

## CHAPTER - IV

### SECTION 'A' - PERFORMANCE AUDIT

#### URBAN DEVELOPMENT DEPARTMENT

#### 4.1 Solid Waste Management in Bruhat Bangalore Mahanagara Palike

##### Executive summary

Bruhat Bangalore Mahanagara Palike discharges its obligatory function of solid waste management as per the provisions of Karnataka Municipal Corporations Act, 1976. A performance audit of solid waste management in Bruhat Bangalore Mahanagara Palike showed, *inter alia*, the absence of a notified policy for solid waste management, resulting in lack of direction for effective management and scientific disposal of waste. Absence of reliable and complete data about quantum of waste generated in the city, non-preparation of contingency plan and inadequate institutional mechanism rendered waste management programmes ineffective. Consequently, the main objectives of minimising the burden on the landfills, as envisaged in Municipal Solid Waste Rules and prevention of environmental degradation were not achieved.

Inadequate operational controls resulted in weak financial management, leading to unfruitful and excess expenditure as well as diversion of funds. Bruhat Bangalore Mahanagara Palike had lost the assistance of ₹280.17 crore due to delay in preparation of Master Plan. Efficiency in collection of waste was poor and no efforts had been made to promote waste segregation. Lack of scientific processing facilities at landfill sites and non-compliance with the rules resulted in open dumping of mixed wastes leading to environmental pollution. Adequate efforts to mobilise revenue resources through user charges were not made to meet the cost of operation and maintenance for waste management. Cases of improprieties in contract management of works relating to waste management wherein payment of ₹630.28 crore made to contractors for packages and additional works were also observed. Lack of monitoring by Bruhat Bangalore Mahanagara Palike and Urban Development Department resulted in unscientific disposal of wastes posing potential public health hazards.

##### 4.1.1 Introduction

Municipal Solid Waste (MSW) comprises residential and commercial wastes generated in a municipal area in either solid or semi-solid form excluding industrial hazardous wastes but including treated bio-medical wastes. Bio-Medical Waste (BMW) is any waste which is generated in health care establishments (HCEs) during diagnosis, treatment or immunisation of human beings or animals.

The Government of India (GOI), in exercise of the powers conferred under the Environment (Protection) Act, 1986, had framed Municipal Solid Wastes

(Management and Handling) Rules, 2000 (MSW Rules) and Bio-Medical Wastes (Management and Handling) Rules, 1998 (BMW Rules) to regulate the management and handling of MSW and BMW wastes to protect and improve the environment and to prevent health hazards to human beings and other living creatures. As per these Rules, every municipal authority is responsible for collection, segregation, storage, transportation, processing and disposal of these wastes. The Karnataka Municipal Corporations (KMC) Act, 1976 also mandates Solid Waste Management (SWM) as an obligatory function of all the municipal corporations (Section 58).

A performance audit of 'Solid Waste Management in Bruhat Bangalore Mahanagara Palike (BBMP)' was conducted (March-August 2013) as the city faced an unprecedented garbage crisis in August 2012 due to indiscriminate dumping of mixed waste, public protests and closure of some of its landfill sites/dump yards on account of non-compliance with MSW Rules. The snap strike (August 2012) by contractors responsible for cleaning, collection and transportation of MSW led to dumping of garbage in open spaces and road sides in various parts of the city, created health hazards and aggravated the damage to environment.

#### **4.1.2 Organisational structure**

The Principal Secretary, Urban Development Department (UDD) is responsible for enforcing and overseeing the implementation of MSW Rules by BBMP. Duties and responsibilities of officers of the administrative department and BBMP are given in **Appendix 4.1**.

#### **4.1.3 Audit scope and methodology**

There are 198 wards in BBMP functioning under the jurisdictional control of eight<sup>110</sup> zonal offices. The performance audit covering the period 2008-13 was conducted by test-check of records at Central Office, Chief Engineers (CEs), SWM and four<sup>111</sup> zones of BBMP, which were selected by adopting the 'Probability proportional to size without replacement' method with size measure as expenditure. There are six Referral Hospitals in BBMP, out of which three<sup>112</sup> Referral Hospitals were selected using 'simple random sampling' method to assess compliance with BMW Rules. Besides, 10<sup>113</sup> landfill sites/dump yards, the selected three Referral Hospitals and three<sup>114</sup> slaughter houses were jointly inspected during audit.

The audit objectives, scope and methodology were discussed with the Principal Secretary, UDD at an Entry Conference held in March 2013. The

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<sup>110</sup> Bangalore (East), Bangalore (South), Bangalore (West), Bommanahalli, Byatarayanapura, Dasarahalli, Mahadevapura and Rajarajeshwarinagar

<sup>111</sup> Bangalore (East), Bangalore (South), Bangalore (West) and Rajarajeshwarinagar

<sup>112</sup> Banshankari Referral Hospital (South zone), Srirampur Referral Hospital (West zone) and Ulsoor Referral Hospital (East zone)

<sup>113</sup> Anjanapura, Cheemasandra, Doddaballapur, Doddabidarakallu, Lakshmipura, Mandur (North), Mandur (South), Mavallipura, S.Bingipura and Subbarayanapalya

<sup>114</sup> Pottery Road, Tannery Road and Usman Khan Road

Exit Conference was held with the Principal Secretary, UDD in December 2013 and the audit observations were generally accepted by the State Government. The State Government replied in January 2014. The replies have been suitably incorporated.

#### **4.1.4 Audit objectives**

The objectives of the performance audit were to assess whether:

- adequate institutional mechanism was in place for effective administration and management of MSW and BMW as per relevant Act and Rules;
- the management of infrastructure available for SWM activities was efficient and effective;
- the financial resources for SWM activities were adequate and funds provided were timely and utilised efficiently and effectively; and
- the monitoring mechanism and evaluation were in place and were effective.

#### **4.1.5 Audit criteria**

The main sources of audit criteria in evaluating the performance of SWM were as under:

- MSW Rules;
- BMW Rules;
- Plastic Waste (Management and Handling) Rules, 2011;
- Karnataka Transparency in Public Procurements Act, 1999 and rules thereunder; and
- Government orders, notifications, instructions and meeting proceedings.

#### **Acknowledgement**

Audit acknowledges the cooperation and assistance extended by the State Government and BBMP in conducting the performance audit.

#### **Audit findings**

The audit findings arising out of the performance audit are discussed in succeeding paragraphs.

#### **4.1.6 Planning**

##### **4.1.6.1 Absence of a well-defined waste policy**

Effective SWM requires a well-defined waste policy to establish waste management systems and to carry them forward in a sustainable manner. The policy should, *inter alia*, provide for the strategies to recycle, reuse and reduce ('3Rs') waste, which would lessen the amount of waste meant for final disposal and thus, the cost of disposal. Further, consumers as well as the general public need to be educated about the benefits of the '3Rs' to ensure significant public support for recycling and reduction strategies.

The UDD had notified in 2004 a State Policy for integrated SWM in urban local bodies (ULBs). However, BBMP neither implemented the policy nor complied with the MSW Rules, which resulted in lack of direction for effective management and scientific disposal of MSW and filing of several public interest litigations. In view of this, the State Government had directed the Commissioner, BBMP to frame a separate waste policy. Though an integrated SWM policy was prepared by BBMP in 2011, it was not forwarded to the UDD for being notified. As a result, the policy remained only on paper and the implementation plan outlined in the draft policy had not been translated into action (January 2014).

It was also seen that neither the State Government nor BBMP had introduced strategies for reduction, reuse and recycling of waste. As a result, disposal remained the only method of management of waste, instead of waste minimisation and waste reduction. Further, no efforts were made to promote the '3Rs' of waste management through the print or audio-visual media and to educate citizens about the threat to environment and health posed by waste.

The State Government accepted the audit observation and stated (January 2014) that due to unprecedented garbage crisis in August 2012, the policy was being reviewed by Expert Committee. It was further stated that BBMP had been instructed to carry out awareness programmes on minimising the waste generation by adopting '3Rs'.

##### **4.1.6.2 Non-preparation of contingency plan**

The Action Plan prepared by BBMP for management of MSW was approved by Karnataka State Pollution Control Board (KSPCB) in June 2011. It was, however, seen that there was no micro-level planning for primary waste collection, secondary transportation, bulk waste management, processing and disposal of MSW. Audit also did not come across any contingency plan in BBMP for tackling any unforeseen situation or crisis. The absence of contingency plan and closure of dumpsites at Anjanapura, Cheemasandra, Mavallipura and Subbarayanapalya led to dumping of mixed wastes in the available sites<sup>115</sup>. Further, BBMP could not follow the approved Action Plan, resulting in non-achievement of the objectives envisaged.

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<sup>115</sup> Doddaballapur, Lakshmipura, Mandur and S.Bingipura

The State Government stated (January 2014) that instructions had been given for adopting suitable decentralised contingency plans for collection and transportation of MSW in all zones.

#### **4.1.6.3 Assessment of quantum of waste generated**

Proper assessment of quantity and characteristic of waste generated is essential for correct planning and successful implementation of SWM. It was, however, seen that BBMP did not have data about quantum of waste generated annually for the period under review.

It is pertinent to mention that the Hon'ble High Court had directed (January 2013) BBMP to weigh, for one month, MSW collected from each ward, after it was transported to the filling stations and before it was unloaded. Accordingly, BBMP had weighed MSW collected from each ward for the month of February 2013 and average waste generation was reported as 3,600 metric tons (MT) per day. Scrutiny of this weighment statement showed abnormal variations in the quantum of waste collected on different days in the same wards, raising doubts about the reliability of data. The absence of complete and reliable data rendered waste management programmes ineffective and resulted in unscientific disposal of MSW, as discussed in succeeding paragraph.

The State Government, while accepting the audit observation, stated (January 2014) that action would be taken to assess the quantum of waste generated and rectify the discrepancies pointed in audit.

#### **4.1.6.4 Institutional mechanism**

Allocation of roles, responsibilities and accountability among various agencies is important to ensure that the rules are implemented in line with the desired objectives. Audit observed that officers involved in overseeing the implementation of MSW Rules did not have specific job responsibilities and an Expert Committee<sup>116</sup> to guide BBMP in management of MSW was constituted only in September 2012. The creation of posts of Additional Commissioner (SWM), three additional CEs and allocation of responsibilities among them was done only in November 2012. It was also seen that Additional Commissioner (SWM) did not have a minimum fixed tenure and this post was held by nine incumbents as additional charge in a short period of 16 months (June 2012-September 2013). It was only in October 2013 that an Environment Cell was formed to oversee the implementation of MSW Rules. Thus, the institutional mechanism during 2008-13 was not adequate, adversely affecting the administration and management of MSW in BBMP, as reflected in subsequent paragraphs.

The State Government accepted (January 2014) the audit observation.

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<sup>116</sup> Expert Committee comprises seven subject-expert members with the Commissioner, BBMP as the Chairman

#### 4.1.7 Financial management

##### 4.1.7.1 Fund position

BBMP receives funds for execution of SWM activities from various sources such as central grants through Twelfth and Thirteenth Finance Commissions and State grants, besides own funds. The Chief Accounts Officer (CAO), BBMP releases funds, through Letter of Credit (LOC), to SWM divisions and the zonal offices.

The details of funds released and utilised for SWM in BBMP during 2008-13 were as detailed in **Table 4.1**.

**Table 4.1: Year-wise release and expenditure for SWM**

Year	Release of funds through LOC	(₹ in crore)
		Expenditure of EE, SWM and zones
2008-09	114.60	123.85
2009-10	121.83	152.47
2010-11	259.68	261.64
2011-12	278.09	258.74
2012-13	334.28	310.90
<b>Total</b>	<b>1,108.48</b>	<b>1,107.60</b>

Source: Furnished by CAO, BBMP

It could be seen that BBMP had spent more than the releases during the period 2008-11.

It was stated by the Finance Officer, BBMP that unspent balances at the end of the financial year were not withdrawn from the divisions and zones by the central office. The expenditure was met out of opening balance and current year assets. However, this could not be verified by Audit as the test-checked zones had not provided the details of opening balances.

##### ➤ Non-reconciliation

The correctness of the fund position for SWM could not be assessed in audit due to the following reasons:

- Overall release during 2008-13 as furnished by CAO, BBMP was ₹1,108.48 crore, whereas the break-up of releases to SWM divisions and zones of BBMP aggregated ₹998.11 crore, leaving a difference of ₹110.37 crore.
- As per CAO, BBMP, a sum of ₹627.06 crore was released to four test-checked zones during 2008-13 whereas the figures furnished by Assistant Controller of Finance (ACF) of these zones aggregated ₹662.89 crore. The difference of ₹35.83 crore was not reconciled.

- Expenditure figures reported to the Hon'ble High Court were at variance with those furnished to Audit. The differences in the test-checked zones aggregated ₹246.69 crore for the years 2009-13.

The State Government stated (January 2014) that differences would be reconciled with the zonal offices.

#### 4.1.7.2 *Loss of assistance*

There was a proposal (July 2007) in the fifth State Level Empowered Committee (SLEC) of Jawaharlal Nehru National Urban Renewal Mission (JNNURM) to seek central assistance under JNNURM for SWM projects in Bangalore. For this purpose, BBMP had entrusted (September 2007) the work of preparation of a Master Plan and a Detailed Project Report (DPR) to M/s. Infrastructure Development Corporation (Karnataka) Limited, Bangalore (IDECK) at a cost of ₹97.80 lakh. The Master Plan and DPR were to be submitted by February 2008 and April 2008 respectively. The IDECK submitted the final Master Plan and DPR in March 2009 after a delay of 12 months. As a result, the project was not funded under JNNURM and BBMP lost the opportunity of availing assistance of ₹280.17 crore<sup>117</sup>.

The State Government stated (January 2014) that the delay had occurred in resubmitting the DPR after incorporating the changes/modifications suggested by the Committee formed to verify and vet the DPR. This shows that adequate time frames were not set up for this exercise. Responsibility needs to be fixed to avoid such delays in future.

#### 4.1.7.3 *Utilisation of Thirteenth Finance Commission Grants*

The State Government had released (July 2010-March 2013) General Basic Grant of ₹152.04 crore and General Performance Grant (February 2012-April 2013) of ₹28.50 crore to BBMP as assistance under Thirteenth Finance Commission Grants. The State Government had stipulated that a minimum of 25 per cent of these grants was to be utilised for SWM activities. However, scrutiny of Utilisation Certificates (UCs) furnished by BBMP showed that BBMP did not utilise the General Performance Grant and could utilise only 22 per cent (₹33.31 crore) out of General Basic Grant for SWM activities. This resulted in non/short utilisation of Thirteenth Finance Commission grants of ₹11.83 crore<sup>118</sup> for the allocated purpose. Audit observed that State Government has not prescribed any penal clause for non-release/utilisation of the minimum grant earmarked for SWM.

The State Government stated (January 2014) that the utilisation of Thirteenth Finance Commission grants would be expedited. However, no action plan to utilise the grants within Thirteenth Finance Commission period (2010-15) was furnished to Audit.

<sup>117</sup> Central share ₹196.12 crore and State share ₹84.05 crore

<sup>118</sup> Non-utilisation of General Performance Grant – ₹7.13 crore; Short utilisation of General Basic Grant – ₹4.70 crore

#### **4.1.7.4 Diversion of funds**

Out of Thirteenth Finance Commission Grants, BBMP had extended (April and August 2012) a soft loan of ₹4.50 crore for 15 years to M/s. Terra Firma Biotechnologies Limited (TFBL), a processing unit, at the interest rate of six *per cent* per annum. The soft loan was given for developing additional infrastructure in the interest of expediting the processing of MSW.

Audit scrutiny showed that a sum of ₹15.17 lakh had been recovered (November 2012) and credited to a deposit account instead of crediting the same to SWM account. This resulted in diversion of funds. It was also seen that BBMP had submitted the UC treating the loan amount as expenditure, which was not as per the guidelines.

The State Government, while accepting the objection, stated (January 2014) that the amount lent as soft loan would not be shown in UC and would be utilised for the intended purpose. However, the fact remained that the UC had already been submitted to the Central Government. The reply was silent on the issue of diversion of funds.

#### **4.1.7.5 Resource generation**

Levy and collection of user charges to meet service cost of SWM was one of the mandatory ULB level reforms required under JNNURM. The provisions<sup>119</sup> of KMC Act empowered Corporations to levy SWM cess on every owner or occupier of buildings or lands or both in the city and prescribed the rate of cess on plinth area basis. The rates for collection of SWM cess (March 2004) ranged from a minimum of ₹10 per month for a residential building of plinth area up to 1,000 square feet (sq ft) to a maximum cess rate of ₹600 per month for hotels, *kalyana mantapas*, etc., with plinth area exceeding 50,000 sq ft.

For the period 2008-11, the service providers<sup>120</sup> were responsible to collect cess from the generators of waste and remit it to BBMP. From 2011-12 onwards BBMP notified (February 2011) payment of SWM cess as mandatory along with property tax.

It was seen that BBMP did not ensure collection and remittance of SWM cess by the service providers during 2008-11. Audit worked out that a minimum of ₹66.17 crore<sup>121</sup> could have been collected during this period from 18.38 lakh households in the three zones test-checked. Even the penalty of ₹9.60 crore for non-performance of this contractual agreement was not recovered.

From the year 2011-12 onwards, the payment of SWM cess was linked to property tax returns. BBMP realised ₹66.54 crore as user charges during

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<sup>119</sup> Section 103 B (2) and Rule 19 A of Schedule III of KMC Act (w.e.f. 9 March 2004)

<sup>120</sup> Service providers were entrusted with the task of collection and transportation of municipal solid waste in the core zones of BBMP and had to fulfill the contract condition of levy and collection of SWM cess from waste generators (As per Article 3.2C (a) and (b) of agreement)

<sup>121</sup> 18.38 lakh x ₹10 per month (lowest rate) x 36 months = ₹66.17 crore



2011-13, which was only 17 per cent of the projected Operation & Maintenance (O&M) cost (₹402.34 crore). This resulted in extra burden on BBMP in meeting these expenses at the cost of creating infrastructure facilities. Actual collection of user charges during 2011-13 was 73 per cent of the collection proposed (₹90.62 crore) in DPR. The inability of BBMP in widening its resource base was attributable to the following:

- BBMP had notified (February 2011) that cess will be collected with property tax. As the property tax returns were not filed in respect of BBMP-rented properties, these properties did not pay SWM cess. BBMP had not envisaged any other mechanism to collect SWM cess from such properties. Audit scrutiny showed that there were 4,214 BBMP-rented market shops in the test-checked zones which did not pay SWM cess of ₹50.57 lakh for the period 2011-13, considering the minimum rate of ₹50 per month per shop due to deficiency in the BBMP notification.

The State Government stated (January 2014) that there was no policy for collection of SWM cess from BBMP-rented buildings and instructions, on the basis of audit observation, had been issued to concerned officials to draw up an action plan. The reply was not acceptable as the KMC Act had the provision to collect collection of SWM cess from rented buildings, which was not implemented.

- Plinth area was the basis for levying SWM cess and maximum cess payable for different categories of buildings was as detailed in **Table 4.2** below.

**Table 4.2: Rates of maximum cess payable (category-wise)**

Category	Plinth areas	Cess payable per month
Commercial buildings	5,000 sq ft and above	₹200
Industrial buildings	5,000 sq ft and above	₹300
Hotels, <i>kalyana mantapas</i> and nursing homes	50,000 sq ft and above	₹600

Source: KMC Act

Thus, buildings having plinth area of more than 5 to 20 times the limit of 5,000/50,000 sq ft were also paying the same rate of cess. As the quantum of waste generation has relatively a direct bearing on the area of operation, the cess leviable was disproportionate to the quantum of waste generation.

- There was no provision of a field for the number of units, in the property tax module. As a result, an assessee having multi-unit residential/commercial complex was liable to pay cess as a single entity irrespective of the number of units. Thus, the cess leviable was not proportionate to the number of units and denied BBMP the actual cess amount due.
- SWM cess was not paid by places of worship as they were exempt from payment of property tax and service charges.

- It was also seen that though KMC Act provided for levy and collection of SWM cess on land, no specific rate was fixed.
- There was no provision in the KMC Act to collect SWM cess on generation of bulk quantities of wastes during special occasions (social, religious, commercial and political functions/activities) and from traders not occupying buildings (hawkers, pavement vendors, etc.).
- Though there was a provision in BBMP property tax rules for collection of penal interest on belated payment of property tax, no such clause existed for levying penal interest on belated payment of SWM cess.

Thus, non-coverage of all the waste generators and non-levy of appropriate cess amount in proportion to the nature and quantum of waste generated denied BBMP the opportunity of recovering its service cost.

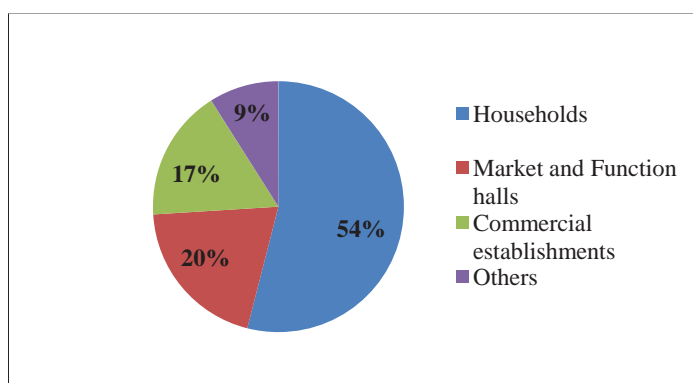
The State Government stated (January 2014) that instructions, on the basis of audit observations, had been issued to draw up an action plan to levy SWM cess and to modify the property tax application for collecting the penalty on belated payment of SWM cess. It was further stated that proposal to fix the rates on the basis of waste generation by the unit would be moved to make amendments in the KMC Act.

#### Operational management

Operational management of MSW includes waste collection, segregation, storage, transportation, processing and its ultimate disposal.

As stated earlier, BBMP did not have realistic data about quantum of waste being generated in the city. According to the DPR prepared (March 2009) by IDECK for SWM in BBMP, waste generation for the year 2008 was projected at 5,033 MT per day and sector-wise generation of waste was as depicted in **Chart 4.1**.

**Chart 4.1: Sources of waste generation**



Source: DPR for SWM prepared by IDECK

BBMP had outsourced (November 2006-March 2007) 75 per cent of MSW activities to service providers and 25 per cent of the activities were managed by BBMP through its own resources. The scope of the work of service providers was limited to door-to-door collection, street sweeping, cleaning of drains/public toilets and transporting the waste collected to the identified waste processing and disposal facility. There were 88 outsourced contract packages covering 198 wards of BBMP. Of these, 78<sup>122</sup> out of 146 wards in the test-checked zones are covered in 36 packages. Audit test-checked 10 out of these 36 packages.

Audit findings on the operational management are discussed in succeeding paragraphs.

#### 4.1.8 Collection

Collection means lifting and removal of solid waste from collection points or any other location. The MSW Rules, *inter alia*, prescribed methods for organising house-to-house collection and stipulated that construction or demolition debris should be separately collected and disposed off following proper norms. Audit scrutiny showed the following:

##### 4.1.8.1 Door-to-door collection

The service level benchmarks identified by Ministry of Urban Development envisaged achievement of 100 per cent efficiency in collection of MSW. As per the information furnished (March 2010) by BBMP to the State Government, the household level coverage of SWM services was 70 per cent and the collection efficiency<sup>123</sup> was only 56 per cent. BBMP did not make available the latest position regarding coverage and efficiency of collection. It was also seen in the test-checked zones that basic documents such as activity records by service providers and attendance extracts of Pourakarmikas<sup>124</sup>, area coverage records, *etc.*, in BBMP managed wards had not been maintained. In the absence of these basic records, the efficiency of the collection activities could not be assessed in audit. It was, however, seen that 8,061 complaints<sup>125</sup> relating to non-clearance/burning of garbage, weeds in drains, street sweeping not done and non-removal of dead animals had been registered (2008-13) in three test-checked zones. Even the scrutiny of weighment statement for the month of February 2013 showed that garbage had not been collected daily in 29 wards. Thus, service level benchmark had not been achieved.

The State Government stated (January 2014) that door-to-door collection was practised in all the wards. However, no documentary evidence was provided in support of this claim.

<sup>122</sup> Bangalore (East)-21 out of 44 wards, Bangalore (South)-26 out of 44 wards, Bangalore (West)-18 out of 44 wards and Rajarajeshwarinagar-13 out of 14 wards

<sup>123</sup> The total waste collected versus the total waste generated

<sup>124</sup> Sanitary workers

<sup>125</sup> Bangalore (West) - 1,807, Bangalore (South) - 809 and Rajarajeshwarinagar - 5,445

#### 4.1.9 Segregation

Segregation means separating the solid waste into groups of organic, inorganic, recyclable and hazardous wastes. It enables channelisation of recyclable wastes for processing and minimises the load of solid waste, thereby reducing the burden on landfills.

According to DPR, MSW primarily comprises 50-53 *per cent* of organic fraction and 37-45 *per cent* of inorganic fraction. Out of this inorganic fraction, 14-18 *per cent* is recyclable and 20-23 *per cent* is combustible. Accordingly, the landfilling is required only for 6-10 *per cent*, which is inert.

##### 4.1.9.1 Segregation of waste at source

The implementation schedule (Schedule II) in MSW Rules envisaged organising awareness programmes to promote segregation of waste and undertaking phased programmes to ensure community participation in waste segregation.

The segregation of waste at source in BBMP was only 10 *per cent* (September 2012) and no steps were taken by BBMP to promote waste segregation. It was only in September 2012 that the Commissioner, BBMP issued a public notice for segregation of wet, dry, garden waste, construction debris, sanitary waste and household hazardous waste. However, the mechanism in BBMP to ensure compliance with the provisions of this public notice was not furnished to Audit. The details of awareness programmes undertaken by BBMP were also not furnished, though called for (April 2013). Even the agreements entered into by BBMP with the service providers for collection and transportation of MSW did not include a clause for segregation of waste. It was seen that though the tenderers, during pre-bid meeting, had proposed to undertake 100 *per cent* segregation of waste at source at an additional five *per cent* of the contract value, BBMP did not consider the proposal. Hence, service providers were not liable to ensure segregation of waste. As a result, segregation was not taking place, leading to different kinds of waste being mixed together for dumping. This limited the possibility of processing recyclable wastes due to inadequate processing facilities and resulted in additional burden on landfills. Some of the photographs below, taken during joint inspection (March-June 2013), show the dumping of mixed waste in landfills/dump yards.



Dumping of mixed wastes at Mandur North and Mandur South landfills (7 June 2013)

The State Government stated (January 2014) that steps were being taken to promote waste segregation and dry waste collection centres were installed in each ward to collect the dry waste. It was further stated that KMC Act was being amended to levy penalty for non-segregation of waste. The reply was silent about non-inclusion of segregation clause in the agreement with the service providers.

#### 4.1.9.2 Unfruitful expenditure on Garbage Segregation Unit

Audit scrutiny showed that proposal to establish Garbage Segregation Unit at Mandur (North) with machinery was approved (January 2009) and the machinery consisting of garbage cutter machine, plastic dryer machine, etc., was purchased (September 2009) after incurring an expenditure of ₹99.46 lakh. However, the segregation unit could not be commissioned due to non-provision of internal wiring (October 2013).

It was seen from the correspondence file that proposal for providing internal wiring, at an estimated cost of ₹21.73 lakh, had been forwarded (September 2012) to the Commissioner, BBMP and the Commissioner had sought (November 2012) the status report. However, no action has been taken since then. Thus, failure of BBMP in commissioning the Garbage Segregation Unit for more than three years led to dumping of mixed waste in the landfill and resulted in unfruitful expenditure of ₹99.46 lakh.



The State Government stated (January 2014) that the segregation unit could not be commissioned due to non-availability of power line at the site and action would be taken to make use of the unit at the earliest. The reply was not acceptable as the basic requirement of power line should have been ensured prior to purchase of equipment.

#### 4.1.10 Storage

Storage means temporary containment of municipal solid wastes in a manner so as to avoid littering, attracting vectors<sup>126</sup>, stray animals and excessive foul odour. As per MSW Rules, stored waste should not be exposed to open atmosphere as this may create unhygienic and insanitary conditions around it. Manual handling of waste should be prohibited and should be carried out only under proper precaution if unavoidable due to constraints.

BBMP did not provide the details of storage facilities established and maintained by it. Therefore, Audit could not verify the efforts made by BBMP to ensure adequacy and suitability of storage facilities. The scope of

<sup>126</sup> Vector is a carrier which transfers an infective agent from one host to another e.g., mosquito

the agreements with the service providers also did not include any provision of storage as waste was to be collected and transported to the designated place. However, instances of unauthorised dumping at road sides were seen in the city, spreading foul odour and creating environmental pollution. It was also seen that manual handling of waste was taking place without proper safety measures. This not only violated the MSW Rules but also led to unhygienic conditions causing problems to health and contamination of the environment.

Some of the photographs below, taken during the review period, underscore this infraction.



Road side dumping of waste at Avenue Road (25 September 2013) and K R Market (2 May 2013)



Manual handling of waste at Lakshmpura dump yard (13 June 2013)

The State Government stated (January 2014) that bins had been removed completely to avoid multiple handling of waste and attraction of animals like cows and dogs. The reply was not acceptable as removal of bins led to dumping of waste on pavements/roads and instances of overflowing of bins had also been noticed in Audit. The reply was silent on the issue of manual handling of waste.

#### **4.1.11 Transportation of MSW**

Transportation refers to conveyance of MSW from place to place hygienically through specially designed transport system so as to prevent foul odour, littering, unsightly conditions and accessibility to vectors.

#### 4.1.11.1 *Improper transportation facility for MSW*

As per compliance criteria stipulated in MSW Rules, vehicles used for transportation of wastes should be covered and designed to avoid multiple handling of wastes, prior to final disposal. However, a few instances were seen where vehicles without proper covering had been used for transportation of MSW, creating insanitary conditions.



The State Government stated (January 2014) that covered vehicles were being used for transporting MSW. The reply could not be accepted as transportation of MSW in damaged and partly covered vehicles had been observed during joint physical verification.

#### 4.1.11.2 *Wasteful expenditure on vehicles tracking system*

BBMP had installed (June 2008) a web-enabled automated vehicles tracking system using Global Positioning System (GPS) to track the vehicles used for transportation of garbage to landfills. BBMP had availed of the services of Karnataka State Electronics Development Corporation Limited (KEONICS) for operating this system and had incurred (July 2008-January 2011) an expenditure of ₹64.68 lakh on the project, which also included cost of installation of GPS in the vehicles. Against the requirement of 600 GPS to be installed in vehicles, 422 GPS had been purchased (July and October 2008) and only 387 GPS had been installed, with delays ranging up to 29 months.

Three reports *viz.*, vehicle tracking report, vehicle running/non-running status and dumpsite report were generated through the system on a daily basis and submitted to BBMP. However, BBMP did not use these reports to cross-verify transportation claims. Further, the shortcomings pointed out in these reports such as missing GPS from 13 vehicles, non-tracking of vehicles due to weak signals, system errors, tampering of instruments, non-availability of power due to absence of battery mode, *etc.*, were not rectified. BBMP discontinued (November 2012) the services of KEONICS and the system had remained idle since then (October 2013).

The State Government attributed (January 2014) the shortcomings in the tracking system to factors such as absence of in-built battery instrument, communication signal, bad weather, *etc.*, and stated that the system was discontinued due to the garbage crisis and floating of new tenders for collection and transportation of MSW. It was further stated that bills had been passed on the basis of GPS monthly reports. The reply was not acceptable as GPS had not been installed in all the vehicles and no documentary evidence in support of passing the bills using GPS reports was furnished to Audit. There was not only a wasteful expenditure of ₹64.68 lakh but the opportunity to regulate and monitor transportation claims using GPS was also lost to BBMP.

#### **4.1.11.3 Discrepancies in award of work**

BBMP had awarded (November 2009) a contract to M/s. Matha Overseas Limited for transportation of MSW from three landfills<sup>127</sup> to the integrated facility at Doddaballapur maintained by TFBL. As per the agreement, payments were to be made at the rate of ₹4.74 per MT of MSW per km on the basis of weighment certificates given by TFBL. The contractor claimed payments for 21,917 trips in which 6.38 lakh MT of MSW had been transported, for which BBMP paid (2009-13) a sum of ₹29.99 crore.

It was seen that qualification criteria had been changed twice within a span of seven months (January-August 2009) and the work was awarded in the third call of tender. The criterion for transporting 'at least 500 MT of MSW and 500 MT of any other material in a period of at least 12 months during the preceding five years' was changed to 'transportation of 10,000 MT of MSW or any other material in each of the preceding three years'. The nature of vehicle was changed from 'tipper trucks' to 'trucks', which was in violation of MSW Rules as it entailed manual as well as multiple handling of waste. The possibility of realigning tender criteria to favour intended bidder(s) could not be ruled out.

The State Government stated (January 2014) that tender conditions were modified to prevent those agencies from participating against whom inquiry had been taken up for alleged malpractices. It was further stated that the specification of vehicle was changed from 'tipper truck' to 'truck' as MSW could not be loaded directly into closed tipper trucks. The reply was not acceptable as alleged agencies should have been blacklisted to prevent them from participating. Modification of tender conditions is against the intent of competitive bidding for obtaining the most appropriate bidder. Moreover, tipper trucks were being used for transportation of MSW from wards of BBMP. Hence, changing the specification of vehicle only for this work was not justifiable.

#### **➤ Transportation of MSW in excess of vehicle load capacity**

TFBL was to be paid ₹66 per MT by BBMP for receiving MSW. At the time of submission of tender documents, the contractor had provided the details of vehicles with copy of Regional Transport Office (RTO) documents indicating the 'gross axle load' capacity as 25 MT. Scrutiny of weighment data provided by TFBL showed that the quantum of waste reported to be transported in 20,315 out of total 21,917 trips was in excess of 25 MT, which was not feasible. The excess quantum of waste worked out to 92,146 MT, for which BBMP had paid ₹6.89 crore to the contractor. It was also seen that there was no mechanism in BBMP to verify the genuineness of the contractor's claims; there were no weigh bridges at the originating three landfills and payments were made only on the basis of weighment data given by TFBL.

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<sup>127</sup> Cheemasandra (153 km), Mandur (153 km) and Subbarayanapalya (170 km)



The State Government stated (January 2014) that the agency had modified the body of the vehicles to increase the capacity to make more profit by reducing the number of trips. The reply was not acceptable as no documentary evidence in support of the modification of vehicles had been furnished to Audit.

#### **4.1.11.4 Fictitious payments on transfer of MSW**

The details of 180 vehicles registered in the VAHAN<sup>128</sup> database of Transport Department were verified to assess the genuineness of the vehicles used for transportation of MSW in the city. It was seen that 17 vehicles used in Bangalore (West) zone for transportation of MSW were registered as non-transportation vehicles *viz.*; two wheeler, four wheeler, bus, *etc.* BBMP did not verify the authenticity of transportation claims of such vehicles and passed the bills without necessary checks. As a result, payments of ₹88.95 lakh made on these vehicles during 2008-13 were fictitious.

Audit also observed that in 63 out of 180 vehicles, fitness certificates were not renewed for vehicles which transported MSW for a period ranging up to 33 years<sup>129</sup> which contravened the provisions of Motor Vehicle Act. It was also observed that 29 vehicles more than 15 years old<sup>130</sup> (as of April 2008) were used for transportation of MSW which was in contravention of the agreement clause.

The State Government stated (January 2014) that Zonal Joint Commissioner (West) had been informed to examine the observation and furnish the report.

#### **4.1.12 Processing**

Processing refers to the process by which solid wastes are transformed into new or recycled products so as to minimise burden on landfill.

##### **4.1.12.1 Inadequate processing capacity**

As stated earlier, the quantum of waste generation for the year 2008 was projected at 5,033 MT per day. However, the processing capacity in BBMP was only 2,900 MT per day from four<sup>131</sup> integrated facilities for processing and disposal of MSW. As per DPR (March 2009), proposals for establishing four<sup>132</sup> new integrated facilities with a capacity of 2,400 MT per day were being finalised. It was, however, seen during joint physical verifications (May 2013) that three of these new facilities (except Chakkasandra) were only

<sup>128</sup> VAHAN is a comprehensive database containing all the details of vehicles and enables automation of vehicle related activities at RTOs.

<sup>129</sup> Up to five years – 30 vehicles; 5-10 years – 19 vehicles; 10-15 years – 10 vehicles; 15-20 years – three vehicles; more than 20 years – one vehicle

<sup>130</sup> 15 to 20 years – 18 vehicles; 20 to 25 years – eight vehicles; 25 to 30 years – two vehicles; 40 to 45 years – One vehicle

<sup>131</sup> Bommanahalli (300 MT), Doddaballapur (1,000 MT), Mandur South (1,000 MT) and Mavallipura (600 MT)

<sup>132</sup> Cheemasandra (200 MT), Mandur North (1,000 MT), Subbarayanapalya (200 MT) and Chakkasandra (1,000 MT)

landfills without any processing facility, resulting in dumping of mixed waste in these sites. The facility at Chakkasandra could not be taken up for which reasons were not on record. Apart from these landfills, BBMP had five dump yards (Anjanapura, Doddabidarakallu, Kannahalli, Lakshmipura and Seegehalli) and one landfill (S.Bingipura), which also did not have processing facilities.

Thus, BBMP did not step up its processing capacity, which was reduced (March 2013) to 2,000 MT per day as Mavallipura processing unit had been closed (July 2012) and Karnataka Compost Development Corporation had stopped accepting garbage from BBMP. This led to dumping of unprocessed waste at Mandur (North) and Mandur (South) landfills far in excess of their optimum capacities, emanating foul smell in the villages surrounding the landfills.

To control the malodour, the Government accorded approval (September 2012) for installation of a High Pressure Atomisation System with 600 nozzles using Ecosorb odour neutralising solution and the work was entrusted (December 2012) to M/s. Pioneer Recruiters & Management Private Limited, Bangalore. BBMP had incurred an expenditure of ₹1.41crore<sup>133</sup> on odour control system (May 2013). Apart from this, BBMP had incurred an expenditure of ₹29.99 crore on transporting MSW from three landfills not having processing facilities to TFBL (detailed in *Paragraph 4.1.11.3*).

Thus, the failure of BBMP in augmenting its processing capacity led to accumulation of unprocessed MSW to the extent of 23.50<sup>134</sup> lakh MT and additional expenditure of ₹31.40 crore, besides creating health hazards and contamination of the environment.

The State Government accepted (January 2014) the audit observation.

#### **4.1.13 Slaughter houses**

Slaughter houses and meat producing units are classified under Red category by the KSPCB due to high potential for contamination and release of pollutants.

There are three<sup>135</sup> slaughter houses functioning under the jurisdiction of BBMP. About 18.95 lakh animals were slaughtered in these three slaughter houses during the period 2009-13 and animal waste generated during this period ranged from 7 to 8.25 MT per day. The details for 2008-09 had not been furnished to Audit.

On the directions (August 2002) of the Hon'ble High Court of Karnataka to relocate slaughter houses to the outskirts of city limits, BBMP had purchased

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<sup>133</sup> ₹76.83 lakh on capital expenditure and ₹63.99 lakh on operational cost

<sup>134</sup> Anjanapura - 1.00 lakh MT, Cheemasandra – 3.00 lakh MT; Kannahalli - 1.05 lakh MT, Mandur (North) – 6.00 lakh MT, Mandur (South) – 4.00 lakh MT, Mavallipura – 7.00 lakh MT and S.Bingipura - 1.45 lakh MT

<sup>135</sup> Pottery Road, Tannery Road and Usman Khan Road

(July 2005 and August 2006), from Karnataka Industrial Area Development Board (KIADB), 40.68 acres of land at Iggalur for a sum of ₹2.24 crore. However, the construction of modern abattoir at Iggalur could not be taken up due to public protests. BBMP then purchased (November 2009) another 40 acres of land from KIADB at Harohalli for ₹24 crore, besides paying a sum of ₹93.51 lakh as penal interest for delayed payment. However, the project at Harohalli was also not completed due to public protests. Thus, the expenditure of ₹27.18 crore incurred on purchasing lands at Iggalur/Harohalli has remained unfruitful (January 2014) and slaughter houses continue to function within the city limits.

The State Government, while accepting the audit observation, stated (January 2014) that penal interest had not been paid to KIADB. The reply was not acceptable as the bill for ₹93.51 lakh had been passed in November 2012.

- ***Unauthorised functioning of slaughter house at Tannery Road***

The civil slaughter house at Tannery Road is the oldest slaughter house operating since 1920. The authorisation and consent granted (October 2008) by KSPCB to operate this slaughter house was valid up to June 2009. However, the authorisation was not renewed as KSPCB had pointed out following persistent violations in the operation and maintenance of the slaughter house:

- The Effluent Treatment Plant (ETP) constructed for treatment of wash water was not working.
- The untreated effluents were being discharged into BBMP storm water drains and foul smell spread to the surrounding areas.
- The sample analysis report of untreated effluent to the adjacent storm water drain showed that total suspended solids had exceeded the stipulated standards.
- The housekeeping near ETP was very poor.
- Solid waste, accumulated cow dung and other body parts of animals were not disposed off properly.

Despite opportunities given by KSPCB, BBMP did not comply with the conditions stipulated by the Board. The slaughter house continued to operate without valid authorisation. Finally, KSPCB issued (April 2013) prohibitory orders to prevent the discharge of effluent outside the premises or into storm water drain. However, it was observed during joint physical verification (July 2013) that the slaughter house was functioning in insanitary conditions and the violations, as observed by KSPCB, still persisted. Some of the photographs below taken during joint inspection confirm the audit contentions.



Blood of slaughtered animals flowing through open drain and lying in open at slaughter house, Tannery Road (17 July 2013)

- ***Slaughter houses at Usman Khan Road and Pottery Road***

These two slaughter houses had been functioning without any ETP. As a result, liquid waste, mixed with blood of slaughtered animals, was flowing directly into drainage without treatment as seen during the joint inspection (July 2013). Joint inspection also showed that the capacity of lairage<sup>136</sup> was not adequate in slaughter house at Usman Khan Road.

The functioning of slaughter houses in total disregard of norms is a matter of concern having adverse consequences on public health as well as the environment.

The State Government accepted (January 2014) the audit observations and stated that action had been initiated to obtain the authorisation and upgrade the facilities at the slaughter houses.

#### **4.1.14 Landfills**

Landfilling refers to disposal of residual solid wastes on land in a facility designed with protective measures against pollution of ground water, surface water and air fugitive dust, wind-blown litter, bad odour, fire hazard, bird menace, pests or rodents, greenhouse gas emissions, slope instability and erosion.

As per MSW Rules, BBMP is responsible for management of MSW by setting up waste processing and disposal facilities including landfills. Such facilities should meet the specifications and standards specified in Schedules III and IV of MSW Rules.

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<sup>136</sup> A place where livestock are kept temporarily (a waiting, holding or recovery area supplied with appropriate animal handling capacities at a slaughter house)

#### 4.1.14.1 *Improper selection of landfill sites*

Five<sup>137</sup> landfills/dump yard sites were situated on forest land or near water bodies, which was in contravention of MSW Rules.

The State Government stated (January 2014) that Mavallipura landfill had been selected in accordance with MSW Rules. This is not acceptable as part of the Mavallipura landfill was a forest land and was close to the Yelahanka Air Base, contravening MSW Rules. The reply was silent about other dumpsites under objection.

#### 4.1.14.2 *Buffer zone around landfill*

Schedule III of MSW Rules provide for maintenance of a buffer zone area of no-development around landfill site. It was seen that buffer zone was not maintained in any of the 10 landfill sites/dump yards. As a result, habitations had come around seven<sup>138</sup> out of 10 test-checked landfills/dump yards, as seen during joint physical inspections. This not only contravened MSW Rules but also posed hazards to public health. In 25 acres of Doddabidarakallu dump yard belonging to BBMP, 10 acres had been encroached upon by private party and a residential layout with asphalted roads, drainage systems, *etc.*, had been formed.

The State Government accepted (January 2014) the audit observation and stated that efforts would be made to create the buffer zones around these sites.

#### 4.1.14.3 *Facilities at landfills/dump yards*

The status of availability of facilities<sup>139</sup>, as seen during joint inspection of 10 landfills and dump yards, are discussed below.

- Seven units were not well protected in the absence of gates, compound walls/fencing. As a result, entry of unauthorised persons and stray animals could not be avoided.
- None of the landfills/dump yards had maintained waste inspection facility and kept fire protection equipment to monitor waste brought in for landfill and to meet exigencies of fire hazard. The absence of fire protection equipment would incapacitate the landfill authorities to extinguish fire in time, besides having adverse effect on environment through release of dioxin and other greenhouse gases.

<sup>137</sup> Mavallipura, Mandur North and Mandur South (Forest land); Subbarayanapalya and S.Bingipura (near water body);

<sup>138</sup> Anjanapura, Cheemasandra, Doddabidarakallu, Lakshmipura, Mandur (South), Mavallipura and Subbarayanapalya

<sup>139</sup> Rule 7 (2) read with Schedule III (Specification of landfill sites) of MSW Rules, 2000 prescribes the list of facilities to be maintained at the landfill sites such as fencing with proper gate, formation of approach and internal roads, waste inspection facility, office facility, shelter for keeping equipment and machinery including pollution monitoring equipment, weigh bridges, fire protection equipment, drinking water, lighting arrangement and safety provisions.

- Weigh bridges had not been installed in seven out of ten test-checked landfills/dump yards. It was also seen that though weigh bridge structures had been procured (September 2011) for installation in five units, the same were lying idle due to non-availability of electrical connections.



- Mavallipura and Lakshmipura sites did not have proper approach roads and in five<sup>140</sup> sites, internal roads had not been formed. This would affect free movement of vehicles and other machinery within the sites, particularly during monsoon season.
- Six<sup>141</sup> units did not have any office facility, four<sup>142</sup> landfills/dump yards did not have drinking water facility, while lighting facilities were not available in four<sup>143</sup> landfills/dump yards.
- Though *windrow*<sup>144</sup> platform with impermeable base is required for processing of compost, composting at Doddaballapur (TFBL) was being carried out without *windrow* platform, leading to contamination of ground water.

The State Government, while accepting (January 2014) the audit observations, stated that necessary action would be taken to provide facilities at landfills/dump yards.

#### 4.1.14.4 Landfill at Mavallipura

BBMP had entered into (August 2004) an agreement with M/s. Ramky Infrastructure Limited (RMIL) for conversion of waste to compost and landfilling of residual inert waste<sup>145</sup> at Mavallipura. As per the agreement, tipping fee<sup>146</sup> was payable to RMIL on the actual quantity of inert waste shifted to landfill site after processing and removal of recyclables from MSW supplied by BBMP. BBMP had supplied (March 2007-February 2012) 9.21 lakh MT of MSW to RMIL and had paid ₹11.54 crore<sup>147</sup> for shifting 5.52 lakh MT of inert waste to the landfill. In this connection, following observations are made:

<sup>140</sup> Anjanapura, Doddabidarakallu, Lakshmipura, Subbarayanapalya and S.Bingipura

<sup>141</sup> Anjanapura, Cheemasandra, Lakshmipura, Mandur (North), Subbarayanapalya and S.Bingipura

<sup>142</sup> Anjanapura, Cheemasandra, Lakshmipura and Mandur (North)

<sup>143</sup> Anjanapura, Lakshmipura, Cheemasandra and Subbarayanapalya

<sup>144</sup> Wastes are shredded and mixed and placed into rows for large scale composting known as windrows

<sup>145</sup> Material left as residue after processing of MSW and removal of organic and recyclables

<sup>146</sup> Tipping fee is the fee payable by BBMP to concessionaire (operator) which is calculated on the quantity of residual inert waste.

<sup>147</sup> Tipping fee @ ₹198 per MT up to March 2011 and @ ₹218 per MT for subsequent period

➤ **Lacunae in the agreement**

Though the payment was to be made on the residual inert waste after processing, percentage of maximum permissible inert waste was not specified in the agreement. It was seen that BBMP had made payments considering the inert waste at 60 *per cent*, whereas the inert content as per DPR was only 6 to 10 *per cent*.

The State Government stated (January 2014) that as per the technical report of the Expert Sub-committee constituted for analysing the percentage of rejects generated in the composting facility, reject was assessed at 62 *per cent*. The reply was not acceptable as rejects include both inerts and recyclables and BBMP was to pay only for inert waste. As per the Technical report (April 2013) on characterisation of waste, biodegradable and recyclables accounted for 59 and 32 *per cent* respectively, thus leaving inert quantity of nine *per cent*.

➤ **Excess payment**

As per the proposal for Bio-mining (February 2013), there was accumulated quantity of about seven lakh MT of unprocessed MSW in Mavallipura landfill against 9.21 lakh MT of MSW supplied by BBMP. RMIL had processed only 2.21 lakh MT. Accordingly, the tipping fee, even at 60 *per cent* as inert waste, would amount to ₹2.63 crore. However, payment of ₹11.54 crore had been made, resulting in excess payment of ₹8.91 crore.

The State Government accepted the audit observation and stated (January 2014) that the same would be verified.

➤ **Fictitious claims on transfer of inert waste to landfill**

RMIL had deployed two vehicles for transporting residual inert waste from the landfill area to the designated place of filling. RMIL had claimed payments on the basis of trip sheets of these two vehicles, showing the time taken for each trip and the quantity of inert waste transported. A scrutiny of the trip sheets for six months (July 2010, September 2010, December 2010, January 2011, February 2011 and April 2012) suggested that they were not based on actual recording of data as can be seen from observations detailed below.

- (a) there were 31 instances where the same vehicle was shown to have transported the inert waste at the same time but with different quantities.
- (b) there were 281 cases when the time gap between two consecutive trips of the same vehicle ranged from one to seven minutes, which was not feasible considering the time needed for loading/unloading the inert waste and the average distance to be travelled over nine acre area of landfill facility.

BBMP had accepted the claims made by operator and certified by project Engineer even without exercising the basic random checks. Fraudulent practices in the preparation of trip sheets indicating payment for quantity of inert waste not transported cannot, therefore, be ruled out.

The State Government stated (January 2014) that discrepancy, if any, would be verified and rectified before releasing the balance payment.

➤ **Short-supply of compost**

As per agreement, RMIL was required to supply 500 MT of compost/organic manure to BBMP every year free of cost. During 2008-12, BBMP however had received only 32 MT of compost.

The State Government stated (January 2014) that the cost for the balance quantity of compost would be recovered from the agency.

**4.1.14.5 Treatment of leachate**

Leachate is the liquid that seeps through solid wastes or other medium and has extracts of dissolved or suspended material from it. It is important to treat the leachate to reduce ground and surface water contamination. It was observed that none of the test-checked units (except Mavallipura) had the facilities for treating leachate. It was also observed that six<sup>148</sup> test-checked landfills/dump yards did not have any provision for leachate collection. During joint physical verification, vast stretches of stagnant and flowing leachate were seen in and around landfills/dump yards, evidently leading to contamination of ground water and environmental hazard.



Untreated leachate at Mandur (North) and Mandur (South) landfills (7 June 2013)

The State Government stated (January 2014) that action would be taken to establish suitable leachate management systems in these landfills/dump yards.

**4.1.14.6 Unscientific dumping of MSW in Quarries**

MSW Rules specifies construction of a non-permeable lining system at the base and walls of waste disposal area to prevent pollution problems from landfill operations. Audit observed that MSW was being dumped in the

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<sup>148</sup> Anjanapura, Cheemasandra, Doddabidarakallu, Lakshmpura, Subbarayanapalya and S.Bingipura



quarries of Anjanapura, Lakshmipura and S.Bingipura by BBMP. Further, authorisations for dumping of MSW in these quarries were not obtained by BBMP. As blasting of rocks is a vital quarrying activity, the existence and formation of crevices in the quarry naturally and due to human intervention is inevitable. The leachate in the dumped MSW on reaching the surface of rocks will percolate through the crevices, mix with ground water and contaminate the entire stream underneath. The contamination of water leads to serious environmental degradation.

The State Government stated (January 2014) that due to delay in operationalisation of processing plants and acute garbage crisis, as a contingency measure temporary arrangements were made to dispose of waste in these quarries to avoid epidemic breakup. The reply is not acceptable as ground water contamination also poses a serious threat to potable water besides contravening MSW Rules.

#### **4.1.14.7 Unwarranted expenditure on rainwater harvesting**

BBMP (erstwhile BMP) had entered into (June 2005) an agreement with M/s. Srinivasa Gayathri Resource Recovery Limited (SGRRL) on Build, Own, Operate and Transfer (BOOT) basis to convert MSW into fuel pellets/fluff, etc., at Mandur (South) and landfill the rejects of the process as per MSW Rules. To meet the water requirement for this project, BBMP had incurred (April 2010-May 2012) an expenditure of ₹1.91 crore on development of three rainwater harvesting ponds at Mandur (South). As per the agreement, SGRRL had to meet, at its expense, the cost of water supply system in accordance with Good Industry Practice. It was seen during joint physical verification that the project was not completed, rainwater harvesting ponds were not connected and were filled with leachate/muddy water. Thus, the expenditure of ₹1.91 crore incurred by BBMP was not only extra contractual but was also rendered wasteful.

The State Government stated (January 2014) that the financial assistance was extended to SGRRL to encourage rain water harvesting. The reply was not acceptable as the project was incomplete and extending financial assistance was not justified in terms of the conditions of agreement.

### **4.1.15 Other points of interest**

#### **4.1.15.1 Entrustment of additional works**

The Commissioner, BBMP had approved (July 2010) award of additional works for effective management of collection, transportation of MSW and street sweeping activities. The works were entrusted in both BBMP managed wards as well as wards covered by service providers. As of March 2013, the test-checked zones had incurred an expenditure of ₹177 crore on additional works. The following observations are made in this regard:

- An expenditure of ₹32.99 crore had already been incurred on additional works during 2008-10 though the Commissioner had accorded approval only in July 2010;

- Work orders were issued on the basis of quotations, without entering into agreements with the contractors or insisting on performance securities. Considering the performance security collected from service providers at 10 *per cent* of the service fee payable, the security amount due from the contractors entrusted with additional works aggregated to ₹17.70 crore which BBMP failed to obtain;
- Periodical inspection reports by concerned authorities were not produced to Audit;
- In Bangalore (East) zone, work orders in 31 cases were issued after completion of works, with delays ranging from 5 to 71 days;
- An expenditure of ₹24.72 crore was incurred (2009-13) in Bangalore (South) and Rajarajeshwarinagar zones on desilting of drains, which was already a part of the stipulated activities of service providers. Similarly, Bangalore (West) zone had incurred (2008-13) an expenditure of ₹3.49 crore on cleaning of public toilets, which was also part of contract agreements entered into with the service providers;
- An expenditure of ₹3.98 crore was incurred (2008-13) in Bangalore (West) zone on mosquito control programme under SWM, though a separate budget head is provided under 'Health-General', resulting in diversion of funds to that extent;
- A sum of ₹32.50 crore was spent (2008-13) in Bangalore (East), Bangalore (West) and Rajarajeshwarinagar zones on 'dump yard problems' and ₹1.18 crore by Bangalore (East) zone on 'other expenditure' without any records detailing the nature of works.

Thus, in the absence of transparency, non-maintenance of supporting records and claims passed contravening the canons of financial propriety, the correctness of the expenditure incurred on these additional works could not be assessed in audit.

The State Government stated (January 2014) that action would be taken as per the observations raised by Audit.

#### **4.1.15.2 Non-renewal of Bank Guarantees**

Codal provisions stipulate that Bank Guarantees (BG) should be obtained from the contractors as a valid security towards performance of contracts. These had to be renewed on expiry and encashed in case of any default on the part of the contractor.

Audit scrutiny in the test-checked three zones showed that BGs were not on record in four packages and renewal details were not available in nine packages. Further, BGs were not renewed in 23 packages beyond January 2009 even though the contracts were initially up to March 2010 and were extended from time to time.

The State Government stated (January 2014) that old contracts had been terminated and such instances would be avoided in future.

#### **4.1.15.3 Irregularities in purchases of cleaning materials**

The Commissioner, BBMP had instructed (November 2009 and November 2011) that cleaning materials could be purchased, once in four months, in BBMP managed wards subject to a maximum of ₹1.00 lakh per annum. Audit observed that BBMP managed wards in the test-checked three zones had spent (2010-13) ₹6.80 crore on purchase of cleaning materials against the maximum permissible limit of ₹2.05 crore. Audit did not come across any records such as indents, sanctions, etc., indicating existence of any mechanism to ensure that purchases were need-based. It was also seen that though the receipts of materials were taken to the stock register, issue of materials had not been recorded. Even the periodical stock verification of the materials was not conducted. Audit scrutiny also showed that purchases were made without calling for tenders, resulting in denial of competitive rates to BBMP and lack of financial checks of zonal/head office levels.

The State Government stated (January 2014) that permissible limit of ₹2.05 crore was less compared to the requirement and would be ratified. It was further stated that letter had been written to the zonal office heads calling for explanation.

#### **4.1.15.4 Non-collection of bio-medical waste**

BMW Rules stipulated that no untreated BMW should be stored for more than 48 hours without the permission of the competent authority at the source of generation.

BBMP had entered into agreements (August 2010) with two<sup>149</sup> agencies for collection and safe disposal of BMW generated by the clinical<sup>150</sup> wing of BBMP. As per agreements the service providers were required to collect the BMW on a daily basis. The payments were to be made on the basis of compliance certificates furnished by the respective medical officers.

Audit scrutiny of BMW Registers for the period from December 2010 to March 2013 showed that there were 1,051 instances when BMW had not been collected on a daily basis from 24 Referral hospitals/maternity homes. Untreated BMW had not been collected up to six days, which was in violation of BMW Rules. However, the Medical Officers had furnished the compliance certificates without reporting periods of non-collection of BMW. This resulted in release of full payment without deduction though the agreement provided for proportionate levy of penalty for non-collection of BMW on daily basis. Non-collection of BMW on a daily basis not only contravened the agreement clause but also posed potential public health hazards. Further, it

<sup>149</sup> M/s. Mardi Eco Industries (for Bangalore South) and M/s. Sembramky (for Bangalore North)

<sup>150</sup> Clinical wing refers to the Referral hospitals, Nursing Homes and Health units managed by BBMP

was observed that the rate of penalty for each instance of non-compliance of daily collection of BMW was not prescribed as was done in the agreement entered into for collection and transportation of MSW by Health Wing of BBMP.

BMW Registers for the period prior to December 2010 had not been maintained in the test-checked Referral hospitals. As a result, Audit could not assess the extent of compliance with BMW Rules for the period prior to December 2010.

Further, the agreement contained a clause which provided for cancellation of agreement with the agency in case of repeated default. Empanelment of only two agencies for the purpose reduced the leverage with BBMP to invoke the cancellation clause and to monitor compliance.

The State Government accepted (January 2014) the audit observation and stated that necessary action had been taken for regular clearance of BMW from BBMP hospitals.

#### **4.1.15.5 Non-renewal of authorisation**

BMW Rules stipulated that every health care unit should seek authorisation from the competent authority for handling and disposal of BMW. It was seen that authorisation details had not been indicated in eight out of 62 health care units functioning under the clinical wing of BBMP. In another six cases, non-renewal of authorisations ranged from 3 to 39 months.

The State Government, while accepting the observation, stated (January 2014) that action had been initiated by health care units for obtaining authorisation/renewal.

#### **4.1.15.6 Plastic Waste**

Plastic waste comprises any plastic product such as carry bags, pouches or multi-layered packaging, which have been discarded after use or after their intended life is over. Under the Plastic Waste (Management and Handling) Rules, 2011, Municipal authority is responsible for regulating the usage of plastics and is responsible for setting up, operationalisation and co-ordination of the waste management system and associated functions to ensure safe collection, storage, segregation, transportation and disposal of post consumer plastic waste.

Audit observed the following in respect of plastic wastes:

- a) During joint physical verification of landfills, huge quantities of plastics were seen dumped at the sites without recovering the plastic for channelisation to recyclers.
- b) Segregation of waste was minimal and the processing of plastics was done only in two out of ten landfills.

- c) Under the principle of Extended Producer's Responsibility (EPR) plastic manufacturers should finance the establishment of plastic waste collection centers but no action was taken by BBMP in this regard.
- d) Plastic rules were not incorporated in the Municipal bye laws of BBMP.

The State Government accepted (January 2014) the observations made by Audit and stated that action would be taken to get plastic manufacturers to finance establishment of plastic waste collection centres under EPR and that amendments would be made in KMC Act to incorporate plastic waste rules.

#### **4.1.16 Monitoring**

Monitoring of SWM is a key prerequisite for keeping track of changes in waste quantity and quality, and their resultant impact on health and the environment.

##### ***4.1.16.1 Monitoring Committee to supervise performance of service providers***

As per the agreements entered into with the service providers, BBMP had to set up a Monitoring Committee comprising Health Officers, Medical Officers and *Shuchi Mitras*<sup>151</sup> to supervise the work of service providers. However, no such Committee was set up by BBMP.

Further, the service provider was required to submit a declaration for having performed all the activities and tasks, as envisaged in the agreement. In the test-checked zones, the concerned Health/Engineering division had not insisted on the prescribed mandatory declarations by service providers and bills were, passed in a routine manner for payment of ₹453.28 crore for contractors packages and ₹177 crore for additional works during 2008-13 by merely recording as "Satisfactory" without supporting records for compliance of the specified activities. The payment of ₹630.28 crore for SWM activities during 2008-13 contravened the canons of financial propriety.

The State Government stated (January 2014) that action would be taken as per the observation raised by Audit.

##### ***4.1.16.2 Project Engineer to supervise functioning of processing units***

Project Engineers, appointed to supervise functioning of processing units, were to review and monitor the activities of the Concessionaires. However, as per the agreement, Project Engineers were appointed and paid by the Concessionaires. This would restrict the independence of the Project Engineers. This was evident in the case of the Mavallipura processing unit which had been closed for non-compliance with MSW Rules by KSPCB, but no such omissions had been reported by the concerned Project Engineer.

<sup>151</sup> Shuchi Mitras are volunteers who monitor SWM in their neighbourhood

The State Government accepted (January 2014) the audit observation and stated that BBMP had no control over the Project Engineers. It was further stated that proposal to appoint Project Engineer by BBMP would be submitted so that the activities of processing units could be monitored.

#### **4.1.16.3 Pollution Monitoring**

Periodical tests to assess the ambient air quality and water quality were not conducted in test-checked landfills/dump yards. Pollution monitoring equipment were also not kept in any of the test-checked landfills/dump yards except in Mavallipura and TFBL. As a result, the extent of contamination of surface and ground water, soil and air could not be determined and consequent impact on the environment could not be assessed.

The State Government stated (January 2014) that action would be taken to get the water samples and air ambient quality tests conducted periodically in landfill sites.

#### **4.1.16.4 Monitoring by UDD**

The State Government has the overall responsibility for enforcement of MSW Rules. As per these Rules, BBMP was required to furnish Annual Reports to the UDD with a copy to the KSPCB by 30 June each year. In addition, BBMP was also required to report accidents relating to SWM, if any, in the prescribed format to the UDD.

During the review period (2008-13) BBMP had furnished (February 2010) only one Annual Report to UDD. Further, out of four<sup>152</sup> fire accidents which had occurred during the review period, only one accident (Subbarayanapalya) had been reported to UDD by BBMP. Insistence on such reports could have enabled UDD in monitoring the SWM activities of BBMP.

The State Government accepted (January 2014) the audit observations and stated that periodical submission of Annual Reports would be insisted upon.

#### **4.1.17 Good Practices**

- BBMP has introduced a “Facebook” page for SWM. Such an initiative must be sustained and expanded in future.
- In the test-checked Bangalore (South) zone, 51,000 coloured bins costing ₹32.54 lakh had been procured and distributed (April-May 2011) to 25,500 households to promote segregation of waste into biodegradable and non-biodegradable waste.
- The use of plastic by BBMP in road construction.

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<sup>152</sup> Mandur North (2010-11 and 2012-13), Mandur South (2012-13) and Subbarayanapalya (2012-13)

#### 4.1.18 Conclusion

Institutional mechanism in BBMP to oversee the implementation of solid waste management was not adequate. Absence of a well-defined policy, contingency plan and reliable/complete data about quantum of waste generated in the city rendered waste management programmes ineffective and resulted in unscientific disposal of waste. BBMP lost the assistance of ₹280.17 crore due to delay in preparation of Master Plan. BBMP had spent more than the releases during the period 2008-11. There were instances of diversion and short utilisation of grants, short collection of cess, non-coverage of all the waste generators, *etc.* Efficiency in collection of municipal solid waste, bio-medical waste and plastic waste was poor. The segregation of waste at source was only 10 *per cent* and no steps were taken to promote waste segregation. Instances of unauthorised dumping at road sides were observed. BBMP had failed to augment its processing capacity which led to accumulation of unprocessed MSW to the tune of 23.50 lakh MT, besides creating health hazards and contamination of the environment. Thus, compliance with the rules regulating municipal solid waste and bio-medical waste continued to be poor even after 13 years of the framing of rules. Movement of transportation vehicles was not monitored by BBMP and there was no system to regulate the transportation claims. Cases of improprieties in contract management of works relating to waste management were also observed and possibility of fictitious/inflated claims could not be ruled out. Monitoring was also ineffective leading to non-realisation of the objectives of protecting and improving the environment through scientific management of waste.

#### 4.1.19 Recommendations

- BBMP should carry out, periodically, a comprehensive assessment of the amounts of waste being generated by installing weigh bridges at all landfills/dumpsites and recording weighment data through automated system without human interference for aiding policy-making and intervention. BBMP should also conduct periodical physical/cross verification of data through competent authority.
- BBMP should consider launching an effective and visible awareness campaign to promote segregation, recycling and reduction of waste with the participation of Resident Welfare Associations and Non-Government Organisations.
- Buffer zones around dumpsites should be maintained and periodic monitoring of dumpsites for contamination of environment should take place.
- BBMP should take steps to improve its processing capacity and identification of land for setting up scientific landfills should be done on a priority basis. Landfilling should be restricted to inert waste.
- Adequate efforts to mobilise revenue resources should be made to meet the O&M cost of SWM.

- State Government should prescribe suitable penal clause for non-utilisation of minimum General Basic and Performance Grants prescribed for SWM activities under Thirteenth Finance Commission.
- Immediate action should be taken to review cases of improprieties in contract management of works relating to waste management.
- Monitoring at all levels should be strengthened and management information system should be introduced for effective monitoring.



## SECTION 'B' - COMPLIANCE AUDIT

### URBAN DEVELOPMENT DEPARTMENT

#### 4.2 Wasteful expenditure

**Failure of Bruhat Bangalore Mahanagara Palike in ensuring availability of land before commencement of works led to stoppage of the project proposed for treatment of sewage entering the storm water drain of Vrishabhavathi valley. This resulted in wasteful expenditure of ₹7.46 crore and defeated the very objective of keeping the environment clean.**

The Karnataka Public Works Departmental Code requires that a work should be taken up for execution only after ensuring availability of all requisite inputs such as land, designs and drawings, *etc.*

Test-check of records (December 2012) in Bruhat Bangalore Mahanagara Palike (BBMP) showed that the Commissioner, BBMP had proposed (June 2008) a project of 'Facelift of Vrishabhavathi valley' for treatment of sewage flowing in the storm water drain (SWD). The proposed project included construction of one MLD<sup>153</sup> Sewage Treatment Plant (STP), 12 numbers of 250 KLD<sup>154</sup> STPs, 11 number of 600 mm diameter Reinforced Cement Concrete (RCC) pipeline to connect the proposed STPs and four chain-link fencing works. These works, estimated to cost ₹18.19 crore, were proposed in the primary SWD of Vrishabhavathi valley connecting Mysore Road and Magadi Road running for a length of 6.80 kilometres. The works were tendered and entrusted (May to December 2008) to 20 contractors for execution at a total cost of ₹21.71 crore.

Out of the total 28 works, 15 works<sup>155</sup> (tendered cost: ₹11.24 crore) could not be commenced due to non-availability of land. The remaining 13 works (tendered cost: ₹10.47 crore), which included one MLD STP, eight 250 KLD STPs, two 600 mm diameter RCC pipeline works and two chain-link fencing works, were partially completed after incurring an expenditure of ₹7.40 crore. As the works remained incomplete, the Commissioner, BBMP ordered (September 2011) to rescind all the contracts on 'as is where is' basis and instructed that required works were to be estimated afresh.

Audit scrutiny showed that though the Commissioner, BBMP had appointed (July 2008) a consultant for preparation of estimates, tendering and finalisation of tenders, the Commissioner did not ensure preparation of a detailed project report (DPR) for the project as a whole. BBMP had paid ₹5.93 lakh to the consultant and ₹2.72 lakh was yet to be paid (January 2014). BBMP also failed to assess the availability of land and ensuring clearances from other institutions such as Bangalore University for laying the pipelines. Thus, the defective planning and failure of BBMP in ensuring availability of

<sup>153</sup> Million Litres per Day

<sup>154</sup> Kilo Litres per Day

<sup>155</sup> Four STPs (250 KLD), nine RCC pipeline works and two chain-link fencing works

requisite inputs such as land and DPR led to execution of the project in parts, resulting in stoppage of works and wasteful expenditure of ₹7.46 crore. Non-completion of the project also defeated the very objective of keeping the environment clean by treating the sewage.

A joint inspection of the work spot (December 2012) also showed that the civil works of partially completed STPs and RCC pipelines were not being utilised and these were in a dilapidated condition filled with solid waste, debris and growth of bushes. Garbage was found burning in one of the STPs and parts of the chain-link fencing were stolen.

The State Government accepted (January 2014) the audit observation that DPR was not prepared and works could not be completed due to non-availability of land. It was also stated that works were entrusted to different contractors who were unable to understand the concept in totality as they were engaged in their own tendered works.

#### **4.3 Loss of revenue**

**The City Municipal Council, Bijapur lost revenue of ₹3.01 crore due to delay of one year in giving effect to the revised water tariff approved by the Government.**

The State Government entrusted (January 2010) the operation and maintenance of the water supply system of Bijapur (Scheme) to the Karnataka Urban Water Supply and Drainage Board (Board) subject to the following conditions:

- The City Municipal Council, Bijapur (CMC) was to revise the water tariff as and when the Government revised the same for urban local bodies;
- The Board was to meet the entire cost of operation and maintenance of the Scheme out of the revenue collections and the shortfall, if any, would be made good by the Government from out of the State Finance Commission (SFC) grants due to the CMC;
- The Board was responsible for billing, collection of water charges, fees, rental deposits, *etc.*;
- The Board was to get an incentive of eight *per cent* of the revenue collected every month.

The Board entered (January 2010) into a Memorandum of Understanding with the CMC on these lines.

The Government revised the consumer water tariff upward in the urban areas of the State with effect from 20 July 2011. However, the Board continued to collect water charges at the pre-revised rates till June 2012 as the CMC had passed (March 2012) a resolution to implement the revised tariff only from 1 July 2012.

Postponement of recovery of water charges at revised rates by a year resulted in revenue loss of ₹3.01 crore in respect of 39,810 water connections. During the period from July 2011 to June 2012, the expenditure on operation and maintenance of the Scheme was higher by ₹8.26 crore than the revenue collection, which was reimbursable to the Board by the Government after deducting it from the SFC grant due to the CMC.

Thus, the CMC lost ₹3.01 crore of the SFC grant which could have been otherwise spent on developmental activities. The Board also lost the incentive of ₹24.08 lakh on the revenue of ₹3.01 crore lost by the CMC.

The State Government accepted (March 2014) the audit observation and stated that action had been initiated to recover the loss of ₹3.01 crore by serving demand notices to the consumers. It was further stated that ₹98.54 lakh had been collected up to January 2014.

#### 4.4 Unauthorised exemption resulting in loss of revenue

**In contravention of the provision of Karnataka Municipalities Act, Town Municipal Council, Sankeshwar, exempted a firm from paying property tax under capital value system. This resulted in loss of revenue of ₹1.98 crore.**

Government of Karnataka, as part of its urban reforms process, amended (November 2001) the Karnataka Municipalities Act, 1964 (KM Act) and introduced a system of self-assessment of property tax on the basis of taxable capital value having regard to the estimated market value of the land and estimated cost of erecting the building. The system of determining the Annual Rateable Value (ARV) on the basis of annual gross rent for the purpose of assessing property tax was abolished. The guidelines relating to self-assessment of property tax in municipalities stipulated that it was unfair on the part of municipalities to pass resolution rejecting any provision of the law passed by the State Legislature. Codal provisions<sup>156</sup> also stipulate that in cases where there are no definite rules or specific orders of the Government as to conditions, forms, *etc.*, agreements should be entered into only after obtaining the sanction of the Government who will take necessary legal and financial advice in each case.

Audit scrutiny of records (August 2012) in Town Municipal Council (TMC), Sankeshwar showed that there had been a dispute pending in court regarding payment of tax between a firm<sup>157</sup> and the TMC. The dispute was settled through an agreement (December 1992) whereby the firm was required to pay a lump sum amount of ₹85,000 per annum as tax (including property tax) for the period 1988-98 (10 years) and, from 1998-99 onwards, annual enhancement of five *per cent* on the tax amount payable was agreed upon. It was seen that the agreement was for an indefinite period and was entered into

<sup>156</sup> Paragraph 401 of Karnataka Financial Code

<sup>157</sup> Shri Hiranyakeshi Co-operative Sugar Factory Limited, Sankeshwar

without obtaining the sanction of the Government. Even a saving clause for revocation or cancellation of the agreement was not included.

After the introduction of system of self-assessment on the basis of capital value, TMC, Sankeshwar issued (July 2003) a demand notice to the firm to pay property tax for the years 2002-03 and 2003-04 under self-assessment scheme. The firm, inviting reference to the agreement, requested (6 August 2003) for withdrawal of the demand notice. TMC, Sankeshwar then passed (7 August 2003) a resolution permitting the firm to continue to pay property tax under old system *i.e.* on ARV basis. There was no documentary evidence in support of the copy of the resolution having been forwarded to the State Government. It was further seen that TMC, Sankeshwar had raised (October 2010) a demand for ₹1.46 crore for the period 2005-11 under capital value system. Though demand was raised, it was not recorded in the Demand, Collection and Balance (DCB) register of the TMC. The Chief Officer, TMC stated (September 2013) that demand would be included in DCB Register. The property tax payable for the period 2005-13 under capital value system worked out to ₹2.11 crore, whereas the firm had paid only ₹0.13 crore (as on March 2013), resulting in short recovery of ₹1.98 crore.

The improper decision of the TMC, contravening the provision of the KM Act and non-inclusion of saving clause in the agreement, resulted in loss of revenue amounting to ₹1.98 crore and in extending undue financial benefits to the firm.

The State Government stated (February 2014) that the TMC's resolution (August 2003) to levy property tax on ARV basis was in order as the firm had undertaken developmental/repair works in the areas coming under its limits. The reply was not acceptable as the resolution was in contravention of the KM Act, which stipulated that taxes should be levied as notified by the State Government.

#### **4.5 Avoidable expenditure on road markings**

**Executive Engineer, C.V. Raman Nagar division of Bruhat Bangalore Mahanagara Palike executed the work of providing road markings on roads where these were not required, resulting in an avoidable expenditure of ₹22.50 lakh.**

Road markings are essential to guide the road users and to ensure a smooth and orderly flow of traffic. Markings should be provided at appropriate places so as to optimise their visibility and effectiveness. The code of practice for road markings (IRC: 35-1997) issued by the Indian Roads Congress (IRC) prescribes a uniform system for road markings on rural and urban roads with paints or thermoplastic material. The code, *inter alia*, stipulates that centre lines on unimportant roads with less than five metres wide carriageway are undesirable as these entail discomfort and hazard. In such cases, short sections of centre lines may be provided on approaches to busy intersections, pedestrian crossings, level crossings, horizontal and summit curves with restricted sight distance and on locations where driver's visibility is reduced.

The code also prescribes that carriageway edge lines should ordinarily be provided only on roads with more than two lanes.

Audit scrutiny of records (July 2013) in the office of the Executive Engineer, C.V. Raman Nagar division of Bruhat Bangalore Mahanagara Palike (BBMP) showed that the sanctioned estimates of four test-checked works had provided for road marking with hot thermoplastic compound on 135 roads. It was further seen that the width of 126 out of these 135 roads was less than five metres. Therefore, marking of these roads with thermoplastic material was contrary to IRC norms, which resulted in avoidable extra expenditure of ₹22.50 lakh as shown in **Table 4.3** below.

**Table 4.3: Details of expenditure incurred on road markings**

Name of the work	No. of roads (less than five metres wide)	Road marking with thermoplastic material (quantity in sq m)	Rate per sq m	Expenditure (₹ in lakh)
Providing asphaltting to roads at LIC Colony and surrounding areas in HAL 3 <sup>rd</sup> Stage in Ward No. 58	21	1,683.81	425.00	7.16
Providing asphaltting to main road and cross roads at HAL 3 <sup>rd</sup> Stage in Ward No. 58	24	931.50	430.00	4.01
Providing asphaltting to New Thippasandra area in HAL 3 <sup>rd</sup> Stage in Ward No. 58	39	2,071.50	430.00	8.91
Asphaltting of main road and cross roads at GM Palya and Byrasandra area in Ward No. 58	42	623.16	389.00	2.42
<b>Total</b>	<b>126</b>			<b>22.50</b>

Thus, the failure of the division to follow the IRC specifications resulted in unnecessary road marking with thermoplastic material at a cost of ₹22.50 lakh, which was avoidable.

The State Government stated (April 2014) that road markings were provided as these were important roads and the estimates had been approved by the Chief Engineer (East), BBMP. The reply was not acceptable as the traffic density of these roads was not made available to substantiate that these were important roads.

#### 4.6 Doubtful execution of works

**Potholes filling work and maintenance of roads in Ward No.86 of Bruhat Bangalore Mahanagara Palike had been completed at a cost of ₹15.40 lakh. However, within 20 days of completion, an identical estimate was prepared incorporating the items of works already completed and the works were executed again by incurring an expenditure of ₹15.40 lakh, which was doubtful.**

The Assistant Executive Engineer (AEE), Sarvagnanagar Sub-division, Bharathinagar division of Bruhat Bangalore Mahanagara Palike (BBMP) had taken up (June 2008) the work of ‘filling of potholes and engaging private labour for maintenance of work in Ward No.86’ at an estimated cost of ₹15 lakh. The Superintending Engineer, East (SE) had accorded administrative approval and technical sanction in July 2008. As per the completion report, the work was completed on 25 May 2009 and payment of ₹15.40 lakh was made (August 2009) by Executive Engineer (EE), C.V. Raman Nagar division. Meanwhile, the Sub-division was transferred to the jurisdiction of EE, Sarvagnanagar division in June 2009.

Within 20 days of completion, AEE, Sarvagnanagar Sub-division again prepared (10 June 2009) another estimate for ‘maintenance of roads in Jai Bharath Nagara in Ward 86’ costing ₹25 lakh. The estimate included the same items of work which had been completed in May 2009. The estimate was technically sanctioned by the SE in July 2009. The work was completed during March 2010 and payment of ₹29.57 lakh for this work was made by EE, Sarvagnanagar division.

Audit scrutiny of the works (June-July 2013) executed under both the estimates showed the following:

- Both the estimates related to maintenance of roads in Ward No.86 of BBMP.
- Both the estimates had provided for filling of potholes on the same 20 roads. The number of potholes, length and width of the potholes were the same in both the estimates.
- Both the estimates had provided for desilting of drains of the same 10 roads. However, the chainage of the drains was more in the second estimate.
- Painting of boards and painting letters with Japan paint had been included in both the estimates.
- Providing six ornamental name boards, each at the rate of ₹9,600 had been included in both the estimates.
- Both the estimates had been prepared by the AEE, Sarvagnanagar Sub-division though payments were made by two different divisions.
- No survey or preliminary reports indicating the details of potholes had been prepared. Even the details of pre-measurements had not been furnished to Audit.

Preparation of an identical estimate for the same works for the second time within 20 days of completion of the work and execution of the same items again were indicative of fraudulent practices in the execution of the work, resulting in doubtful expenditure of ₹15.40 lakh.

The State Government stated (January 2014) that potholes filling had been done for different works and approximate estimates had been prepared on the basis of requirements for the whole financial year. The reply was not acceptable as the estimates should be prepared on the basis of pre-measurements or survey reports, which was not done. Further, three-stage photographs of works were not kept on record and the road history was not recorded though instructed by the authorities while according technical and administrative approvals.

**BANGALORE**  
The

**(D. J. BHADRA)**  
**Principal Accountant General**  
**(General and Social Sector Audit)**

**COUNTERSIGNED**

**NEW DELHI**  
The

**(SHASHI KANT SHARMA)**  
**Comptroller and Auditor General of India**