.

4.3.11 Internal Control and Monitoring

The internal control and monitoring is one of the important tools to ensure due accountability and transparency in any organization. It was observed that there was no monitoring mechanism in MCGM to ascertain the progress of the implementation of Master Plan. There was failure of MCGM in awarding any single contract after lapse of nine years indicated lack of pursuance of preparatory works such as, resolving land issues, obtaining required statutory clearances from MoEF and finalising

[104] 24,397 toilet seats for slum population of 12,19,850 persons at the rate of one toilet per 50 persons and in lieu of 1,595 defunct toilet seats as of 2011

[105] As per summary Report on Survey conducted by Pratha NGO during September 2013 under Slum Sanitation Programme

technological/capacity issues of WWTFs *etc*. MSDP incurred ₹ 141.78 crore on designing works and no capital work could be commenced for want of preparatory works.

The Department concerned did not verify the rates received from the contractors for execution of capital works. The conditions of the contract were also not applied for verifying the composite rates quoted by bidders during the currency of contract and were not analysed properly along with supporting documents before finalization of the contracts.

There was no system to assess the periodical improvement made in collection of sewage through laying of new sewer lines and upgradation of old ones. Execution of several works was left midway and partly executed length of sewers was lying idle for long periods.

4.3.12 Conclusion

Mumbai city generated 2,146 MLD Sewage per day, of which only 1,098 MLD Sewage was being treated per day and remaining 1,048 MLD (49 *per cent*) Sewage was outside of the Sewage collection system and was discharged into the sea/creeks without any treatment. This combined with poor treatment quality of sewage at four out of seven WWTFs was polluting the sea water. As a result, BOD level of sea water had increased (2011-13). This ranged between 10.9 mg/l and 13 mg/l against the desired level of 3 mg/l as per the Environment Protection Rules, 1986 and consent issued by the MPCB to MCGM.

This was due to inadequate coverage of sewage network and low capacity utilisation of treatment facilities. Sewer line works proposed under Master Plan and feasibility works undertaken by SP were executed to the extent of 43.06 *per cent* (49.81 kms out of 115.67 kms). Similarly, only 17 *per cent* work of rehabilitation of old lines was executed and no improvement took place in WWTFs.

The rate analysis of composite items of works prepared by SP and SO was found faulty in many cases leading to excess/overpayments to contractor. Besides, the composite rates quoted by bidders were not analysed properly along with supporting documents before finalization of the contracts. Instead, Department concerned negotiated with lowest bidders on lumpsum basis resulting in award of contracts at higher rates.

For Slum Sanitation, the MCGM did not prepare comprehensive plans in coordination with the NGOs. The works executed did not meet the norms. Out of the total 477 work orders issued (between 2006 and 2015), 134 work orders were cancelled and 5,797 toilet seats were constructed leaving a deficit of 20,195 toilet seats as on March 2016. This defeated the objective of containing open defecation. The slow progress in construction of toilet blocks and connecting them to existing sewer lines resulted in continued discharge of untreated sewage into open nullahs/creeks/sea.

CHAPTER-V

COMPLIANCE AUDIT
(URBAN LOCAL BODIES)

CHAPTER V

COMPLIANCE AUDIT

URBAN DEVELOPMENT DEPARTMENT

5.1 Implementation of Service Level Benchmarks in Aurangabad Municipal Corporation

5.1.1 Introduction

Service Level Benchmarks (SLB) are parameters prescribed (July 2008) by the Government of India for assessment of four basic services rendered by urban local bodies *viz*., Water Supply, Solid Waste Management, Sewage Management and Storm Water Drainage System. Benchmarking ensures accountability in service delivery. It involves measuring and monitoring of service provider performance on a systematic and continuous basis. Sustained benchmarking could help utilities to identify performance gaps and introduce improvements through the sharing of information and best practices, ultimately resulting in better services to people. Recognising its importance, the Ministry of Urban Development, Government of India (GoI) prescribed (July 2008) the Service Level Benchmarking in above four key sectors in the form of Hand Book. The Government of Maharashtra (GoM) adopted the National level benchmarks with modifications in February 2010 for urban local bodies in the State **(Appendix 5.1).**

Aurangabad, a medium sized town in Maharashtra with an estimated population of 11.65 lakh (Census 2011), was selected for thematic audit to assess the implementation of SLBs in Corporation area. All the urban local bodies come under administrative control of Urban Development Department, (GoM). The Aurangabad Municipal Corporation (AMC) is headed by Municipal Commissioner who is assisted by the Additional Commissioner and three Deputy Commissioners. AMC is divided into six Wards (Zones) headed by the Ward Officers. The audit was conducted during January to June 2016 covering the period 2011-16. Audit observations on achievement of SLBs against National/State benchmarks in each service sector with reasons for shortfall and its impact are based on responses to questionnaires issued to ward offices and departments of AMC. An exit conference was held (January 2017) with the officials of Government and the AMC. Responses were considered while finalising the report.

Audit findings

5.1.2 Planning

5.1.2.1 Planning for Implementation of Service Level Benchmarks

GoM fixed targets (February 2010) for all four parameters in line with National Level Benchmarks and directed (April 2011) Urban Local Bodies (ULBs) of the State to establish Special Cells headed by the Municipal Commissioners for effective control on implementation of SLBs. These Cells

were made responsible for collecting and collating statistical information on basic services provided within the municipal area and reporting to the Government. It was directed that these Cells should prepare a time bound action plan for achievement of the prescribed SLBs and should set quarterly targets for each performance indicator.

AMC formed a Special Cell in May 2011. The members of the Cell were required to meet every second and fourth Monday of the month to review the improvements in the implementation process and fix quarterly targets. Special Cell met first in December 2011 in which Commissioner, AMC expressed displeasure about the absence of various authorities and implementation of SLBs and directed departmental heads to prepare action plan for implementation of SLBs. Audit observed that the Special Cell did not convene any meeting thereafter. No action plan for implementation and achievement of prescribed SLBs was framed.

AMC accepted (July 2016) the audit observations. During exit conference held in January 2017, Government stated that no meeting of special cell was held after December 2011.

5.1.2.2 Non-linking of City Sanitation Plan and City Development Plan with SLBs

Hand book on SLBs recommended that SLBs should be an integral part of City Sanitation Plan (CSP) and City Development Plan (CDP) for assessment of current situation and for setting targets under these plans. It further stated that SLBs should be part of the Detailed Project Reports for the concerned sectors, indicating both the current situation and changes the project would bring about. Subsequent process of implementation and monitoring of the projects would also evaluate these SLBs.

CSP prepared (November 2011) by AMC included all four services *viz*., water supply, sewage management, solid waste management and storm water drainage system considering population growth up to the year 2041. Approval of General Body of AMC was held up for want of Marathi version of CSP.

A draft CDP was also prepared (2011) for planning city development during 2011-31. The area for water supply reservoirs, sewage treatment plant and disposal of solid waste in compost depot were included in the plan. However, no reservations for storm water drainage and landfill sites were earmarked. CDP was yet to be approved by GoM (February 2017). Both CSP and CDP were not linked with SLBs. AMC did not furnish any reply to the audit observation made in August 2016. During exit conference held in January 2017, Government accepted the audit observation. This indicated that the development works had been undertaken by the AMC without any assessment of infrastructural gaps for achieving the prescribed SLBs.

5.1.2.3 Non-availability of Performance Data for SLBs

As per Paragraph 3.1.2 of SLB Handbook, the measurement of performance against each indicator was to be made at Ward/ULB level on monthly/quarterly/annual basis. This data should be entered into a format prescribed in the SLB Handbook. The ULB would collate this data and

compute achievement of SLB indicators against the prescribed benchmarks for further reporting to the State/Central Government every year.

Audit observed that neither the Ward Offices nor AMC collected this data in prescribed formats and at prescribed frequency against each indicator. As a result AMC could not intimate achievement of SLBs to Government during 2011-16 except for 2013-14. However, no supporting documents were made available to audit to substantiate the fact that AMC intimated the achievement for the year 2013-14 to Government.

AMC did not furnish any reply to the audit observation made in August 2016. During exit conference held in January 2017, Government accepted the audit observation.

Recommendation 1: Government may ensure that the Special Cell functions efficiently so that a time bound action plan for achievement of SLBs is formulated and implemented.

5.1.3. Implementation

Audit observations on achievement of SLBs against National/State level benchmarks in each service sector with reasons for shortfall and its impact are discussed below.

5.1.3.1 Water Supply

Performance against SLBs for Water Supply

Hand book on SLB prescribed nine benchmarks to measure the performance of water supply services. These were:

- **Coverage of Water Supply connections** – 100 *per cent* households in the ULB to be provided with direct water supply connections;
- **Per capita supply of water** – minimum 135 litres per capita per day (lpcd) of water to be supplied;
- **Extent of metering of water connections** – all water supply connections shall have a functional meter to measure the efficiency in water use, leakages in the distribution system and enables high-end consumers to be charged more for consuming more water;
- **Extent of non-revenue water** – the revenue that could not be realised from water which has been lost through leakages, thefts, *etc*. The maximum loss of 20 *per cent* of total water produced is admissible;
- **Continuity of water supply** – 24 hours supply of pressurised water per day;
- **Efficiency in redressal of customer complaints** – 80 *per cent* of total number of complaints received to be redressed within 24 hours;
- **Quality of water supply** – the percentage of water samples that meet or exceed the specified potable water standards prescribed in the Central Public Health and Environmental Engineering Organisation (CPHEEO) Manual;

- **Cost recovery in water supply services** – it is the total revenue recovered against the total operating cost incurred in supplying water; and
- **Efficiency in collection of water supply related charges** – it is the revenue collected in the current year against the total demand of operating revenue.

Presently, water requirement of Aurangabad city is 180 million litres per day (MLD). As the existing water supply Schemes of AMC (Harsul, Jayakwadi old and Jayakwadi new) were old, only 122 to 124 MLD of water could be supplied for consumption against water availability of 166 MLD. The existing water pipelines of about 900 km length are around 30 years old and loss of water due to leakages during distribution was 42 MLD. AMC could provide only 103 to 116 Litres Per Capita Per Day (lpcd)[1] against the SLB of 135 lpcd to the population of 11.65 lakh.

The depleted status of the existing water supply system of the AMC led to significant shortfall in achievement of SLBs indicated in **Table 5.1.1**.

Table 5.1.1: Statement showing status of achievement of SLBs in water supply services

Sr. No.	Performance Indicators	National level bench-marks	State level bench-marks	Unit	2011-12	2012-13	2013-14	2014-15	2015-16
1	Coverage of Water Supply connection	100	100	*per cent*	45	42	42	36	44
2	Per capita supply of water	135	135	lpcd	103	103	103	103	115.8
3	Extent of metering of water connections	100	100	*per cent*	0.01	0.01	0.01	1.93	2.01
4	Extent of non-revenue water	20	15	*per cent*	17.95	13.33	11.60	10.00	12.22
5	Continuity of water supply	24x7	24x7	--	Once in three days				
6	Efficiency in redressal of customer complaints	80	80	*per cent*	100	100	100	100	99.36
7	Quality of water supply	100	100	*per cent*	99.09	99.79	99.62	100	100
8	Cost recovery in water supply services	100	100	*per cent*	62.18	75.71	65.96	70.97	74.94
9	Efficiency in collection of water supply related charges	90	100	*per cent*	44.95	42.74	49.30	52.18	52.49
Source : Information furnished by AMC									

[1] LPCD: Litres per capita per day *i.e.* per day requirement of water for each individual

As per information provided by AMC, in two out of nine SLBs *viz*., quality of water supply and efficiency in redressal of customer complaints were shown achieved. However, scrutiny revealed that 17,561 (85 *per cent*) out of 20,722 complaints received (September 2014 to March 2016) were redressed. Out of 2,92,358 households in AMC area, 1,29,161 households were provided with water connections as of March 2016. The coverage of direct water supply connections was 44 *per cent.* The continuity of water supply was once in three days at low pressure for one hour as against requirement of 24×7 with pressurised supply. This was causing severe inconvenience to the citizens. It was seen that AMC had reported (2013-14) to the GoM coverage of water supply connections as 80 *per cent* against actual achievement of 42 *per cent.*

Coverage of consumer metering was negligible and ranged between 0.01 *per cent* (2011-14) and 2.01 *per cent* (2015-16) of the total water supply connections. Failure of the AMC to improve service deliveries to the consumers led to frequent public agitation and strong opposition to installation of consumer meters.

AMC in reply stated (June 2016) that the prescribed benchmarks would be achieved on completion of the parallel water supply Scheme. The reply is not acceptable as the contract for the parallel water supply Scheme was terminated (October 2016) and the matter is pending in the Court of law as discussed in succeeding paragraph. During exit conference held in January 2017, Government accepted the audit observation.

The fact remained that even after a lapse of seven years, the AMC could not achieve the SLBs on water supply services and citizens were deprived of this basic service.

Augmentation of Parallel Water Supply Scheme on Public Private Partnership basis

To overcome the shortfalls in distribution of water, AMC proposed (2005-06) a Scheme of Augmentation of City Water Supply termed as "Parallel Water Supply Scheme" at an estimated cost of ₹ 359.67 crore under Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT). GoI sanctioned (June 2009) the project at the same cost, to be apportioned among GoI:GoM:AMC in the ratio of 80:10:10 and released first installment (50 *per cent* of its share) of ₹ 143.86 crore in August 2009. The project cost increased to ₹ 638.38 crore due to delay in sanction by the Government. To bridge this gap of ₹ 278.71 crore, AMC decided to take up the Scheme on public private partnership basis and initiated (August 2009) tendering process. Tender[2] was finalised for ₹ 792.20 crore and a Concession Agreement (CA) was entered (September 2011) for a period of 20 years. The GoM also released (May 2011) ₹ 17.94 crore as first installment (50 *per cent* of its share).

[2] M/s Subhash Project Marketing Limited and consortium including VA-Tech Wabag and National Water and Sewage Corporation

The Concessionaire was to take up the project within six months of signing of agreement by attaining financial closure[3]. As the concessionaire could not achieve the financial closure, AMC granted extensions up to 31 August, 2014 and finally handed over the assets[4] to the Concessionaire (September 2014) inspite of non-achievement of financial closure**.** The project cost escalated to ₹ 1,018.55 crore as per schedule of rates 2014-15 (Concessionaire share of ₹ 619.02 crore + State Government share ₹ 399.53 crore) from ₹ 792.20 crore. The scope of work broadly included:

(i) Construction of a new parallel water pipeline of 39.12 km from Jayakwadi dam to major balancing reservoir at Nakshatrawadi and rehabilitation of the existing distribution pipeline of 1,036.35 km of Aurangabad city within three years from the appointed date (01 September 2014 to 31 August 2017) which would be referred to as construction and rehabilitation period.

Scrutiny of the records revealed that against Government share of ₹ 161.80 crore (₹ 143.86 crore + ₹ 17.94 crore), AMC released ₹ 20.09 crore to the concessionaire. The concessionaire could invest only ₹ 11 crore against the requirement of ₹ 619.02 crore as of March 2016 due to non-achievement of financial closure. The concessionaire could complete only 40 km water pipe line against total required length of 1,075.47 km (April 2016). Of the 40 km pipe line laid, 6.1 km was laid in unauthorised layouts without the permission of AMC at a cost of ₹ 50.19 lakh, while 26.5 km pipeline were laid without conducting hydraulic tests.

(ii) Operation and maintenance of the Aurangabad water supply Scheme in accordance with the service level requirements and undertaking metering, improving billing and collection system for which concessionaire would be paid by AMC, Annual Operation Support Grant (AOSG) of ₹ 63 crore in the first year and in subsequent years an amount enhanced by six *per cent* annually up to a period of 20 years plus retention of water user charges at the rates prescribed in CA.

The operation and maintenance of water supply Scheme by the Concessionaire was inadequate[5]. However, it was noticed that he was paid ₹ 127.16 crore as AOSG. In addition, ₹ 43.71 crore was paid as user charges from Collection Account. AMC issued (April 2016) a show cause notice to the concessionaire for his failure to maintain the progress of work as per CA.

Finally, as the concessionaire grossly failed to keep up with the terms of the CA, the AMC under clause 34 of the CA terminated (October 2016)

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[3] Provide evidence in a manner reasonably acceptable to AMC that the concessionaire has the funds available (whether by debt or equity) to undertake the project. Such evidence may include, but not be limited to, an executed loan agreement or a letter of commitment from the Sponsors which would be termed as financial closure

[4] Assets as per Schedule VI of the CA includes land for head works, approach bridge, raw water pumping main, water treatment plant site and distribution system sites

[5] Coverage of water supply connection - 36 and 44 *per cent,* providing water meter connection – 1.93 and 2.01 *per cent* against 100 *per cent*, continuity of water supply only once in three days against 24 × 7 in 2014-16

the contract with concessionaire. AMC intended to encash the performance security of ₹ 79.22 crore submitted (August 2014) by the concessionaire. The AMC could not invoke performance security and take over the project as the concessionaire approached (October 2016) the Bombay High Court (Aurangabad Bench) which, in turn, rejected (24 October 2016) its appeal. Aggrieved by this decision, the concessionaire moved the Supreme Court of India who ordered *status quo* in the matter on 28 October 2016. Pending the decision of the Apex Court, the work on the Scheme was stopped and expenditure of ₹ 190.96 crore[6] incurred got blocked.

AMC accepted (June 2016) the audit observation. During exit conference held in January 2017, Government accepted the audit observation and no reply was furnished.

Thus, even after incurring an expenditure of ₹ 190.96 crore, the AMC failed to provide water supply services and achieve the prescribed SLBs.

Recommendation 2: Government may take effective action to complete the parallel water supply Scheme to achieve the prescribed SLBs.

5.1.4 Sewage Management

5.1.4.1 Performance against Service Level Benchmarks for Sewage Management.

Hand book of SLB prescribed nine benchmarks to measure the performance of sewage management. These were:

- **Coverage of toilets** – it denotes the extent to which citizen of ULBs have access to toilets in residential, commercial, industrial and institutional properties;
- **Coverage of sewage network services** - it denotes the extent to which underground sewage network has been provided to individual properties in the ULB area;
- **Collection efficiency of sewage network** - it denotes the quantum of waste water collected at Sewage Treatment Plant as against total sewage generated in the ULB;
- **Adequacy of Sewage Treatment Capacity** – it denotes the availability of secondary treatment capacity as a percentage of waste water generation;
- **Quality of sewage treatment** – it denotes the percentage of standard waste water samples that pass out the specified secondary treatment;
- **Extent of reuse and recycling of treated water** - it denotes the percentage of treated waste water reused;
- **Extent of cost recovery** – it is the total revenue recovered against the total operating cost incurred on waste water treatment;

[6] ₹ 127.16 crore as AOSG + ₹ 43.71 crore as user charges + ₹ 20.09 crore for project

- **Efficiency in redressal of customer complaints** – eighty *per cent* of total number of complaints received to be redressed within twenty four hours; and
- **Efficiency in collection of sewage charges** – it is the revenue collected in the current year against the total demand of operating revenues.

The City of Aurangabad is divided mainly into two river basins *viz*., Kham and Sukhana. The existing sewage system was developed (1976) with projected population of two lakh which was insufficient to cater to the needs of the current population. There existed four Sewage Treatment Plants (STPs) at City and Industrial Development Corporation (CIDCO), Salim Ali, Zalta and Kanchanwadi. Of these, only two (one at CIDCO and another at Salim Ali Lake) were functional with combined capacity of 11.50 MLD and two had not been commissioned since their installation (1976). Of 103 MLD of sewage generated in the city, only 11.50 MLD was treated of which 2.75 MLD was used for watering gardens during 2011-16. The untreated 91.50 MLD sewage was being discharged into Kham and Sukhana rivers.

Picture 1 and 2: Untreated sewage entering into Kham river

The status of SLBs in respect of sewage management during 2011-16 is indicated in **Table 5.1.2**.

Table 5.1.2: Statement showing status of achievement of SLBs in sewage management

(in *per cent*)

Performance Indicators	National level Bench-marks	State level Bench-marks	2011-12	2012-13	2013-14	2014-15	2015-16
Coverage of toilets	100	100	92.77	93.70	93.99	Records not available	
Coverage of sewage network	100	100	80.98	70.71	68.50	67	67
Collection efficiency of sewage network	100	100	8	8	8	8	7.9
Adequacy of sewage treatment capacity	100	100	13	12.5	11.9	11.7	11.16
Quality of sewage treatment	100	100	Records not available				
Extent of reuse and recycling of treated water	20	20	29.72	29.72	29.72	29.72	29.72
Extent of cost recovery	100	100	0	0	0	0	0
Efficiency in redressal of customer complaints	80	100	100	100	100	100	100
Efficiency in collection of sewage charges	90	90	0	0	0	0	0
Source : Information furnished by AMC							

The AMC achieved only two out of nine indicators as per National/State level benchmarks *i.e.* extent of reuse and recycling of treated water and efficiency in redressal of customer complaints. Remaining seven benchmarks were under achieved or not at all achieved. There was a declining trend in the coverage of sewage network as the installation of sewage network connection was not commensurate with increase in the number of properties. Similarly, adequacy of sewage treatment capacity also dropped as only two STPs with combined capacity of 11.50 MLD were functioning while the waste water generation increased gradually during 2011-16. The collection efficiency of sewage network was only eight *per cent*. 8,755 properties in the city were connected to open drainage system posing serious public health hazards. The AMC did not have data relating to testing of quality of treated sewage water.

Thus, old and inefficient system for waste water management and inadequate access of collection network to main sewer lines led to shortfall in achievement of prescribed SLBs. The AMC stated (June 2016) that the prescribed SLBs would be achieved after completion of on-going Sewage Treatment Project. During exit conference held in January 2017 Government accepted the audit observation and did not furnish any reply.

5.1.4.2 Water Pollution Caused due to Untreated Sewage

A Comprehensive Environment Pollution Index (CEPI)[7] captures the various health dimensions of environment including air, water and land. Central

[7] The index captures the various health dimensions of environment including air, water and land

Pollution Control Board (CPCB) in its reports on CEPI (December 2009) stated that preparation of effective remedial action plan would yield desired results in terms of sustainable use of carrying capacity of the respective industrial area and suggested that areas having aggregated CEPI scores of 70 and above should be considered as critically polluted industrial areas and need further detailed investigations in terms of the extent of damage and formulation of appropriate remedial action plan. CPCB declared Aurangabad city as one of the critically polluted areas with CEPI of 77.44. The CPCB and Ministry of Environment and Forests (MoEF) had directed (April 2011) the Maharashtra Pollution Control Board (MPCB) to prepare action plan for reducing the CEPI score. Accordingly, MPCB prepared (May 2011) and submitted the action plan to MoEF and CPCB along with short term and long term measures to be taken by AMC in a time bound manner. MPCB directed (May 2011) AMC to develop mechanism till March 2012 for scientific collection, treatment and disposal of sewage generated from human habitation which included installation of treatment facility for waste water flowing through Kham and Sukhana River. A bank guarantee of ₹ five lakh was also submitted (July 2011) by AMC to MPCB. As the AMC failed to implement the action plan within the timeframe, the MPCB served five show cause notices under Water (Prevention and Control of Pollution) Act, 1974 to AMC between October 2012 and March 2016 and forfeited (April 2013) the bank guarantee.

In the show cause notices MPCB expressed concern over adverse impact on public health due to release of untreated sewage water into the river Sukhana and Kham which further enters into the Jayakwadi dam, polluting the only source of potable water for Aurangabad City and surrounding areas. The MPCB declared (March 2016) its intention to prosecute the AMC for such a serious violation and negligence of the environment protection aspect.

AMC stated (June 2016) that the matter of letting out untreated waste water in Sukhana and Kham rivers would be resolved on completion of the sewage treatment project by July 2017. The reply is not acceptable as the AMC failed to adhere to the directions of MPCB since April 2011.

During exit conference held in January 2017 Government accepted the audit observation and did not furnish any reply.

5.1.4.3 Refurbishment of the Existing Sewage System through UIDSSMT

The AMC was aware of inadequate sewage treatment facility and release of untreated water into the rivers. For refurbishment of existing facilities, AMC appointed (October 2010) a Project Management Consultant (PMC) for preparation of Detailed Project Report (DPR). The PMC prepared DPR for ₹ 367.16 crore which was technically sanctioned (March 2012) by Maharashtra Jeevan Pradhikaran (MJP). AMC mooted (January 2013) the proposal under UIDSSMT and GoI accorded (December 2013) approval to this project for ₹ 365.69 crore with funding ratio of 80:10:10 (GoI:GoM:AMC). The GoI and GoM released 50 *per cent* of their share at ₹ 146.28 crore (December 2013) and ₹ 18.28 crore (May 2014) respectively. However, AMC contributed 50 *per cent* of its share in two installments, of ₹ 10.85 crore (August 2014) and ₹ 7.42 crore belatedly in June 2016.

The components of the project as per DPR were as given in **Table 5.1.3**.

Table 5.1.3: Components of the project as per DPR

Sr. No.	Components	Details of works to be carried out
1	Collection system	Development of underground sewage collection system in Aurangabad city. The proposed sewer length was 260 km.
2	Sewage Treatment plants	Construction of six STPs with total capacity of 216 MLD which included five new STPs[8] and augmentation of one STP[9].
3	Pumping stations	Construction of eight pumping stations at Golwadi, Banewadi, Siddharth Garden, Padegaon, Zalta, CIDCO, intermediate pumping station at Ward 98 and pumping station from Golewadi SPS to Kanchanwadi.
Source: Bid document		

AMC initiated tendering process in January 2014 and work was awarded (July 2014) to an agency for ₹ 464.00 crore to be completed in 36 months. Audit findings are discussed below:

Deficiencies in the DPR and Execution

- Section I of the SLB Handbook provides that the relevant SLBs should be part of DPRs for projects taken up in the concerned sectors. Audit observed that no such linking of SLBs was made in the DPR to assess the achievement of indicators as provided in the National/State level benchmarks.
- As per CPHEEO Manual, the sewage system including STPs and collection system should be designed for 30 years. Though collection system was proposed with projection up to 30 years, only six STPs and pumping stations were considered in the DPR based on projections for 15 years (up to 2030) due to financial constraints.
- AMC merged (March 2015) the capacity of Siddharth Garden STP (4.50 MLD) and Banewadi (20 of 30 MLD) with Nakshatrawadi STP by expanding its capacity to 161 MLD from 136.50 MLD. This was due to objections raised (March 2015) by the Zoo Authority of India against the proposed STP at Siddharth Garden anticipating its adverse impact on zoo animals and also due to non-availability of land at Banewadi. Concerns were expressed (January 2014) by Airport Authority of India over the STP at CIDCO in view of the potential danger of bird hits to the aircraft. Consequently, AMC expanded the capacity of Zalta STP to 35 MLD from 20 MLD by merging CIDCO STP (15 MLD) with it.
- Encroachment was noticed on three main sewer lines *viz.,* sewer 'C' (Surana Apartment to AMC shops), sewer 'D' (Zilla Parishad ground to Aushadhi Bhavan) and sewer 'L' (Airport compound to Jay Bhavani chowk) passing through local nullah. Hence, these three sewer lines were diverted along the road side instead of passing through the nullah bed. This diversion led to increase in length of sewer line by 745

[8] 1 Nakshatrawadi (capacity 136.50 MLD); 2 Banewadi (capacity 30 MLD); 3 Padegaon (capacity 10 MLD); 4 Siddharth Garden (capacity 4.50 MLD); and 5 Zalta (capacity 20 MLD)

[9] CIDCO: capacity to be increased from existing 6.50 MLD to 15 MLD

metres for which AMC had to bear extra financial burden of ₹ 78.60 lakh.

- The physical progress of four STPs ranged between six and 61 *per cent*[10] as of December 2016.
- Against 70.16 km length of main sewer, 60.15 km was completed and 87.05 km of internal collection system out of 200 km was covered as of December 2016.
- The physical progress of four Sewage Pumping Stations (SPS) was ranging between 45 and 85 *per cent*[11] as of December 2016. However, the work of SPS connecting Golwadi to Kanchanwadi and other three SPS at Banewadi, Siddharth Garden and CIDCO were not taken up as of December 2016.

The above situation indicated that even after the lapse of thirty[12] months and incurring an expenditure of ₹ 193.41 crore (January 2017), the progress of the work was slow. No milestones were fixed for completion of the project.

AMC stated (December 2016) that the changes were necessary due to issues noticed during actual execution. The reply is not acceptable as the changes proposed subsequently should have been factored in while preparing the DPR for smooth execution of the work.

During exit conference held in January 2017 Government accepted the audit observation but did not furnish any reply.

Therefore, AMC could not achieve the prescribed SLBs due to non-completion of sewage treatment project even after a lapse of almost five years.

Recommendation 3: Government may ensure that the ongoing project of sewage management is completed expeditiously to achieve the prescribed SLBs.

5.1.5 Solid Waste Management

5.1.5.1 Performance against SLBs for Solid Waste Management.

To streamline the process of handling, collection, transportation and disposal of municipal solid waste and to avoid any adverse impact on human health, GoI framed Municipal Solid Waste (Management and Handling) Rules, 2000. GoI prescribed eight benchmarks to measure the performance of solid waste management (SWM) services by ULBs.

- **Household level coverage of SWM services through door to door collection of wastes** – it denotes the extent of solid waste and establishments covered by door to door collection of municipal solid wastes on daily basis;

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[10] Nakshatrawadi (61 *per cent*), Banewadi (6 *per cent*), Padegaon (37 *per cent*) and Zalta (56 *per cent*)

[11] Golwadi SPS (45 *per cent),* Zalta SPS (80 *per cent),* Ward 98 (45 *per cent)* and Padegaon (45 *per cent)*

[12] 01 July 2014 to 31 December 2016

- **Efficiency in collection of solid waste** – it denotes the extent of total solid waste collected by the ULB as against the total solid waste generated within the ULB area;
- **Extent of segregation of solid waste** – it denotes the extent of solid waste being segregated. Segregation of wet and dry wastes should be done at the point of generation;
- **Extent of solid waste recovered** – it denotes the quantum of collected solid waste recycled and processed;
- **Extent of scientific disposal of solid waste** – it denotes the total quantity of wastes disposed in landfill facilities as against total waste disposal in all sites;
- **Extent of cost recovery in SWM services** – it is the extent to which the ULB is able to recover all operating expenses relating to SWM services;
- **Efficiency in redressal of complaints** – it denotes the number of complaints redressed within 24 hours as against total number of complaints received; and
- **Efficiency in collection of SWM charges** – it is the revenue collected in the current year against the total demand of operating revenues.

The AMC was handling and transporting 450 Metric Tonnes (MT) of solid waste generated daily in the city deploying its own resources (vehicles and labours) and hiring private transport vehicles of two agencies. 61[13] heavy and 151[14] light vehicles were deployed for collection and dumping of solid waste. The private transporters were paid on the basis of trips made to dumping yards at Naregaon. Though the CSP envisaged (November 2011) entering into a long term contract with a private vendor for collection, segregation, processing, recycling and disposal of the solid waste, the AMC did not make any effort to carry out this work through any private agency.

[13] Vehicles owned by AMC: 7 Skip loaders, 7 Hook loaders and 28 Trucks; Vehicles hired through private agency: 6 Tippers and 13 Tractors

[14] Vehicles owned by AMC: 58 Vehicles, Vehicles hired through private agency: 93 Vehicles

The mechanism for processing, recycling, scientific disposal of solid waste and recovery of SWM charges was absent. This led to severe shortfall in achievement of prescribed SLBs during 2011-16 as indicated in **Table 5.1.4**.

Table 5.1.4: Statement showing status of achievement of SLBs in SWM

(in *per cent*)

Performance Indicators	National Level Bench-marks	State Level Bench marks	2011-12	2012-13	2013-14	2014-15	2015-16
Household level coverage of SWM services through door to door collection of waste	100	100	50.01	53.94	56.14	59.49	66.46
Efficiency in collection of solid waste	100	100	93.20	94.19	89.97	93.56	92.77
Extent of segregation of solid waste	100	100	0	0	0	0	19.95
Extent of solid waste recovered	80	80	0	0	0	0	0
Extent of scientific disposal of solid waste	100	100	0	0	0	0	0
Extent of cost recovery in SWM services	100	100	0	0	0	0	0
Efficiency in redressal of complaints	80	100	99.70	100	100	100	100
Efficiency in collection of SWM charges	90	100	0	0	0	0	0
Source :Information furnished by AMC							

Only one SLB (efficiency in redressal of complaints) out of eight was achieved by the AMC against National/State level benchmarks. Although, efficiency in collection of solid waste (lifting of garbage) was exceeding 90 *per cent*, the coverage of door to door collection from households was around 57 *per cent* [15]only. In four SLBs, there was nil achievement during 2011-16, in respect of scientific disposal, extent of solid waste recovered, cost recovery of SWM charges and efficiency in its collection. During 2015-16, the achievement was only 19.95 *per cent* in respect of solid waste segregation. The AMC incurred ₹ 185.30 crore during 2011-16 on operating expenses[16] under SWM but revenue collection was zero. The AMC had reported (May 2014) to the State Government that 80 *per cent* household had been covered and recovery of solid waste at 10 *per cent* was achieved during 2013-14. Audit scrutiny, however, revealed that it was only 56 *per cent* and nil respectively.

Regarding hiring of vehicles, the AMC made payment to agencies on the basis of trips made to the dumping yard at Naregaon. The Standing Committee of AMC observed (September 2012) that against requirement of two trips, only one trip was made by the two private agencies due to shortage of departmental labour. Further, work of transportation of garbage was not satisfactory due to

[15] Average of household coverage from 2011 to 2016: (50.01+53.94+56.14+59.49+66.46)/5=57

[16] Operating expenses includes costs related to operation and maintenance, administrative and establishment expenditure (including salaries, wages), payment to contractors for activities outsourced by the ULB

slackness of departmental workers. The Committee recommended to make payment on weight basis to make this system more efficient as the private agency would strive to lift maximum garbage. The AMC could not adhere to those instructions and continued to dump the garbage on trip basis.

AMC stated (March 2016) that tenders for payments on weight basis were called but there was no response. Thus, the AMC could not develop an effective and efficient system for handling and transportation of solid waste.

During exit conference held in January 2017 Government accepted the audit observation and stated that the surprise checks of vehicles were being carried out. The reply is not acceptable as the monitoring of the transporting vehicles on regular basis is necessary to ensure lifting of entire garbage generated in the city.

5.1.5.2 Un-scientific Disposal of Solid Waste

Rule 4 of the Solid Waste Management Rules, 2000 (SWM Rules) and the CSP prepared by AMC provides that municipal authority shall be responsible for adhering to SWM rules involving collection, storage, segregation, transportation, processing and disposal of municipal solid wastes.

Audit observed that AMC was transporting the solid waste and dumping it at Naregaon dumping yard without segregation, processing and recycling. The MPCB issued (April 2013) a notice to AMC in pursuance of the order passed by the Bombay High Court (Aurangabad Bench) on 02 April 2013 regarding discontinuance of the dumping of solid waste at Naregaon which had exceeded its capacity and instructed (April 2013) AMC to identify alternate sites for disposal of solid waste. MPCB reported (March 2016) that the AMC had failed to dispose the municipal solid waste in a scientific manner which posed serious threat to the public health. Despite these instructions, AMC continued to dump the solid waste at Naregaon dumping yard in an unscientific manner as evident from the photograph below:

Picture 3: Un-authorised dumping of solid waste at Naregaon

As per the SWM Rules, dumping yard and scientific landfill sites should be away from habitation clusters. A mechanism should exist to measure the

concentration of hazardous Methane gas generated due to garbage. Rule 6 stipulates that the municipal authority has to obtain authorization from State Pollution Control Board for creation of the landfill facility.

Audit observed that 72 ordinary landfill pits were dug by AMC in residential areas to dump the garbage. The dumped garbage in landfill pits was not compacted and covered so as to check infiltration and erosion of solid waste. No authorisation from MPCB was sought for creating these pits. There was also no mechanism to measure the concentration of Methane gas generated at dumping/landfill sites.

Picture 4: Open landfill pit in the residential area of Ward-B

Audit further observed that AMC had made a provision of ₹ 50 crore in the CSP for scientific landfill sites. No budget provision was, however, made in the annual budget to develop scientific facility for SWM during 2011-16.

AMC in reply stated (May 2016) that the efforts for finding the alternate site for dumping of solid waste were being made but were not successful.

During exit conference held in January 2017 Government accepted the audit observation regarding failure in finding alternate site for dumping of solid waste. Regarding landfill pits, it was stated that the same were used for composting of garbage.

Reply is not acceptable as the AMC could not adhere to the instructions of MPCB since year 2013. AMC also failed to establish a mechanism for scientific segregation, processing, recycling and disposal of solid waste as per the guidelines of SLBs. Thus, the AMC failed to render SWM related services to the citizens efficiently and could not achieve the prescribed SLBs.

Recommendation 4: Government may ensure that an efficient mechanism for SWM is formulated and an alternate site for dumping solid waste is identified.

5.1.6 Storm Water Drainage

5.1.6.1 Road Side Drainage

Storm Water Drainage (SWD) is runoff from rainfall that flows over roads, driveways, parking lots, rooftops and other paved surfaces that do not allow water to soak into the ground. As per Hand book on SLB, each road having carriageway exceeding 3.5 metre should be provided *pucca* and covered drains. Government prescribed 100 *per cent* coverage for SWD net-work.

The CSP estimated the fund requirement of ₹ 1,424.37 crore[17] for SWD. No budget provision was, however, made by the AMC from 2011-16 under this head as ward offices of the AMC did not propose such works. The progressive status of SWD in AMC is depicted in **Table 5.1.5**.

Table 5.1.5: Storm water drainage data

Particulars	2011-12	2012-13	2013-14	2014-15	2015-16
Total length of road network (in km)	1129.96	1187.55	1229.45	1245.35	1272.45
Total length of *pucca* covered drains (in km)	48.14	52.79	60.09	66.59	69.14
Coverage of storm water drainage network (in *per cent*)	4	4	5	5	6
Source : Information furnished by AMC					

The coverage of *pucca* covered drains ranged between four *per cent* and six *per cent* of the total road length during 2011-16. Out of 142.49 km[18] of new road length constructed during 2011-16, the road side drainage was provided for road length of only 21 km[19].

AMC stated (March 2016) that as no budget provision was created, the work of road drainage was not considered. The reply is not acceptable as ward officer neither proposed such work nor demanded fund from the AMC.

During exit conference held in January 2017 Government accepted the audit observation and stated that Aurangabad was selected for 'Amrut Yojna' under which works of storm water drainage would be executed along with roads.

5.1.6.2 Water Logging Spots

As per paragraph 2.4.2 of the Handbook on SLB, the flood prone spots in the ULB limits should be first identified based on reports/complaints filed by citizens, or by direct observation and reported to a Central Room with details of time, date, location and extent of flooding. The frequency of water logging/flooding at these spots throughout the year should be added up to give aggregate number of incidents. Thus, an assessment of the impact or outcome of SWD systems could be made. Government prescribed zero incidence of water logging in the municipal area.

Audit observed that during 2011-16, the AMC carried out measurement of water logging spots only once in September 2015 against the requirement of quarterly survey prescribed in SLB Handbook of GoI. The occurrence of water

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[17] Road side drains: ₹ 375 crore; nullah training: ₹ 1,000 crore; and construction of catch pits, survey: ₹ 49.37 crore

[18] 1,272.45 km – 1,129.96 km = 142.49 km

[19] 69.14 km – 48.14 km = 21 km

logging incidents was also not measured. A total of 126 spots were identified (18 September 2015) within the city limits in this survey.

During 2011-16, AMC reported this data to the GoM only once *i.e.* for the year 2013-14 wherein 22 water logging incidents were mentioned. The reported data was not based on any survey as no quarterly surveys were carried out by the ward offices of AMC during 2013-14 due to shortage of manpower.

The primary cause of the water logging was encroachment and unauthorised constructions over the natural course of existing nullahs as shown in picture 5 and 6 below:

Picture 5 and 6: Unauthorised constructions

No action was taken to remove unauthorised constructions by AMC due to shortage of manpower and funds. AMC did not furnish any reply to the audit observation made in August 2016.

During exit conference held in January 2017, Government accepted the audit observation and did not furnish any reply.

Recommendation 5: Government may ensure immediate removal of such encroachments on natural course of nullah to avoid any natural disaster.

5.1.7 Training and Orientation

The SLB guidelines provided that the Head of Department (here Municipal Commissioner, AMC) should take the lead in orienting staff by imparting training on SLBs to enable them to play their respective roles in the overall Performance Management System. However, no such training was organised by the AMC during 2011-16. AMC did not furnish any reply to the audit observation.

During exit conference held in January 2017, Government accepted the audit observation and no reply was furnished.

Recommendation 6: Government may ensure imparting training to the municipal staff for effective implementation of service level benchmarks.

5.1.8 Conclusion

With an objective to measure the performance of each ULBs, GoI issued (July 2008) 28 SLBs for four services and GoM adopted (February 2010) the same with modifications. The services included water supply, sewage management, solid waste management and storm water drainage system.

The Special Cell formed by AMC was to prepare a time bound action plan for achievement of SLBs, however, the special cell met only once during 2011-16. The CSP and CDP remained unapproved and were not linked with the SLBs. There was no mechanism for collection of basic data on performance against SLBs from the wards and reporting the same to various authorities. There were deficiencies in preparation of DPRs for the projects and in execution. Insufficient budget provisions and ineffective management of ongoing projects led to severe shortfall in achievement of SLBs thereby depriving the citizens of Aurangabad city of basic amenities like water supply, sewage management, disposal of solid waste and drainage of storm water. MPCB expressed concern over adverse impact on public health due to release of untreated sewage water into the river Sukhana and Kham which further entered into the Jayakwadi dam, polluting the only source of potable water for Aurangabad City and surrounding areas. The MPCB declared (March 2016) its intention to prosecute AMC for such negligence. Despite this, no action was taken by the AMC even after a lapse of more than five years. Staff concerned of AMC was not imparted training for effective implementation of service level benchmarks**.**

The above deficiencies need urgent attention of the Government for proper delivery of services to the public by the AMC and to achieve the target of SLBs prescribed.

PUNE MAHANAGAR PARIVAHAN MAHAMANDAL LIMITED

5.2 Avoidable Expenditure on Purchase of Diesel

Undue delay by Pune Mahanagar Parivahan Mahamandal Limited in switching over from wholesale to retail purchase of diesel resulted in an avoidable expenditure of ₹ 9.89 crore.

The Ministry of Petroleum and Natural Gas, Government of India (Ministry) had a policy of dual pricing regarding sale of diesel *i.e.* different prices for bulk and retail consumers. The bulk consumers were being supplied diesel at the wholesale price. The Ministry revised the above policy from 18 January 2013 and issued directions to the oil companies to sell diesel to bulk consumers at the market determined prices.

Prior to revision of policy, Pune Mahanagar Parivahan Mahamandal Limited[20] (PMPML), a bulk consumer of diesel, had been purchasing diesel directly from three[21] oil marketing companies at the wholesale price of ₹ 52.10 per litre. Upon revision of policy from 18 January 2013, the wholesale price increased to ₹ 64.13 per litre which was higher than the prevailing retail price of ₹ 53.65 per litre. The PMPML worked out (21 January 2013) an additional liability of ₹ 8.66 lakh per day on account of increase in wholesale prices.

Scrutiny of records of PMPML revealed (March 2016) that the Company took unduly long time to decide the modalities for purchase of diesel. Between 18 January 2013 and 31 July 2013 (195 days), PMPML purchased 115.14 lakh litres of diesel at the new wholesale prices and incurred an expenditure of ₹ 73.52 crore, which was higher than the prevailing retail prices during the same period by ₹ 9.89 crore[22]. From 01 August 2013, PMPML started purchasing diesel for all the buses under its control at the prevailing retail prices.

The PMPML attributed (July 2016) the delay in switching-over to retail purchase of diesel to correspondence and meetings held with the oil marketing companies/private pump owners/depots of PMPML to evolve a system of procurement of diesel from private pump owners and additional staff requirement for security, quality control and system of payment *etc.*

The reasons attributed by PMPML for delay in decision-making were not very convincing because, the only meeting with oil marketing companies was held within 10 days of price rise (28 January 2013) and the decision to purchase diesel from private pump owners was taken on 08 February 2013. Further, PMPML was aware that it would have to incur an additional liability of ₹ 8.66 lakh per day due to price rise. Therefore, delay in switching over to retail purchase of diesel was unjustifiable. Regarding the requirement of additional staff, quality control measures *etc.* it was seen that no additional arrangements were eventually put in place by PMPML. Moreover, the credit facilities which were in place with oil companies also continued with private pump owners and no new system of payment was evolved. It is also pertinent to mention that other fleet owners[23] had taken timely decision to shift to retail purchase of diesel.

Thus, undue delay by PMPML in switching over from wholesale to retail purchase of diesel resulted in an avoidable expenditure of ₹ 9.89 crore.

The matter was referred to the State Government in December 2016; their reply was awaited as of February 2017.

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[20] A public limited Company formed under the provisions of the Companies Act, 1956 by amalgamating the transport undertakings of the Pune Municipal Corporation and Pimpri-Chinchwad Municipal Corporation vide Government of Maharashtra resolution dated 19 April 2007

[21] Bharat Petroleum Corporation Limited, Hindustan Petroleum Corporation Limited and Indian Oil Corporation Limited

[22] ₹ 73.52 crore (wholesale price) - ₹ 63.63 crore (retail price)

[23] Maharashtra State Road Development Corporation and Brihanmumbai Electric Supply and Transport Undertaking

MUNICIPAL CORPORATION OF GREATER MUMBAI, AMBERNATH MUNICIPAL COUNCIL, KULGAON-BADLAPUR MUNICIPAL COUNCIL AND PANVEL MUNICIPAL COUNCIL

5.3 Short-levy of Development Charges

Municipal Councils Ambernath, Kulgaon-Badlapur and Panvel levied and collected development charges at pre-revised rates which resulted in short-levy of ₹ 5.58 crore affecting their revenues. The Municipal Corporation of Greater Mumbai recovered the entire short-levy of development charges of ₹ 1.02 crore at the instance of audit.

As per Section 124 (A) of the Maharashtra Regional and Town Planning (Amendment) Act, 1992, all Municipalities shall levy and collect development charges at the specified rates within the area of their jurisdiction. Section 124 (B) (2) read with Second Schedule of the Act specifies that development charges were to be levied at the rates[24] based on per square metre of the area. The rates for industrial and commercial users were one and half times and two times higher than the residential rates. Consequent on introduction of Maharashtra Regional and Town Planning (Amendment) Act, 2010, the Urban Development Department, GoM revised the rates of development charges vide Government Resolution (GR) dated 27 December 2010 based on percentage of stamp duty ready reckoner rates, instead of per square metre basis.

Scrutiny of records of three Municipal Councils[25] (February 2016 to August 2016) revealed that though the rates of development charges had been revised vide GR of 27 December 2010, these Councils continued to levy and collect development charges at the pre-revised rates based on per square metre on plans approved after 27 December 2010. While Ambernath and Kulgaon-Badlapur Municipal Councils implemented the revised rates with effect from September 2015, Panvel Municipal Council implemented the revised rates from July 2015. This resulted in short-levy of development charges of ₹ 3.25 crore in Ambernath Municipal Council (391 cases), ₹ 0.68 crore in Kulgaon-Badlapur Municipal Council (121 cases) during the period 2011-12 to 2015-16 (up to August 2015) and ₹ 2.64 crore in Panvel Municipal Council (79 cases) during the period 2014-16[26] (up to June 2015).

The Ambernath Municipal Council confirmed (March 2017) that ₹ 68.54 lakh[27] had been recovered from the developers and demand notices were being issued for recovery of the balance amount. The Kulgaon-Badlapur Municipal Council stated (February 2017) that ₹ 0.20 crore had been recovered in 27 of 121 cases and notices had been issued in the remaining 94 cases. The Panvel Municipal Council stated (January 2017) that ₹ 9.75 lakh

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[24] Minimum and maximum rates were prescribed within which development charges were to be levied

[25] Ambernath, Kulgaon-Badlapur and Panvel

[26] Municipal Council, Panvel did not furnish any information pertaining to period 2011-14

[27] Full recovery was effected in 75 of 391 cases and partial recovery was effected in the remaining 316 cases

had been recovered in three cases (partly in one case) and action was being taken to recover the balance amount.

Similar observation on short-levy of development charges of ₹ 1.02 crore[28] was also raised by audit in Municipal Corporation of Greater Mumbai, which had since been recovered (January 2017) by the Corporation from the developer at the instance of audit.

Thus, failure to implement revised rates of development charges resulted in short-levy of ₹ 5.58 crore in 487 cases in three Municipal Councils (316 cases in Ambernath, 94 in Kulgaon-Badlapur and 77 in Panvel).

The matter was referred to the State Government in January 2017; their reply was awaited as of February 2017.

YAVATMAL MUNICIPAL COUNCIL

5.4 Unfruitful Expenditure on Purchase of Organic Waste Converter Machine

The Municipal Council, Yavatmal purchased organic waste converter machine but failed to put it to use even after a lapse of four years from purchase rendering expenditure of ₹ 19.79 lakh unfruitful.

The Municipal Council, Yavatmal (MC) decided (June 2011) to purchase organic waste converter (OWC) machine for conversion of organic waste generated from slaughter houses, poultry and fish markets into organic manure. The Collector, Yavatmal accorded (September 2011) administrative approval of ₹ 20 lakh for purchase of OWC machine under Thirteenth Finance Commission funds. The MC placed supply order for purchase of OWC machine in October 2011 at a cost of ₹ 19.79 lakh from a firm. The OWC machine was supplied by the firm in November 2011.

Scrutiny of the records (March 2012 and December 2014) revealed that the OWC machine was installed (January 2012) in the village Sawargadh and the machine was used intermittently for five months from March 2012 to March 2013. However, due to opposition of the villagers in transporting and disposal of solid waste in their village on the ground of pollution of water and unhygienic condition, the OWC machine could not be put to use. Further, it was observed that between April 2013 and November 2014 the dumping site was changed twice (Pimpalgaon site and Dhamangaon bypass site) but the OWC machine was not shifted and organic waste generated (3 metric tonne per day) from slaughter houses, poultry and fish markets was disposed off with municipal solid waste (55 metric tonne per day) without any treatment in pits in the fields occupied on lease. Thus, OWC machine could not be put to use thereafter. This had resulted in unfruitful expenditure of ₹ 19.79 lakh on purchase of organic waste converter machine.

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[28] MCGM had levied and recovered development charges at residential/industrial rates instead of commercial rate (refer development proposal for business office building on plot bearing C.T.S. No. 73A, 73A/1, 73A/2, 73A/3, 73A/4, 73A/5, 73B & 74B at village Tungwa, opposite L&T Gate No. 7 in Saki Vihar Road, Mumbai)

Government accepted the facts and stated (December 2016) that the machine would be put to use.

NAGPUR IMPROVEMENT TRUST

5.5 Lapses in Upkeep of Bank Guarantees

Failure of Nagpur Improvement Trust to submit original bank guarantee with the bank resulted in loss of ₹ 25 lakh.

With a view to ensure that the Bank Guarantees (BG) accepted by the organisation are genuine and en-cashable, the Central Vigilance Commission (CVC) issued (December 2007) guidelines prescribing procedure for acceptance of BG from contractor/suppliers, verification of genuineness/authenticity of BG, designating one officer who should be responsible for verification of genuineness, timely renewal and timely encashment of BGs *etc*.

Scrutiny (May 2015 and July 2015) of records of Nagpur Improvement Trust (Trust) revealed that the Trust entered (December 2010) into an agreement with an agency for development of playground and hospital at Chikhali (Deosthan), Nagpur on Public Private Participation mode. The work of playground was to be completed within 12 months and the work of hospital was to be completed in a period of 36 months. As per agreement, the agency submitted performance security of ₹ 25 lakh in the form of BG with a validity up to December 2012. The BG was to be renewed till the works under the contract were completed. In January 2013, the Trust asked the agency to extend the validity of the BG. The agency renewed the same with validity up to November 2013 and submitted a photo copy of the BG to the Trust. As there was no progress of work, the Trust terminated (June 2013) the contract and approached the bank for encashment of the BG. The bank refused to encash the BG as the Trust failed to submit the original BG.

Audit also observed that in two other works, the executing agencies had submitted BGs amounting to ₹ 107.39 lakh to the Trust which lapsed without renewal. However, after being pointed out in audit, the Trust directed these agencies to renew the BGs which was complied with.

On this being pointed out, the Trust stated (August 2016) that in compliance to the audit observation, circulars had been issued to all Head of Departments of the Trust to make them aware of the specific areas of action and their responsibility in terms of CVC guidelines. The Trust had also initiated action for collection of database of all the Banks for effective verification of genuineness of BGs.

The matter was referred to the State Government in June 2016; their reply was awaited as of February 2017.

THANE MUNICIPAL CORPORATION

5.6 Idling of Healthcare Facilities

Upgraded healthcare facilities created in September 2013 at a cost of ₹ 5.98 crore in Chhatrapati Shivaji Maharaj Hospital, Kalwa under Thane Municipal Corporation remained idle for 41 months due to non-deployment of requisite manpower.

Chhatrapati Shivaji Maharaj Hospital, Kalwa (hospital) under Thane Municipal Corporation (TMC) is a 500-bedded hospital equipped with five operation theatres (OTs) and eight-bedded intensive care unit (ICU). In order to deal with larger number of serious accident cases and other emergency cases, TMC decided (November 2011) to upgrade the existing OTs and ICU. The TMC awarded (January 2012) the upgradation work to a contractor on turnkey basis at a total cost of ₹ 13.62 crore for completion by June 2012. The scope of work included (i) upgradation of existing five OTs into modular prefabricated structures, (ii) upgradation of eight-bedded ICU into 40-bedded modular prefabricated ICUs (four ICUs of 10 bed each), (iii) construction of 12-bedded modular prefabricated trauma unit, and (iv) construction of seven-bedded modular prefabricated casualty unit. The work was completed after a delay of 14 months in September 2013 after incurring an expenditure of ₹ 13.62 crore.

Scrutiny of records of the Chief Medical Officer, Health Department, TMC revealed (October 2015) that though the upgradation work was completed in September 2013, one of five modular prefabricated OT, 20 of 40-bedded modular prefabricated ICUs and all the 19-bedded modular prefabricated trauma and casualty units were non-functional as of February 2017, due to inadequate manpower. Though TMC requisitioned (November 2011) 16 posts of Intensivists[29] for the upcoming upgraded facilities, the Urban Development Department sanctioned (March 2014) only four posts of which, two posts were filled up by TMC (one regular post in August 2014 and one temporary post in February 2016), leaving a shortage of 14 Intensivists as of February 2017. Further, in view of persistent shortage of other staff members in the hospital such as, Sisters-in-charge (03), Staff nurses (12) and Ward boys (44) as of September 2016, the hospital was not in a position to spare the available staff for the upgraded facilities created in September 2013.

The Medical Superintendent, Chhatrapati Shivaji Maharaj Hospital stated (September 2016) that while it was difficult to prescribe any time frame for filling up the vacant posts, efforts were being made to ensure smooth running of the hospital including the upgraded facilities created in September 2013.

Thus, failure of Urban Development Department and Thane Municipal Corporation to sanction/fill up the posts of Intensivists and support staff led to

[29] An Intensivist, also known as a critical care physician, is a medical doctor with special training and experience in treating critically ill patients

idling of upgraded healthcare facilities created at a cost of ₹ 5.98 crore[30] for 41 months (February 2017).

The matter was referred to the State Government in September 2016; their reply was awaited as of February 2017.

Mumbai,
The 13 June 2017

(SANGITA CHOURE)
Principal Accountant General (Audit)-I,
Maharashtra, Mumbai

Countersigned

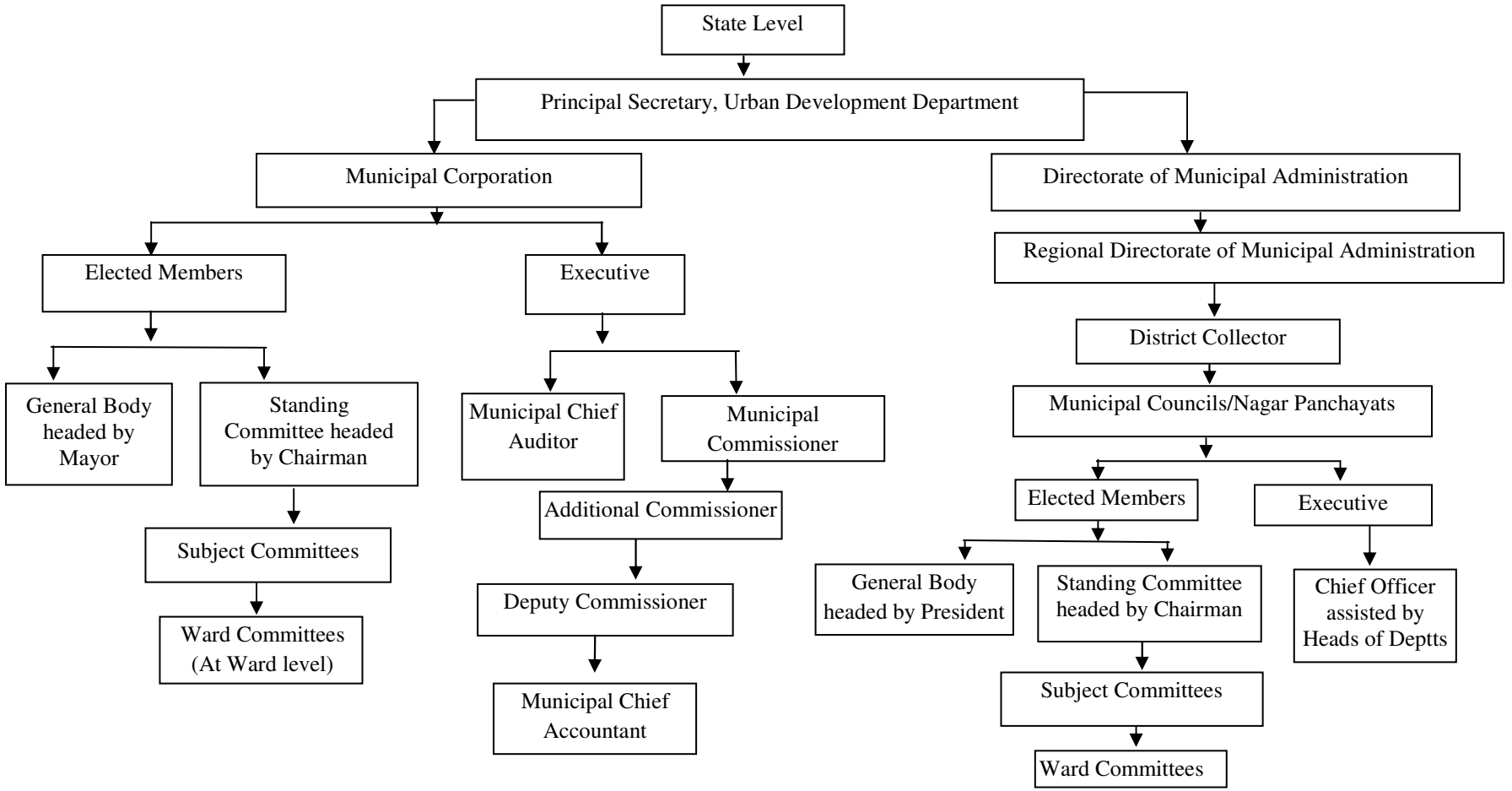
New Delhi,
The 14 June 2017

(SHASHI KANT SHARMA)
Comptroller and Auditor General of India

[30] Computed proportionately by audit on the basis of total expenditure incurred on various components *viz.,* OTs, ICUs, trauma and casualty units

APPENDICES

Appendix-3.I
(Reference: Paragraph 3.2.1; Page 23)
Organisational Structure



Appendix-4.1
(Reference: Paragraph 4.1.5.4; Page 39)
Position of Budget Provision, Expenditure Incurred and Unutilized Fund out of Municipal Solid Waste Budget in respect of the Selected Municipal Corporations

(₹ in crore)

Name of the Municipal Corporations	Particulars	2011-12	2012-13	2013-14	2014-15	2015-16	Total/ (*per cent*)
Amravati	Budget	33.17	57.04	27.49	34.73	73.98	226.41
	Expenditure	15.22	19.92	30.88	23.18	54.22	143.42
	Unspent Budget	17.95	37.12	-3.39	11.55	19.76	82.99 (37)
Kalyan-Dombivli	Budget	83.08	78.01	85.54	92.14	108.00	446.77
	Expenditure	76.60	76.51	83.31	91.34	94.15	421.91
	Unspent Budget	6.48	1.5	2.23	0.8	13.85	24.86 (6)
Kolhapur	Budget	29.94	29.62	37.02	36.24	37.05	169.87
	Expenditure	24.23	26.65	29.20	32.88	34.15	147.11
	Unspent Budget	5.71	2.97	7.82	3.36	2.9	22.76 (13)
MCGM	Budget	463.57	617.82	705.93	809.81	797.09	3394.22
	Expenditure	314.23	404.70	496.65	547.76	649.17	2412.51
	Unspent Budget	149.34	213.12	209.28	262.05	147.92	981.71 (29)
Nagpur	Budget	21.28	23.01	31.51	50.31	44.25	170.36
	Expenditure	25.56	29.52	30.75	36.89	44.58	167.3
	Unspent Budget	-4.28	-6.51	0.76	13.42	-0.33	3.06 (2)
Pune	Budget	213.61	249.82	281.71	281.83	379.49	1406.46
	Expenditure	213.61	209.67	258.85	223.26	260.43	1165.82
	Unspent Budget	0.0	40.15	22.86	58.57	119.06	240.64 (17)
Thane	Budget	114.96	137.49	151.17	173.80	188.41	765.83
	Expenditure	109.91	126.92	138.16	148.18	167.51	690.68
	Unspent Budget	05.05	10.57	13.01	25.62	20.90	75.15 (10)

Source: Information furnished by the MCs

Appendix-4.2
(Reference: Paragraph 4.1.6; Page 40)
Details of Compliance of various Parameters in the Municipal Corporations

Parameters	Particulars	Amravati	Kalyan-Dombivli	Kolhapur	MCGM	Nagpur	Pune	Thane
Average Generation of MSW	Per day in MTD	228	594	162	9230	785	1505	691
Collection System	Houses/ Residential complexes	1. Independent houses: - Door to Door collection. 2. Multistoried buildings :- gate to gate	1. Independent houses: - Door to Door collection. 2. Multistoried buildings :- gate to gate	1. Independent houses: - Door to Door collection. 2. Multistoried buildings :- gate to gate	1. Independent houses: - Door to Door collection. 2. Multistoried buildings :- gate to gate	1. Independent houses: - Door to Door collection. 2. Multistoried buildings :- gate to gate	1. Independent houses: - Door to Door collection. 2. Multistoried buildings: - door to door as well as gate to gate collection.	1. Independent houses: - Door to Door collection. 2. Multistoried buildings :- gate to gate
	Arrangement for door to door collection (No. of Vehicles)	Using Ghanta Gadi of the MC (485)	Using Ghanta Gadi of the MC (64)	By using Tricycles of the MC (310)	Using Ghanta Gadi of the MC (382) and Pvt. Contractor (1246)	By using Ghanta Gadi of the Pvt. Contractors (743)	Using Ghanta Gadi of the MC (297). Engagement of a Co-operative Society (SWaCH)	Using Ghanta Gadi of the MC (44) and Pvt. Contractor (161)
	Arrangement for collection from Slums and squatter area	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection
	Arrangement for collection of Hotels waste	No separate vehicles deployed	Separate vehicles deployed	Separate vehicles deployed	Separate vehicles deployed	No separate vehicles deployed	Separate vehicles deployed	Separate vehicles deployed
	Arrangement for collection of waste from Fruit and Vegetable markets	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection

Parameters	Particulars	Amravati	Kalyan- Dombivli	Kolhapur	MCGM	Nagpur	Pune	Thane
	Arrangement for collection of Biomedical waste	Available except six nursing homes	Available	Available	Available except 83 nursing homes	Available	Available except 17 nursing homes	Available except 52 nursing homes
	Arrangement for collection of waste from slaughter house	No separate vehicles deployed	Separate vehicles deployed	No separate vehicles deployed	No separate vehicles deployed	No separate vehicles deployed	No separate vehicles deployed	Separate vehicles deployed
	Arrangement for collection of Construction and Demolition (C & D) waste	Separate vehicles not provided	Separate vehicles not provided	Separate vehicles provided	Separate vehicles provided	Separate vehicles provided	Separate vehicles provided	Separate vehicles provided
Segregation	At household level	Does not exists	Does not exists	Does not exists	Partially exists	Does not exists	Partially exists in 42 *per cent* households	Does not exists
	At any other level by MC	Does not exists	Does not exists	Does not exists	Does not exists	Does not exists	Partially exists	Does not exists
	Per cent of segregation including directly segregated at Hotels, Fruit and Vegetable markets	No	0.91 to 6.26 *per cent*	18.14 to 36.93 *per cent*	1.37 to 2.86 *per cent*	10 *per cent*	12.96 to 40 *per cent*	15.79 to 31.58 *per cent*
Transport	Arrangement for Transportation (No. of vehicles)	MC's vehicle (4) Contractor's vehicles (34)	MC's vehicles (67)	MC's vehicles (15)	MC's vehicles (35) Contractor's vehicles (307)	Contractor's vehicles (32)	MC's vehicles (238)	MC's vehicles (29) Contractor's vehicles (30)
Processing Facility	Availability of MSW Processing Facility	No	No	No	Yes	Yes	Yes	Yes

Parameters	Particulars	Amravati	Kalyan- Dombivli	Kolhapur	MCGM	Nagpur	Pune	Thane
	Technology and capacity in MTD	Nil	Nil	Nil	Bioreactor-3000 MTD	Composting-600 MTD	1.Biomethanation-105 MTD 2.Composting-1300 MTD (Four plants) 3.Waste to Energy-300 MTD	Biomethanation-20 MTD
	Actual operating capacity	NA	NA	NA	3000 MTD	200 MTD	Biomethanation - 85 MTD Composting-200 MTD (two plants) Waste to Energy- 300 MTD	20 MTD
	Per cent of operating capacity with respect to generation of MSW	NA	NA	NA	33 *per cent*	25 *per cent*	39 *per cent*	3 *per cent*
	Facility for processing of C & D waste	No	No	No	No	No	No	No
	Availability of facility for processing of Plastic Waste	No	Yes	No	No	No	No	No
	Availability of facility for processing of Slaughter House Waste	No	Yes	No	No	No	No	No

Parameters	Particulars	Amravati	Kalyan- Dombivli	Kolhapur	MCGM	Nagpur	Pune	Thane
Disposal	Availability of land	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Scientific Landfill site developed	No	No	No	No	Yes	Yes	No
	Present position of disposal	Dumping of mixed waste at Sukali	Dumping at unauthorized site at Adharwadi	Dumping at unauthorized site at Kasaba Bawada	Dumping of mixed waste at Deonar and Mulund. Bioreactor landfill at Kanjur	Inspite of having scientific landfill site MSW is being dumped at unauthorized site at Bhandewadi	Scientific landfill at Devachi Uruli	Dumping at unauthorized site at Khardi Village, Diva
	Infrastructure at landfill/ dumping site	Fencing- No Firefighting- No Weigh bridge- No	Fencing- Partial Firefighting- No Weigh bridge- No	Fencing- Partial Firefighting- No Weigh bridge- No	Fencing- Partial Firefighting- No Weigh bridge- Yes	Fencing- Partial Firefighting- No Weigh bridge- Yes	Fencing- Yes Firefighting- Yes Weigh bridge- No	Fencing- No Firefighting- No Weigh bridge- No

Appendix-4.3
(Reference: Paragraph 4.1.6.1; Page 42 and 43)
Details of Generation, Collection, Deficit in Collection and Extent of Segregation of Municipal Solid Waste in Seven Municipal Corporations

Name of the MCs	Year	Generation during the year (MT)	Collection during year (MT)	Deficit in Collection (MT)	Percentage of collection	Segregation during the year (MT)	Percentage of segregation
Amravati	2011-12	78519	58762	19757	74.84	0	0.00
	2012-13	80884	70490	10394	87.15	0	0.00
	2013-14	83322	74515	8807	89.43	0	0.00
	2014-15	85830	78639	7191	91.62	0	0.00
	2015-16	88407	78004	10403	88.23	0	0.00
Greater Mumbai	2011-12	2555000	2555000	0	100.00	73000	2.86
	2012-13	3829215	3671900	157315	95.89	50370	1.37
	2013-14	3764245	3704750	59495	98.42	59495	1.61
	2014-15	3557290	3504000	53290	98.50	78475	2.24
	2015-16	3139000	3096295	42705	98.64	67525	2.18
Kalyan-Dombivli	2011-12	200750	150380	50370	74.91	1825	1.21
	2012-13	208050	187245	20805	90.00	1825	0.97
	2013-14	215350	193450	21900	89.83	1825	0.94
	2014-15	222650	200750	21900	90.16	1825	0.91
	2015-16	237250	209875	27375	88.46	13140	6.26
Kolhapur	2011-12	52925	52925	0	100.00	9600	18.14
	2012-13	54750	54750	0	100.00	10080	18.41
	2013-14	60225	60225	0	100.00	11350	18.85
	2014-15	62050	62050	0	100.00	14020	22.59
	2015-16	65700	65700	0	100.00	24265	36.93
Nagpur	2011-12	286482	313346	-26864	109.38	31335	10.00
	2012-13	286482	356689	-70207	124.51	35669	10.00
	2013-14	286482	362091	-75609	126.39	36209	10.00
	2014-15	286482	353420	-66938	123.37	35342	10.00
	2015-16	286482	407024	-120542	142.08	40702	10.00
Pune	2011-12	520125	492750	27375	94.74	63875	12.96
	2012-13	538375	501875	36500	93.22	109500	21.82
	2013-14	556625	520125	36500	93.44	164250	31.58
	2014-15	547500	511000	36500	93.33	182500	35.71
	2015-16	584000	547500	36500	93.75	219000	40.00
Thane	2011-12	233388	221718	11670	95.00	35008	15.79
	2012-13	243184	231024	12160	95.00	43773	18.95
	2013-14	252689	240054	12635	95.00	55591	23.16
	2014-15	261164	248105	13059	95.00	73125	29.47
	2015-16	270662	257128	13534	95.00	81198	31.58
		24081534					

Source: Information furnished by the MCs

Appendix-4.4
(Reference: Paragraph 4.2.9.1; Page 73)
Statement Showing Details of Inspection by Maharashtra Pollution Control Board

Sub-Region	Selected Occupier	Total bed strength	Expected visits by MPCB officials	Actual Visits by MPCB officials	Shortfall in visits
Pune	01 HCE	Above 200	20	06	19
	01 HCE	Less than 50 beds	05		
	01 common facility	-	60	16	44
Mumbai	05 HCEs	Above 200	100	16	129
	03 HCEs	Between 50 to 200	30		
	03 HCEs	Less than 50 beds	15		
	01 common facility	-	60	60	--
Thane	01 HCE	Above 200	20	13	07
	01 common facility	-	60	45	15
Navi Mumbai	01 HCE	Above 200	20	06	14
	01 common facility	-	60	53	07
Nashik	01 HCE	Above 200	20	03	27
	02 HCEs	Less than 50 beds	10		
	01 common facility	-	60	49	11
Kalyan	01 HCE	Between 50 to 200	10	14	--
	Facility not in operation				
Mira Bhainder	01 HCE*	Above 200	20	01	19
	Facility with Thane.				
Pimpri Chinchwad	01 HCE	Above 200	20	10	20
	01 HCE	Between 50 to 200	10		
	01 common facility	-	60	23	37
Source : Information furnished by SROs, MPCB					

Appendix-4.5
(Reference: Paragraph 4.3.1; Page 80)
Receiving Water Quality Standards for Coastal Water Marine Outfall in terms of BOD/SS/DO

Class of Marine Water	Designated best uses of saline water	Marine water standards			Rationale / Remarks
		BOD	Suspended Solids/ Turbidity/Floating materials	Dissolved Oxygen	
SW-I	Salt Pan, Shell Fishing, Mariculture and Ecologically Sensitive Zone	------	SS: Non form sewage	5 mg/l but not less than 3.5 mg/l any time	To protect aquatic life.
SW-II	Bathing, Contact Water Sports and Commercial fishing	3 mg/l	Turbidity: 30	4 mg/l but not less than 3.5 mg/l at any time	To protect aquatic lives.
SW-III	Industrial cooling, Recreation (non contact) and Aesthetics	3 mg/l	Turbidity: 30 NTU	3 mg/l	To protect aquatic lives.
SW-IV	Harbour	5 mg/l	Floating material: 10mg/1	3 mg/l	To maintain water relatively free from pollution caused by sewage
SW-V	Navigation and Controlled Waste Disposal	------	Sludge and solid refuse *etc.*: none except for small solids from treated sewage and industrial waste effluents	3 mg/l	To protect aquatic life
SW-I to V: Saline water I to V; NTU Nephelo Turbidity Unit Source: Table 1.1 to 1.5 below Rule 86 of the Environment (Protection) Rules, 1986					

Appendix–4.6
(Reference: Paragraph 4.3.1; Page 80)
Discharge Standards of Municipal Sewage *viz.,* Schedule-VI of Environment (Protection) Rules, 1986

Sl. No.	Treatment parameters	Environment (Protection) Rules, 1986 (Sch. VI) applicable to sewage	MPCB (Up to 2010)	MPCB (January 2011)	CPCB (April 2015)	CPCB (October 2015)
1.	PH	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	6.5 to 9.0	6.5 to 9.0
2.	Biochemical Oxygen Demand (mg/l)	100	100	20	10	10
3.	Suspended Solids	100	100	30	20	10
4.	Amonical Nitrogen-N (mg/l)	50	---	---	5	5
5.	Nitrate Nitrogen (N-total) mg/l	20	---	---	10	10
6.	Faecal Coliform (MPN/100 ml)	100 MPN/100 ml for SW-II waters and 500 MPN/100 ml for SW-III waters	100	100	<100	<230

Appendix-4.7
(Reference: Paragraph 4.3.1; Page 81)
Summary of Proposed Components of Capital Works as per Master Plan and Cost Estimates
(₹ in crore on 2001 price)

SI. No.	Capital works proposed	Phase I	Phase II	Phase III	Phase IV	Phase V	Total
1	New sewer lines	9.88	9.70	15.02	10.13	15.29	60.02
2	Upsizing of old sewer lines	56.40	143.67	114.42	66.89	0.98	382.36
	Sub total						**442.38**
3	Area sewers	166.41	76.07	59.12	114.73	60.06	476.39
	Sub total						**476.39**
4	Survey of old sewer lines	25.29	28.64	0	0	0	53.93
5	Rehabilitation of old sewer lines including manholes and illegal connection	3.97	185.24	311.48	310.04	310.04	1120.77
	Sub total						**1174.70**
6	Pumping Stations	36.54	148.19	87.43	66.13	153.24	491.53
	Pumping Mains	16.05	11.45	24.34	1.67	2.54	56.05
	Sub total						**547.58**
7	Slum Sanitation	1.85	405.85	405.85	405.85	405.85	1625.25
	Sub total						**1625.25**
9	WWTFs	12.01	25.45	432.75	28.96	316.08	815.25
10	Outfall	12.12	230.21	0	0	0	242.33
11	Transfer	0	15.22	0	130.77	100.53	246.52
	Sub total						**1304.10**
Grand Total							**5570.40**

Appendix-5.1
(Reference: Paragraph 5.1.1; Page 97)
Statement Showing National and State Service Level Benchmarks

Basic Urban Services	Service Level Benchmarks Indicators	National Level Benchmarks	State Level Benchmarks
Water Supply	1. Coverage of water supply connections	100%	100%
	2. Per capita supply of water	135 lpcd	135 lpcd
	3. Extent of metering of water connections	100%	100%
	4. Extent of Non-revenue Water	20%	15%
	5. Continuity of Water Supply	24 hours	24 hours
	6. Efficiency in redressal of customer complaints	80%	80%
	7. Quality of water supplied	100%	100%
	8. Cost recovery in water supply services	100%	100%
	9. Efficiency in collection of water supply related charges	90%	100%
Sewage and Sanitation	1. Coverage of toilets	100%	100%
	2. Coverage of waste water network services	100%	100%
	3. Collection efficiency of waste water network	100%	100%
	4. Adequacy of waste water treatment capacity	100%	100%
	5. Quality of waste water treatment	100%	100%
	6. Extent of reuse and recycling of waste water	20%	20%
	7. Extent of cost recovery in waste water management	100%	100%
	8. Efficiency in redressal of customer complaints	80%	100%
	9. Efficiency in collection of sewage related charges	90%	90%
Solid Waste Management	1. Household level coverage of Solid Waste Management	100%	100%
	2. Efficiency of collection of municipal solid waste	100%	100%
	3. Extent of segregation of municipal solid waste	100%	100%
	4. Extent of municipal solid waste recovered	80%	80%
	5. Extent of scientific disposal of municipal solid waste	100%	100%
	6. Extent of cost recovery in Solid Waste Management services	100%	100%
	7. Efficiency in redressal of customer complaints	80%	100%
	8. Efficiency in collection of SWM related user related charges	90%	100%
Storm Water Drainage	1. Coverage of Storm water drainage network	100%	100%
	2. Incidence of water logging/flooding	Zero	Zero

Glossary

Acronyms and Abbreviations in respect of Paragraph Number 1.1-1.11	
Acronyms	**Extended form**
AC	Abstract Contingent
BDO	Block Development Officer
CAFO	Chief Accounts and Finance Officer
CDPO	Child Development Project Officer
CEO	Chief Executive Officer
DC	Detailed Contingent
DDO	Drawing and Disbursing Officer
DLFA	Director Local Fund Audit
DRDA	District Rural Development Agency
FC	Finance Commission
GoI	Government of India
GoM	Government of Maharashtra
GP	Gram Panchayat
ICDS	Integrated Child Development Services Scheme
PAC	Public Accounts Committee
PRI	Panchayati Raj Institution
PS	Panchayat Samiti
SAU	Social Audit Unit
SFC	State Finance Commission
UC	Utilisation Certificate
VDO	Village Development Officer
VP Act	The Maharashtra Village Panchayats Act, 1958
ZP	Zilla Parishad
ZP/PS Act	The Maharashtra Zilla Parishads and Panchayat Samitis Act, 1961
Acronyms and Abbreviations in respect of Paragraph Number 2.1-2.3	
Acronyms	**Extended form**
BDO	Block Development Officer
BRGF	Backward Regions Grant Fund
DAHO	District Animal Husbandry Officer, Zilla Parishad
DRDA	District Rural Development Agency
GP	Gram Panchayat
GS	Gram Sevak
LDO	Livestock Development Officer
MAIRA	The Maharashtra Animal Identification and Recording Authority
OTSP	Other Tribal Sub Plan

PS	Panchayat Samiti
PSC	Permanent Sale Centres
RJC	Regional Joint Commissioner, Animal Husbandry
SCP	Special Component Plan
SHG	Self Help Group
TSP	Tribal Sub Plan
VH	Veterinary Hospital
Acronyms and Abbreviations in respect of Paragraph Number 3.1-3.14	
Acronyms	**Extended form**
AC	Abstract Contingent
CAFO	Chief Accounts and Finance Officer
DC	Detailed Contingent
DDP	Draft Development Plan
DLFA	Director, Local Fund Audit
DMA	Director, Municipal Administration
DPC	District Planning Committee
DUDA	District Urban Development Authority
FC	Finance Commission
GoM	Government of Maharashtra
MbMC	Mumbai Municipal Corporation Act, 1888
MCGM	Municipal Corporation of Greater Mumbai
NMAM	National Municipal Accounts Manual
MCA	Municipal Chief Auditor
MLD	million litres per day
MMC Act	The Maharashtra Municipal Corporation Act, 1949
NP	Nagar Panchayat
PAC	Public Accounts Committee
SFC	State Finance Commission
UC	Utilisation Certificate
ULBs	Urban Local Bodies
Acronyms and Abbreviations in respect of Paragraph Number 4.1	
Acronyms	**Extended form**
BOOT	Build Own Operate Transfer
CDC	Centre for Development & Communication
C&D	Construction and Demolition
CDM	Clean Development Mechanism
CER	Certified Emissions Reduction
CPCB	Central Pollution Control Board
DBOOT	Design Build Own Operate and Transfer
DPR	Detailed Project Report

ENVIS	Environmental Information System
FC	Finance Commission
GoI	Government of India
GoM	Government of Maharashtra
IL&FS	Infrastructure Leasing & Finance Services
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
JV	Joint Venture
KRML	Kanak Resources Management Limited
LoA	Letter of Acceptance
LoI	Letter of Intent
MbMC Act	The Mumbai Municipal Corporation Act, 1888
MC	Municipal Corporation
MCGM	Municipal Corporation of Greater Mumbai
MPCB	Maharashtra State Pollution Control Board
MSJNA	Maharashtra Suvarna Jayanti Nagarotthan Mahabhiyan
MTD	Metric Tons per Day
MSW	Municipal Solid Waste
NBCC	National Building Construction Corporation Ltd
NEERI	National Environmental Engineering Research Institute
NGO	Non-Governmental Organisation
RTS	Refuse Transfer Station
SBM	Swachh Bharat Mission
SLF	Sanitary Landfill Site
SPV	Special Purpose Vehicle
SWACH	Solid Waste Collection and Handling
SWM	Solid Waste Management
UDD	Urban Development Department
ULBs	Urban Local Bodies
Acronyms and Abbreviations in respect of Paragraph Number 4.2	
Acronyms	**Extended form**
BG	Bank Guarantees
BOD	Biochemical Oxygen Demand
BMW	Bio-medical waste
COD	Chemical Oxygen Demand
CPCB	Central Pollution Control Board
ETP	Effluent Treatment Plant
HCE	Health Care Establishment
GoM	Government of Maharashtra
KDMC	Kalyan-Dombivli Municipal Corporation

MPCB	Maharashtra State Pollution Control Board
RO	Regional Officer
SRO	Sub-regional Officer
Acronyms and Abbreviations in respect of Paragraph Number 4.3	
Acronyms	**Extended form**
ASP	Activated Sludge Process
BOD	Biochemical Oxygen Demand
CPCB	Central Pollution Control Board
GoI	Government of India
GoM	Government of Maharashtra
GRP	Glass Reinforced Pipeline
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
J/R	Jacking and Rescue
MCGM	Municipal Corporation of Greater Mumbai
MLD	million litres per day
MMRDA	Mumbai Metropolitan Region Development Authority
MoEF	Ministry of Environment and Forests
MPCB	Maharashtra Pollution Control Board
MSDP	Mumbai Sewage Disposal Project
MTBM	Micro-Tunnelling Boring Machine
NEERI	National Environmental Engineering Research Institute
NGO	Non-Governmental Organisation
PMC	Project Management Consultant
SBR	Sequential Batch Reactor
SO	Sewage Operation
SP	Sewage Project
SS	Suspended Solids
SSP	Slum Sanitation Programme
TAC	Technical Advisory Committee
UDD	Urban Development Department
WWTF	Waste Water Treatment Facility
Acronyms and Abbreviations in respect of Paragraph Number 5.1-5.6	
Acronyms	**Extended form**
AMC	Aurangabad Municipal Corporation
AOSG	Annual Operation Support Grant
BG	Bank Guarantees
CA	Concession Agreement
CDP	City Development Plan
CEPI	Comprehensive Environment Pollution Index

CIDCO	City and Industrial Development Corporation
CPCB	Central Pollution Control Board
CPHEEO	Central Public Health and Environmental Engineering Organisation
CSP	City Sanitation Plan
CVC	Central Vigilance Commission
DPR	Detailed Project Report
GoI	Government of India
GoM	Government of Maharashtra
GR	Government Resolution
ICU	Intensive Care Unit
lpcd	litres per capita per day
MJP	Maharashtra Jeevan Pradhikaran
MLD	million litres per day
MoEF	Ministry of Environment and Forests
MPCB	Maharashtra Pollution Control Board
MT	Metric Tonnes
PMC	Project Management Consultant
PMPML	Pune Mahanagar Parivahan Mahamandal Limited
SLB	Service Level Benchmarks
SPS	Sewage Pumping Stations
STP	Sewage Treatment Plant
SWD	Storm Water Drainage
SWM	Solid Waste Management
OT	Operation Theatre
OWC	Organic Waste Converter
TMC	Thane Municipal Corporation
UIDSSMT	Urban Infrastructure Development Scheme for Small and Medium Towns
ULBs	Urban Local Bodies

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