

Solid Waste Management by municipalities and corporations

2.2.1 Introduction

Proper disposal of solid waste is essential for avoiding health hazards posed by the flies and rodents feeding on the exposed garbage which could result in spread of diseases and contamination of surface and ground water. In order to combat this menace, the Supreme Court of India issued (January 1998) directions regarding proper collection and disposal of solid waste. In the context of the above, Government of India (GOI) notified (September 2000) the Municipal Solid Waste (Management and Handling) Rules, 2000 (MSW Rules) in exercise of the powers conferred under the Environment (Protection) Act, 1986. The Rules provide for safe disposal of municipal waste to prevent contamination of ground water, surface water and ambient air quality and fix the responsibilities on municipal authorities, District administration, State Pollution Control Board and the State Government. The Rules also specified a time schedule for implementing the solid waste management (SWM) and recommended biomethanisation, composting or pelletisation as methods of disposal of solid wastes. The Rules required all municipalities to set up complete waste processing and disposal facilities by end of December 2003. The Government of Tamil Nadu had issued orders for implementation of the MSW Rules, by the municipalities and corporations in December 2001.

2.2.2 Organisational set up The Commissioners of municipalities and corporations are in charge of implementing the MSW Rules, 2000. The Commissioner of Municipal Administration (CMA) releases the grants sanctioned by the State Government and guides and controls the overall implementation of SWM in 151 municipalities in the State. The Tamil Nadu Pollution Control Board (TNPCB) issues necessary authorisation to the municipalities for the sites selected for the disposal of municipal wastes after ensuring the compliance of the conditions stipulated by it.

2.2.3 Audit Coverage The implementation of provisions of MSW Rules, 2000 and solid waste management was studied in the offices of the CMA, TNPCB, 22 municipalities (out of 102 municipalities excluding Grade III) (**Appendix XV**) and three corporations (*viz.*, Chennai, Madurai and Salem) out of six corporations during July and August 2005, covering the period 2000-05.

2.2.4 Financial performance No grant was received from GOI during 2000-05 for SWM. The details of grants released by the State Government to 68 municipalities, which either had no land or had inadequate land to set up compost yard for purchase of land and the expenditure incurred by them till December 2005. The non-utilisation of the grants by the urban local bodies is commented upon under appropriate paragraph. In addition, the State Government had also allocated 50 *per cent* of the Incentive Funds to the municipalities and corporations under the Second State Finance Commission's (SSFC) recommendations for subsidising the cost of SWM projects. Out of 25 urban local bodies test checked, 13 municipalities and the three corporations had received Rs 2.95 crore in March 2004 (**Appendix XVI**). Out of this, Rs 2.25 crore released to three corporations

(Chennai, Madurai and Salem at Rs 68.10 lakh each) and three municipalities (Chidambaram, Manapparai and Tindivanam at Rs 7.00 lakh each) remained unutilised (December 2005). The municipalities and corporations generally stated 31 September 2005 and January 2006) that the grants would be utilised once the projects for SWM are taken up after loans from various agencies such as Tamil Nadu Urban Finance and Infrastructure Development Corporation Limited and Tamil Nadu Urban Infrastructure Financial Services Limited are sanctioned to meet their full cost.

2.2.5 Unutilised grants in belt municipalities The State Government released Rs 14 crore² as grant during 2001-05 to eight belt³ municipalities for purchase of vehicles for transportation of solid waste and to set up compost yard/transfer stations. The details of expenditure incurred till December 2005 by the three test checked belt municipalities are indicated below. Thus, despite the availability of funds these municipalities could not build required infrastructure for implementing provisions of solid waste management.

2.2.6 Setting up of waste disposal facilities The quantity of solid waste generated per day in the six corporations and 102 municipalities in the State was 5,070 MT and 3,125 MT (2001 data) respectively. As of September 2005, only two municipalities (Namakkal and Tiruppur) in the State had established waste processing and disposal facilities and commenced composting operations. Further, only 45 out of 151 municipalities had obtained authorisation from TNPCB for commencement of operations, while the setting up of waste processing and disposal facilities should have been completed on 31 December 2003 or earlier as per the time schedule in MSW Rules, 2000. Thus, 98 *per cent* of the municipalities had not set up the required facilities even two years after the due date. As a result the solid waste generated in the test checked three corporations (3,885 MT per day) and 22 municipalities (893.50 MT per day) was being transported to dumping sites without any treatment.

The CMA in his Strategy and Action Plan Report stated (October 2004) that as there were problems in identification and acquisition of land and development/installation of appropriate technologies for waste processing, the time schedule indicated in the MSW Rules, 2000 could not be adhered to. Hence, he sought revision of time schedule till 2007 for setting up of the facilities. In this context, it is noted that the State Government issued orders (December 2001) for implementation of MSW Rules more than a year after they were notified (September 2000) by GOI. Moreover, as brought out in paragraph 2.2.8 below, the delay in identifying suitable land for disposal of MSW was partly due to failure of the Government and the urban local bodies in building up a favourable opinion for scientific disposal of MSW. MSW Rules, 2000 provide that wastes from slaughter houses, meat and fish markets, fruits and vegetable markets being biodegradable in nature should be collected and made use of. The Rules contemplate that such wastes be processed by composting, vermi-composting, anaerobic digestion or any other appropriate biological processing for stabilisation. However, these provision of the MSW Rules, 2000 were not given effect to as no facility for processing of biodegradable waste has been set up.

2.2.7 Procurement of land for composting The Tenth Five Year Plan contemplated (March 2003) requirement of one acre of land for compost yard for every 10,000

population in municipalities/ corporations. The status regarding availability of land for dumping solid waste in 102 municipalities⁴ as of December 2005. The normative requirement of land of the five municipalities that had no land is 25.01 acres. Similarly, the normative requirement of the 36 municipalities with a shortfall in this regard was 346.53 acres against 202.74 acres available. Of these 36 municipalities, 17 municipalities had a shortfall exceeding 50 per cent (**Appendix XVII**). Out of Rs 3.25 crore released by the State Government during 2000-04 to 48 municipalities for acquisition of land, only 27 municipalities had spent Rs 1.63 crore (December 2005) towards purchase of 230.11 acres of land. The fact that nearly 50 per cent of the amount released for purchase of land is still to be utilised indicates that the implementation of the programme would further be delayed. Of the Rs 22.83 lakh released by the State Government to four⁵ municipalities in March 2001 for purchase of land, the municipalities acquired (between June 2001 and October 2003) the required land at a cost of Rs 15.53 lakh. The unutilised grant, Rs 7.30 lakh had not been refunded to Government so far (September 2005).

2.2.8 Non-availability or inadequacy of land for dumping waste Out of 22 test checked municipalities, land was available with 16, was inadequate in five and the remaining one did not have any land for setting up of a waste disposal facility. Of the three corporations test checked, Corporation of Salem did not have adequate land for composting operations. The status in respect of few such local bodies is discussed in the succeeding paragraphs. ***Ambattur and Avadi Municipalities*** Ambattur and Avadi Municipalities jointly acquired (October 2004) 10.40 acres at Sekkadu village at a cost of Rs 32.58 lakh for dumping solid waste. However, this land was not put to use due to protest from public. ***Alandur, Pallavaram and Tambaram Municipalities*** MSW Rules, 2000 stipulate that the land fill site should be located at least 20 km away from any air station. However, Alandur, Pallavaram and Tambaram municipalities jointly acquired 50 acres of land at Vengadamangalam village (October 2004) at a cost of Rs 1.12 crore without prior approval of Air Force though Tambaram Air Force Station is just six kms away. This site could not be put to use as there was objection from the Air Force authorities. Thus, Rs 1.12 crore spent by the three municipalities for acquisition of the land remains blocked and has not served the purpose for which it was spent. **Expenditure of Rs 1.12 crore on acquisition of 50 acres of land for use as land fill site has not served the purpose due proximity to an Air Force Station.** Government stated (March 2006) that the issue has been taken up with the GOI for resolving the matter.

2.2.9 Delay in setting up of facility Failure of the Corporation to get reclassification of site resulted in non-setting up of bio-conversion treatment facility and also in loss of revenue of Rs 35.10 lakh. ***Corporation of Madurai*** The Corporation of Madurai awarded (August 2000) the work for setting up of a solid waste bio-conversion treatment facility for producing organic manure at its compost yard in Avaniapuram on build, own, operate and transfer basis. The Corporation was to provide 30 acres of land on lease for 15 years and supply 200 MT of solid waste daily at a price of Rs 3.50 per MT to the facilitator. The lease rent was fixed at Rs 30,000 per acre for the first year and gradually increased to Rs 60,000 in the fifteenth year. The Corporation gave 'enter upon' permission to the facilitator in May 2001 and the plant was to be set up within 18 months. As the power requirement of the compost making machine was 150 HP, the location where the facility was to be set up was to be reclassified as 'industrial zone' from the existing 'mixed residence zone' where

machine up to five HP only can be set up. The Corporation addressed the Government in May 2002 and obtained approval in May 2004. In the meantime, the clearance obtained from TNPCB in May 2003 (valid up to March 2004) for setting up the facility expired. Accordingly, the agreement with the facilitator was terminated (March 2005) and the Corporation decided to set up the plant on its own. Later the Council of the Corporation resolved to entrust the work to the same facilitator (September 2005). The delay in initiating action for getting approval of reclassification from Government resulted in, besides the health hazard caused due to unscientific disposal of MSW, loss of revenue of Rs 35.10 lakh for the period from December 2002 (18 months from May 2001) to November 2005 towards the lease rent (Rs 28.80 lakh) and sale of waste to facilitator (Rs 6.30 lakh). ***Dindigul Municipality*** Though the Municipality had 100 acres of its own land at Odukkam village, it proposed to acquire land from the Madurai Market Committee for setting up a compost yard by exchanging a portion of the land from its existing dumping yard at Murugabhavanam, Palani Road. The proposal was dropped as TNPCB did not approve the site proposed to be acquired. Another attempt (August 2002) by the Municipality to acquire land from a private individual also failed as the owner of the land refused to sell the land stating that the cost fixed by the Municipality was very low. Ultimately, the Municipality decided (June 2004) to set up compost yard utilising 25 acres out of its own land in Odukkam village. The action of the Municipality for acquisition of land while it had its own land enough to set up the compost yard resulted in avoidable delay in setting up of the facility. The grant of Rs eight lakh received (January 2003) from CMA for purchase of land was not surrendered (November 2005). **Despite availability of its own land, the Municipality made futile efforts for acquisition of land elsewhere and delayed the creation of a compost yard.**

2.2.10 Abandoning of composting yard - infructuous expenditure Erode Municipality proposed (April 2004) to set up a compost yard at Lakkapuram at a cost of Rs 92.50 lakh and identified a 10 acres site within the 51.75 acres of land given by it to the Tamil Nadu Water Supply and Drainage (TWAD) Board in February 2002 for setting up a sewage treatment plant. The Municipality constructed (August 2004) concrete windrow platform at a cost of Rs 9.61 lakh on the above site without obtaining authorisation from TNPCB. As the sewage treatment plant set up by TWAD Board developed leaks in the cut off wall, the site selected for composting got flooded with waste water. Accordingly, the Municipality decided (September 2005) not to take up composting activity on that site. The expenditure of Rs 9.61 lakh from the general funds of the Municipality on construction of windrow platform became infructuous.

2.2.11 Shortfall in house-to-house collection of waste The MSW Rules, 2000 stipulate that the municipal authority should organise house-to-house collection of solid waste to segregate MSW between biodegradables and non-biodegradables. Out of the 25 local bodies test checked, in 11 municipalities and three corporations house-to-house collection and segregation of waste as required was not done in 345 out of 623 wards. Even segregation of waste in the remaining 278 wards was inconsequential as the segregated waste was not made use of for compost preparation, rendering the whole exercise futile.

2.2.12 Shortfall in privatisation of garbage clearance The Tenth Five Year Plan envisages privatisation of 20 *per cent* of the conservancy operations by 2004-05 in urban areas. Out of 25 urban local bodies test checked, ten municipalities and Corporation of Salem did not privatise the conservancy operations, Corporation of Madurai privatised 7.5 *per cent* of the operations and others had achieved the target.

2.2.13 Hiring of private vehicles for transportation of waste Corporation of Madurai The Corporation of Madurai had been hiring private tractors for transportation of garbage for a long time as far back as 1984. In order to reduce the usage of tractors as their capacity to carry garbage was low and to accelerate removal of garbage, the Corporation decided (August 1999) to engage lorries.

The average carrying capacity of a tractor and lorry through three trips was 4.05 MT and 6.75 MT per day respectively. The rate for transportation of waste worked out to Rs 163 and Rs 269 per MT for tractor and lorry respectively. The Corporation did not maintain a compilation indicating the quantity of garbage cleared and the amount paid contractor-wise. Had tractors been engaged instead of the lorries, the Corporation could have saved Rs 9,301 per day during the 17 months i.e. Rs 39.53 lakh during the period November 2002 - April 2004. Incidentally, on the basis of fresh tenders floated for 2004-05, the rates per MT were Rs 207 for tractor and Rs 132 for lorry which indicates that rate paid during 2002-04 for lorries was unreasonably high. **Erode Municipality** The average quantity of waste generated in the Municipality ranged from 85 MT to 104 MT per day during 2000-05. The total carrying capacity of the eight vehicles owned by the Municipality was 87 MT per day for transportation of the waste. The Municipality spent Rs 1.60 crore for hiring of private vehicles for transportation of waste at rates ranging from Rs 149.75 per MT to Rs 189.75 per MT during 2000-05. Had the Municipality utilised its vehicles and manpower to the optimum it would have been able to clear 26,100 MT⁷ per annum and clearance through private vehicles would have been significantly lower. Thus, expenditure to the extent of Rs 88.80 lakh towards hire charges of private vehicles in excess of requirement was avoidable.

2.2.14 Excess quantity of garbage cleared by private agency in Corporation of Chennai Corporation of Chennai privatised (March 2000) garbage collection in its Zone VI, VIII and X. A comparison of waste generated in these zones and cleared by the private agency with that in other zones revealed that the waste generated in the privatised zones was more by 21 to 66 *per cent* during the years 2001 to 2004. Due to excess quantity of waste depicted to be cleared by the private agency there was excess expenditure of Rs 37.07 crore to the Corporation. The Corporation justified (September 2005) the excess generation of waste quoting migration of people from rural areas, floating population, change in style of living, etc., as reasons. However, the above reasons did not hold good as the excess generation in the privatised zones, which was 66 *per cent* during 2002 has come down to 31 *per cent* in 2003 and 21 *per cent* in 2004. Further, the waste generation is pronounced only in the zones privatised.

2.2.15 Bio-medical waste management The Government of India notified the Bio-Medical Waste (Management & Handling) Rules, 1998 (amended in 2000) under the Environment (Protection) Act, 1986 which was enforced in Tamil Nadu by TNPCB.

According to the Annual report of the TNPCB, health care units in Tamil Nadu were generating (May 2005) 57,461.50 kgs of Bio-medical waste (BMW) per day out of which only 2,382 kgs (4.15 *per cent*) alone get treated and disposed of as envisaged in the Rules. A review was undertaken in October 2005 at seven¹⁰ Government Medical College Hospitals to assess the extent of implementation and compliance to the above Rules. **All the 313 Government hospitals and 1,852 private health care units did not obtain authorisation for disposal of bio-medical waste.** Test check revealed the following: None of the seven hospitals had submitted the prescribed application for obtaining authorisation for disposal of waste from the TNPCB.

Further, these hospitals had not taken any action either to set up their own treatment facility nor had any proposal to utilise the nearest common treatment facility as suggested by the TNPCB.

All the seven hospitals except Madurai dispose of the anatomical waste by deep burial either inside the hospital complex or at the municipal dumping grounds. In Madurai, only the placenta is collected and incinerated in a private incinerator set up in the Corporation burial ground and there is no indication regarding the disposal of other type of anatomical waste. As far as Government Hospitals in Chennai are concerned, deep burial at Kodungaiyur dumping grounds for disposal of BMW, which was permitted (July 2004) by TNPCB only as a temporary measure for three months was being continued (October 2005). The other type of BMW were treated as municipal waste. According to BMW Rules, 1998 deep burial of anatomical waste is recommended for towns having population less than five lakh and for rural areas only. All the seven hospitals are situated in district head quarters having population more than five lakh and hence they cannot adopt burial as method of disposal.

In three of the seven hospitals, dedicated autoclaves for treating needles and syringes were not available. Only one hospital has needle shredder to dispose the used needles.

No records on the receipt and disposal of the BMW are maintained by six hospitals as required under the Rules. Though the BMW Rules are in force from July 1998, the implementation of the same had not made any significant progress both in the Government sector as well as in private sector as 1,852 out of 2,255 private health care units and all the 313 Government hospitals have not obtained authorisation from TNPCB. The fact that only 2,382 kgs out of 57,461.50 kgs of BMW generated per day in the State is treated and disposed is indicative of the fact that despite the availability of seven common treatment facilities functioning in the State, the provisions of the BMW Rules, 1998 were not adhered to in disposal of BMW.