

PREFACE

1. This Report has been prepared for submission to the Lieutenant Governor under Section 49 of the Government of Union Territories Act, 1963.
2. The Report contains five chapters. Chapter-I deals with the findings of performance audits in the Education, Science, Technology and Environment and Local Administration departments while Chapter-II deals with the findings of transaction audit in the Co-operation, Electricity, Health and Family Welfare, Home, Local Administration, Public Works and Revenue and Disaster Management departments. Chapter-III includes comments based on district audit of Karaikal District.
3. The observations arising out of audit of revenue receipts of the Union Territory in the various tax departments are included in Chapter-IV of this Report.
4. The observations arising out of audit of commercial and trading activities of the Union Territory are included in Chapter-V of this report.
5. The cases mentioned in this Report are among those which came to notice in the course of test audit of accounts during the year 2009-10 as well as those which had come to notice in earlier years but could not be included in previous Reports. Matters relating to the period subsequent to 2009-10 have also been included, wherever necessary.

SCIENCE, TECHNOLOGY AND ENVIRONMENT AND LOCAL ADMINISTRATION DEPARTMENTS

1.2 Implementation of Rules relating to management of waste by municipalities

Highlights

With a view to regulate the management and handling of wastes, Government of India notified (1998/1999/2000) the Bio-medical Waste (Management and Handling) Rules, the Recycled Plastics Manufacture and Usage Rules and the Municipal Solid Wastes (Management and Handling) Rules. Performance Audit of existing practices for management of wastes in the municipal areas of the Union Territory of Puducherry revealed non-adoption of systematic procedure for segregation of solid waste, non-establishment of scientific landfills by the urban local bodies, dumping and burning of solid waste in open dumpsites, violation of Bio-medical Waste Management Rules by health care establishments. The major observations are detailed below:

- **Plan grants released by Government to the municipalities for taking up projects or work connected with waste processing and scientific disposal of municipal solid waste were utilised for daily clearance of garbage in the municipal areas.**

(Paragraph 1.2.6)

- **Incorrect adoption of road length for assessing the requirement of private conservancy workers resulted in avoidable expenditure of ₹ 75.34 lakh.**

(Paragraph 1.2.6.3)

- **The per capita waste reported to have been generated and transported in Puducherry, Oulgaret and Yanam Municipalities was higher than that generated in metropolitan cities.**

(Paragraph 1.2.7.1)

- **Waste processing and disposal facilities were not set up by the test checked municipalities**

(Paragraph 1.2.7.4)

- **Solid waste including plastic waste dumped in dumpsites of two municipalities was being burnt continuously posing environmental and health hazards.**

(Paragraph 1.2.7.5)

- **Out of 211 health care establishments in the Union Territory, 200 including 76 Government health care establishments were functioning without obtaining valid authorisation from Puducherry Pollution Control Committee.**

(Paragraph 1.2.8.2)

- **In Yanam Municipality, bio-medical waste was mixed with municipal solid waste and dumped in the dumpsite**

(Paragraph 1.2.8.4)

- **A large number of plastic manufacturing units were functioning in the UT without obtaining required authorization from Puducherry Pollution Control Committee.**

(Paragraph 1.2.9)

- **Monitoring and enforcement of Rules by the Puducherry Pollution Control Committee was deficient.**

(Paragraph 1.2.10)

1.2.1 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 waste but including treated bio-medical waste. Bio-medical waste (BMW) means any waste which is generated in health care establishments (HCE) during diagnosis, treatment or immunisation of human beings or animals. Waste Management means the collection, transportation, recovery and disposal of waste including the supervision of such operations and after-care of disposal sites.

The Government of India (GOI), in exercise of the powers conferred under the Environment (Protection) Act, 1986, framed rules⁹ to regulate the management and handling of municipal solid waste and bio-medical waste to protect and improve the environment and to prevent health hazards to human beings and other living creatures.

The Municipal Solid Waste (Management and Handling) Rules, 2000 require the Secretary in-charge of the Department of Urban Development to have overall responsibility for the enforcement of the provisions of these rules.

⁹ (i) The Municipal Solid Wastes (Management and Handling) Rules, 2000
(ii) The Biomedical Wastes (Management and Handling) Rules, 1998
(iii) Plastic Manufacture, Sale and Usage Rules, 1999

1.2.2 Organisational set up

The Puducherry Pollution Control Committee (PPCC) was constituted in April 1992. Special Secretary to Government, (Science, Technology and Environment) is the Chairman and the Director, Department of Science Technology and Environment (DSTE) is the Member Secretary of PPCC. The PPCC is responsible for enforcement of various rules and regulations relating to management of wastes. Municipalities are the implementing agencies of solid waste management. There are five municipalities in the Union Territory, each headed by a Commissioner and they are under the administrative control of the Development Commissioner/Principal Secretary to Government (Local Administration). Director, Local Administration is the head of the Department and is assisted by Deputy Director, Municipal Administration, a Superintending Engineer and Municipal Commissioners.

1.2.3 Audit objectives

The main objectives of the performance audit were to assess whether

- the municipalities and health care establishments comply with the rules governing management of municipal solid waste and bio-medical waste;
- the monitoring and enforcement of Rules by the PPCC was efficient; and
- Financial management of funds available for solid waste management was efficient and effective.

1.2.4 Audit criteria

The criteria adopted to arrive at audit conclusions were:

- Municipal Solid Wastes (Management and Handling) Rules, 2000
- Bio-medical Waste (Management and Handling) Rules 1998 (amended in 2003)
- Recycled Plastics Manufacture and Usage Rules, 1999 (amended in 2003 as Plastics Manufacture, Sale and Usage Rules, 1999)
- Recommendations of Committee on Solid Waste Management constituted by Hon'ble Supreme Court of India
- The Pondicherry Municipalities Act, 1973

- Orders/instructions issued by GOI, UT Government and the PPCC.
- General Financial Rules.

1.2.5 Scope and Methodology of audit

The performance audit relating to implementation of the rules on management of municipal solid waste, bio-medical waste and plastic waste in three¹⁰ out of four regions of the UT for the period 2005-10 was conducted during March-June 2010. Audit test-checked the records of Science, Technology and Environment, Local Administration, Health and Family Welfare, Town and Country Planning, Industries and Commerce departments, the Puducherry Pollution Control Committee, four¹¹ out of five municipalities and 19 HCEs in the UT selected based on stratified random sampling method. The list of test checked hospitals is given in **Appendix-1.1**. Audit objectives and criteria were discussed with the Development Commissioner, who is in charge of Local Administration Department (LAD) and the Special Secretary to Government (Environment) during entry conferences held separately in March 2010. Joint Inspection of waste disposal sites and selected Government/private HCEs was conducted by audit along with officials of the PPCC and municipalities. Audit findings were discussed with the Special Secretary (Science, Technology and Environment) and the Development Commissioner, who is also the Principal Secretary (Local Administration) during exit conferences held in August and September 2010 respectively. The replies furnished by the Secretaries to the audit observations during the exit conference and their instructions to the departmental officers are included in the report at appropriate places.

Audit Findings

1.2.6 Financial Management

The UT Government provided financial assistance in the form of grants-in-aid every year to the municipalities through Local Administration Department for taking up projects and works relating to disposal of solid waste. The details of expenditure incurred by the test-checked municipalities from grants-in-aid and from own funds are furnished in **Table-1**.

¹⁰ Puducherry, Mahe and Yanam

¹¹ Puducherry, Oulgaret, Mahe and Yanam

Table-1: Expenditure on solid waste management from Grants-in-Aid and own fund of the municipalities

(₹ in Lakh)

Year	2005-06		2006-07		2007-08		2008-09		2009-10		Total	
	Own fund	Grants-in-aid										
Puducherry	418.08	231.79	456.70	307.51	497.86	373.93	690.79	80.63	782.04	439.12	2845.47	1432.98
Oulgaret	395.48	65.56	493.12	156.72	501.13	193.71	655.40	77.44	898.00	288.00	2943.13	781.43
Mahe	28.39	0.00	27.79	0.00	38.74	0.00	54.62	1.46	50.99	0.00	200.53	1.46
Yanam	49.71	5.00	56.86	31.19	63.74	68.72	103.14	68.72	102.07	70.25	375.52	243.88
Total	1194.01		1502.10		1737.83		1732.20		2630.47		8824.40	

Source: Details furnished by municipalities

Audit findings on the financial management and management of contracts relating to transportation of municipal solid waste and hiring of machinery are discussed below:

1.2.6.1 Utilisation of plan funds for daily clearance of garbage

The Municipal Solid Wastes (Management and Handling) Rules (MSW Rules) which came into force in the year 2000 envisaged creation of facilities for processing as well as scientific disposal of waste. As provided in the Annual Plans, Government released grants-in-aid to the municipalities out of Plan funds for creation of infrastructural facilities during 2005-10. However, the municipalities utilised the plan grants for daily clearance of garbage in the municipal areas and transportation of waste to dumpsites instead of creating facilities for management of municipal solid waste.

1.2.6.2 Non-availing of financial assistance from the Central Pollution Control Board

The proposal (July 2005) of the Puducherry Municipality for setting up of a model facility for demonstration of municipal solid waste management in Puducherry municipal area at an estimated cost of ₹ 5.42 crore¹² with the financial assistance of the CPCB did not materialise as the UT Government failed to furnish a letter of commitment to the CPCB for sharing 50 per cent of the project cost. The demonstration project was subsequently shifted to Karaikal Municipality by PPCC as a separate solid waste

¹² For setting up of waste collection storage and transportation mechanism (₹ 1.23 crore), setting up of waste processing plant (₹ 3.37 crore) and improvement in the waste dumpsite and identifying of new sites for disposal (₹ 0.82 crore),

management project was sanctioned (February 2009) to Puducherry region under Jawaharlal Nehru National Urban Renewal Mission (JNNURM).

1.2.6.3 Avoidable expenditure due to incorrect adoption of road length

Oulgaret and Yanam municipalities incurred avoidable expenditure of ₹ 75.34 lakh due to incorrect preparation of estimates.

As per SCMC recommendations, roads which have a central verge or divider are to be considered as two roads for assessing the road length. SCMC also recommended that the urban local body may prescribe norms for assigning road lengths for sweepers by classifying the density of area to be swept as high, medium and low ranging from 250 running meters to 750 running meters. Scrutiny of records of test-checked municipalities revealed that different norms in terms of road length were adopted for assessment of number of labourers required which resulted in engaging of more workers than required and additional expenditure towards labour charges. LAD, however, accorded expenditure sanction without scrutinizing the estimates prepared by the municipalities which led to avoidable additional expenditure of ₹ 75.34 lakh by Oulgaret and Yanam municipalities. Rates adopted by the municipalities in the estimates for road length for assessment of labourers required, labour charges, supervisor salary, hiring charges of vehicles deployed for transportation are given in **Appendix-1.2**.

1.2.6.4 Avoidable expenditure on hiring of excavator

Hiring of private excavator by Puducherry Municipality even after purchase of excavator resulted in avoidable expenditure of ₹ 19.62 lakh

Puducherry Municipality engaged (December 2007) a private excavator machine (JCB) for the purpose of leveling of garbage at the dumpsite on hire basis at the rate of ₹ 430 per hour. The Municipality purchased (September 2008) a JCB at a cost of ₹ 22.58 lakh for leveling of garbage at the dumpsite. The JCB was put into use at the dumpsite upto May 2009 and thereafter used for demolition of old buildings and other purposes. The private JCB was continued to be engaged for leveling of garbage in the dumpsite and an amount of ₹ 19.62 lakh was paid as hire charges during the period from September 2008 to March 2010. While the entries in the log book showed that the municipal JCB was not used on all days in a week and for eight hours daily, hire charges for private JCB was paid for eight hours or more on all the seven days in a week. Hence, the possibility of extending undue favour to the contractor could not be ruled out. The decision of the municipality to hire a JCB despite availability of one JCB in the municipality led to avoidable expenditure of ₹ 19.62 lakh. Puducherry Municipality replied (June 2010) that the JCB could not be used effectively in the dumpsite due to bad condition of the site and the JCB was being used for the removal of debris, garbage, bushes/shrubs at the roadsides and for removal of blockages in the drains/channels during rainy seasons. As these works are not of routine nature, municipality could have hired JCB for these works during exigencies instead of deploying its own JCB which would have minimised the expenditure on hiring charges.

1.2.7 Municipal Solid Waste

The MSW rules required every municipal authority, within their area, be responsible for collection, segregation, storage, transportation, processing and disposal of waste under various provisions of the rules. The Pondicherry Municipalities Act, 1973, *inter alia* required the municipalities to make adequate arrangements for sweeping, cleaning of streets, removal of rubbish and provision of dustbins and vehicles for removal of filth. The monitoring committee constituted by the Supreme Court on solid waste management recommended the practices to be followed for modernization of solid waste management. The deficiencies noticed in compliance of the provisions of the MSW rules and the recommendations of the Supreme Court Monitoring Committee (SCMC) are discussed in the succeeding paragraphs.

1.2.7.1 Assessment of quantum of waste generated

Scrutiny of records maintained by Puducherry Pollution Control Committee (PPCC) revealed that the Committee had no mechanism to assess the quantity and source of waste generated in the UT but only compiled the data obtained from the municipalities and forwarded them to CPCB. Studies conducted by the National Environmental Engineering Research Institute and Non Governmental Organisations (NGOs) revealed that, on an average, the per capita waste generated in India varied from 200 gms in rural areas to 600 gms in metropolitan cities. Incidentally, it was also noticed that in the project estimate¹³ (2007) for Integrated Solid Waste Management Project (ISWMP) to be taken up under JNNURM, the per capita waste generated in the Puducherry and Oulgaret Municipalities was assessed as 562 gms per day. In the absence of such assessment made in respect of other two municipalities, by adopting 562 gms as the assessed generation of waste in the test-checked municipalities, the estimated quantity of waste generated based on the present population is detailed in **Table 2:**

¹³ Prepared by Puducherry Agro Service and Industries Corporation Limited and Eco Save Systems Private Limited, Mumbai

Table – 2 : Details of quantum of waste generated in UT of Puducherry

Name of the Municipality	Population (as per 2001 census)	Estimated Population (2010)	As per the data furnished by municipalities		Estimated waste generation @ 562 grams per capita per day (MT)	Variation in reported waste generation to estimated waste generation per day (percentage)
			Quantity of waste generated per day (MT)	Per capita waste per day		
Puducherry	223323	264660	275	1039 gms	149	85
Oulgaret	217707	257970	172	667 gms	145	19
Mahe	36828	40152	9	224 gms	23	NA
Yanam	31394	44057	36	817 gms	25	45

NA : Not applicable as the reported waste generation is less than the assessed waste generation of 562 gms per day

Source: Directorate of Economics and Statistics, Records of Municipalities and ISWMP Project Report

PPCC failed to assess the quantum of waste generated in the UT

The daily quantum of waste reported to have been generated in Puducherry, Oulgaret and Yanam municipalities was abnormal as compared to the assessed per capita waste generation of 562 gms per day. The variation between the reported per capita generation and the assessed per capita generation ranged between 19 and 85 *per cent*. PPCC and LAD failed to monitor and verify the veracity of the report furnished by these municipalities. As the municipalities engaged, through contractors, vehicles for transporting the reported quantities everyday, this aspect needs to be investigated by the Government in view of non-weighment of garbage transported by contractors and improper maintenance of records at dumpsites as discussed in paragraph 1.2.7.6.1.

1.2.7.2 Collection of waste

According to compliance criteria of MSW rules, the municipalities shall adopt any of the methods like house-to-house collection, community bin collection, collection of waste on regular pre-informed timings and scheduling by using bell ringing of musical vehicle etc,. MSW rules required the municipal authorities to establish and maintain storage facilities in such a manner that they do not create unhygienic and unsanitary conditions around it. Stray animals were not to be allowed to move around waste storage facilities. Besides, bins for storage of bio-degradable wastes were to be painted green, those for storage of recyclable wastes be painted white and those for storage of other wastes be painted black.

As per recommendations of Supreme Court Monitoring Committee (SCMC) on solid waste management, the municipalities were to provide community dustbins at a reasonable distance ranging from 25 to 250 metres of road length depending on local condition. The details of community dustbins required and placed by the test-checked municipalities are furnished in **Table-3**.

Table- 3: Details of community dustbins

Name of the municipality	Road length (in metres)	Community dustbins required (@ one bin for every 250 metres)	Dustbins provided	Shortage
Puducherry	230044	920	525	395
Oulgaret	274318	1097	300	797
Mahe	105230	420	0	420
Yanam	48500	194	186	8

Source: Records of Municipalities

Inadequate provision of dust bins resulted in garbage being thrown on roadsides and municipal drains



In Mahe municipality, neither door-to-door-collection was done nor dust bins provided for collection of waste which resulted in dumping of garbage on roadsides. In Yanam region, collection of waste was done both by door-to-door collection as well as from community bins in all the wards. Out of 103¹⁴ wards in the test-checked municipalities, segregation of waste at source was done in only one¹⁵ ward. As segregation of waste

In Puducherry and Oulgaret municipalities, door-to-door collection of waste was done partially. Inadequate provision of community bins in Puducherry and Oulgaret Municipalities resulted in wastes being thrown on the roadsides and also in municipal drains blocking free flow of water. A drain blocked due to dumping of garbage in Oulgaret municipality noticed during field visit (October 2010) is shown in the photograph.



was not done, biodegradable and non-biodegradable waste were dumped together in the dumpsites. Though these municipalities had engaged private contractors for clearing of garbage generated in their municipal areas, none of the municipalities had taken action to involve private participation in processing of waste. During exit conference, the Development Commissioner instructed (September 2010) the Director (LAD) to give suitable instructions to the municipalities to provide adequate number of community bins and stated that the proposed ISWMP

¹⁴ Puducherry – 42; Oulgaret – 37; Mahe – 14; Yanam – 10

¹⁵ Raj Bhawan ward where the work was entrusted to an NGO

for Puducherry and Oulgaret Municipalities would cover all the aspects of waste management.

1.2.7.2.1 Non-collection of charges for bulk clearance of waste

As per recommendations of SCMC, municipalities have to make arrangements for collection of waste from marriage halls, community halls, HCEs etc., daily on a full-cost-recovery basis. In the UT, the waste generated by these establishments is collected by the respective municipalities. Three¹⁶ out of the test-checked municipalities had not fixed charges for bulk clearance of waste. Even though Puducherry Municipality had fixed bulk clearance charges, collection was deficient as it had no updated figures of the establishments including HCEs situated in the municipal jurisdiction. During exit conference, the Development Commissioner stated (September 2010) that suitable instructions would be given to the municipalities to collect charges for bulk clearance from hotels, marriage halls and community halls.

1.2.7.3 Landfill sites for disposal of waste

MSW Rules define land filling as the disposal of residual solid waste on a land in a facility designed with protective measures against pollution of ground water, surface water, wind-blown litter, bad odour, fire hazard, bird menace, pests or rodents and erosion. Even though the MSW rules stipulated that the landfill site should be large enough to last for 20 to 25 years, Puducherry Municipality acquired land for an extent of 9.99 hectares (April 2005) in Kurumbapet Village at a cost of ₹ 4.97 crore which would meet the requirement only for 10 years. As specified in MSW Rules, a buffer zone of no development is to be maintained around landfill site and incorporated in the Town Planning Department's land use plans. The municipality, however, failed to assess the adverse consequences such as contamination of water bodies (open wells, tube wells etc), pollution of soil etc. and had not declared buffer zone around the proposed landfill site through Town and Country Planning Department. Puducherry and Oulgaret municipalities however had not commenced their activities in the land acquired for landfill site and the garbage was continued to be dumped in the existing Karuvadikuppam dumpsite. The Mahe and Yanam municipalities had no proposals for setting up landfill site. During exit conference, the Development commissioner assured (September 2010) that the mandatory requirements would be complied without fail.

1.2.7.4 Non-setting up of waste processing and disposal facilities

MSW Rules stipulate that every municipal authority has to obtain authorisation from PPCC for setting up of waste processing and disposal facility including landfills. Every municipal authority was to set up waste processing and disposal facilities by 31 December 2003 or earlier for processing and disposing the waste generated within their jurisdiction.

¹⁶ Oulgaret, Mahe and Yanam Municipalities

Scrutiny of records maintained by PPCC, however, revealed that only two¹⁷ municipalities in Puducherry region had obtained authorisation and that was not renewed since 2003. The other two¹⁸ municipalities had not obtained authorisation as of October 2010. To an audit query, PPCC stated that the municipalities furnished incomplete information and that the applications for grant of authorization were under process. Thus, the municipalities, in violation of MSW rules, continue to dispose the municipal solid waste without authorisation. It was also noticed in audit that none of the five municipalities had set up waste processing and disposal facilities till date (June 2010). As the municipalities continued to dump the waste in open environment without scientific disposal, the risk to human beings due to contamination of soil and ground water was high. PPCC reported (March 2010) that in the surrounding areas of Karuvadikuppam dumpsite, ground water and surface water was contaminated with high levels of nitrate. Waste handlers are exposed to infectious materials everyday in the process of disposal of waste and they are at considerable risk while handling waste.

1.2.7.5 Burning of waste in the dumpsites

The MSW Rules stipulated that the waste collected by the municipal local bodies should not be burnt. During joint inspection of the dumpsites at Karuvadikuppam dumpsite¹⁹ and Kanakalapeta dumpsite²⁰ by audit with



departmental officials, it was seen that the waste was burnt continuously emitting smoke and odour violating the rules. Neither the municipalities nor the PPCC had taken any action to prevent burning of waste including plastic produces which poses serious environment and health hazards. During exit conference, the Development Commissioner

instructed (September 2010) the Director, LAD to take steps to avoid burning of waste in the dumpsite.

1.2.7.6 Privatisation of garbage clearance

In the UT of Puducherry, the work of cleaning, collection and transportation of garbage to the dumpsites was privatized by all the test-checked municipalities in phased manner. Contractors/self-help groups/service associations were engaged to undertake the work at the rates

¹⁷ Puducherry and Oulgaret municipalities

¹⁸ Mahe and Yanam municipalities

¹⁹ On 2 June 2010 with Assistant Commissioner, Puducherry Municipality

²⁰ On 15 June 2010 with Junior Engineer, Yanam Municipality.

specified in the estimates prepared by the municipalities. The contracts were extended every year by the Municipal Councils in three municipalities²¹. In Mahe municipality, the work was done by two contractors during the period.

Collection and transportation of waste was done by contractors/self-help groups (SHGs)/NGOs in 102²² out of 103 wards in the test-checked municipalities. Collection of waste was done in one ward by Oulgaret Municipality. Review of records connected with the works revealed the following:

1.2.7.6.1 Weighment of garbage transported not done

Even though the agreements executed with contractors for collection and transportation of garbage provided for weighment of garbage by the contractor at his/her cost once in a week or as and when required by the Commissioner of municipalities, this agreement condition was not followed by the contractors. It was seen that none of the municipalities had provided weigh-bridge facility in their dumpsites to measure the waste brought to the site. The garbage collected from Puducherry and Oulgaret municipalities are transported to the dumpsite at Karuvadikuppam. In the absence of weighment records, the municipalities did not have the statistics of the actual quantum of waste generated and cleared per day in their areas. Payments were made to contractors on the basis of trips made to dumpsites. As per instructions issued (November 2005) by LAD, the vehicles engaged by private contractors for transportation of garbage to the dumpsite should carry three trip loads of garbage every day and 2.5 MT of garbage each trip. This instruction was not strictly adhered to by the Municipalities citing practical problems in transportation of waste. The quantity of waste cleared daily in terms of metric tons as reported by the municipalities was not based on any record and not susceptible to verification.

1.2.7.6.2. Garbage transportation vehicles not covered with net

As stipulated in MSW Rules, vehicles used for transportation of waste should be covered to prevent scattering and exposure of waste to open environment. Even though this condition was included in the agreements, it was seen during joint inspection that vehicles transporting garbage in Yanam Municipality were not covered with net. During exit conference, the Development Commissioner stated (September 2010) that the Commissioners of municipalities would be instructed to adhere to the agreement conditions without deviations.

²¹ Puducherry, Oulgaret and Yanam Municipalities

²² Puducherry – 42; Oulgaret – 36; Mahe –14 and Yanam – 10.

1.2.8 Bio-Medical Waste

Bio-medical waste is generated during diagnosis, treatment, immunization of human beings and animals, related research activities etc. HCEs such as hospitals, nursing homes, pathological laboratories, blood banks etc. are the BMW generating establishments. Government of India framed the Bio-Medical Waste (Management and Handling) Rules, 1998 (BMW Rules) under the provisions of the Environment (Protection) Act, 1986, wherein the procedure for treatment and disposal of bio-medical waste was prescribed. PPCC is the prescribed authority to monitor and implement the rules in the UT. The deficiencies noticed in compliance of the provisions of the BMW rules are discussed in the succeeding paragraphs.

1.2.8.1 Non-setting up of common treatment facilities

As per BMW Rules, the municipalities are responsible for providing suitable common disposal/incineration sites for disposal of bio-medical waste generated in the area under their jurisdiction and the waste management treatment facilities should be provided by the generators of bio-medical waste latest by 31 December 2002. It was noticed in audit that none of the test-checked municipalities had set up common treatment facility in their jurisdiction.

To an audit query, the PPCC stated (July 2010) that all HCEs except the major waste generators like Government General Hospitals (GH) and Government Maternity hospital, Puducherry and all medical colleges who disposed their bio-medical waste through incinerators, disposed the bio-medical waste generated from their hospitals through concerned municipalities.

1.2.8.2 Health Care Establishments functioning without authorisation

As per BMW Rules, every hospital/HCE has to take steps to ensure that bio-medical waste is handled without any adverse effect on human health and environment. Also, every occupier of an institution generating, collecting, receiving, storing, transporting, treating, disposing and/or handling bio-medical waste in any other manner, except such occupier of clinics, dispensaries, pathological laboratories, blood bank providing treatment/service to less than one thousand patients per month have to obtain authorisation from prescribed authority.

There are 211²³ hospitals/HCEs including 21 Government veterinary institutions functioning in the UT of Puducherry and the status of authorisation received from PPCC by these hospitals is furnished in **Table 4**.

²³ As per the details obtained from Deputy Director (Public Health), Puducherry and PPCC

Table 4 – Details of Authorisation issued to HCEs

Status as on 30 June 2010	Government	Private	Govt. Veterinary Institutions	Clinics/testing Laboratories	Total
Hospitals with valid authorisation	1	10	-	-	11
Hospitals which have obtained authorisation but not renewed	15	25	-	-	40
Hospitals applied for authorisation	-	2	-	-	2
Hospitals not applied for authorisation	40	34	21	63	158

Source: Records of PPCC and o/o the Deputy Director Public Health

Two hundred HCEs in UT were functioning without valid authorisation

It could be seen from the above table that 200 out of 211 hospitals/HCEs in the UT were functioning without valid authorisation, out of which 76 were Government HCEs. As per the records of Deputy Director (Public Health), there are 190²⁴ hospitals/HCEs in the UT whereas the records maintained by the PPCC showed only 112 HCEs in the UT. Due to the failure of PPCC to have complete information of HCEs functioning in the UT, many HCEs were functioning without authorisation. Compliance of BMW rules by these HCEs was not monitored by PPCC. Thus, the possibility of instances of improper disposal of bio-medical waste and violation of BMW rules by unauthorised HCEs could not be ruled out. During exit conference, Special Secretary (Science, Technology and Environment) assured (August 2010) that authorisation would be issued to all the HCEs in UT before November 2010.

1.2.8.3 Non maintenance of records by hospitals

As per BMW Rules, every authorised hospital/HCE shall maintain records relating to generation, collection, reception, storage, transportation, treatment, disposal and handling of bio-medical waste in accordance with the rules and guidelines issued. All the records are subject to inspection and verification by PPCC at any time. It was noticed that nine²⁵ out of 10 test-checked Government HCEs and seven²⁶ out of nine private hospitals had not maintained the records as required under the rules. Of these, four out of 10 Government HCEs and six out of seven private HCEs were issued authorisation by PPCC. Even though PPCC inspected these HCEs at the time of issue of authorisation, it did not conduct periodical inspections to monitor proper maintenance of records by these HCEs.

²⁴ Other than 21 veterinary institutions.

²⁵ Government General Hospital at Puducherry, seven PHCs (Kalapet, Suramangalam, Mettupalayam, Kosapalayam, Gorimedu, Karayamputtur in Puducherry and Pandakkal in Mahe), E.S.I Hospital, Puducherry

²⁶ St. Joseph of Cluny, PMRC, New Medical Centre, Jothi Eye care, Mahalakshmi Nursing Home, Tersor Nursing Home and Aravind Eye Hospital

1.2.8.4 Collection and segregation of bio-medical waste

As per rules, bio-medical waste has to be segregated into appropriate colour coded containers/bags at the point of generation in the HCEs before their transportation, treatment and disposal. The colour coding and method of treatment are given in **Appendix 1.3**.

Joint inspection of Puducherry GH, and test-checked private hospitals by the audit party along with hospital authorities and officials of PPCC revealed that:

- (i) Colour code was not followed in Puducherry GH.
- (ii) Though colour code was followed in the test checked private hospitals which do not have their own disposal facilities, the segregated bio-medical waste was handed over to the municipalities which in turn dumped the bio-medical waste in the dumpsite along with municipal waste, defeating the purpose of segregation.



- (iii) In Jawaharlal Nehru Institute of Post Graduate Medical Education and Research (JIPMER), the used needles and syringes were thrown into dust bin without cutting and disinfection.

(iv) The bio-medical waste collected by Yanam Municipality was mixed with municipal solid waste and dumped in the dumpsite. Stray cattle were also noticed at the dumping site.

1.2.8.5 Transportation of bio-medical waste

As per rules, untreated bio-medical waste shall be transported only in such vehicle authorised for the purpose by PPCC. Bio-medical waste collected by the municipalities was transported either by contract vehicle or by vehicles owned by municipalities to the dumpsite or deep burial ground. Biomedical waste generated in two²⁷ Government hospitals, were transported to the incinerator installed in the premises of Government Chest Hospital, Gorimedu, Puducherry through a hospital van. The bio-medical waste generated by Primary Health Centres (PHCs) at Mahe was transported once in a week to the incinerator installed at GH, Mahe. Permission for storing the bio-medical waste beyond 48 hours was not obtained from PPCC by the PHCs. It was also noticed that the vehicles were transporting the bio-medical waste without obtaining authorization from PPCC.

Vehicles carrying bio-medical waste from HCEs were operating without obtaining authorisation from PPCC

²⁷ Government General Hospital and Government Maternity Hospital, Puducherry

1.2.8.6 Disposal of bio-medical waste

(i) Disposal through deep burial

As per BMW Rules, human anatomical waste and animal waste has to be incinerated in localities where population is more than five lakh. However, deep burial is permitted where the population is less than five lakh. According to the procedures laid down in the said rules, the location of the deep burial pit should be authorised by the prescribed authority and the pit should be dug two meters deep and half filled with waste. It should then be covered with lime within 50 cm of the surface before filling the rest with soil. The pits should be away from dwelling places and water sources to avoid contamination of water. On each occasion when wastes are added to the pit, a layer of 10 cm of soil shall be added to cover the wastes. The municipalities shall maintain a record of all pits for deep burial.

Deep burial of bio-medical waste not done in accordance with the rules

In Puducherry Municipality, the bio-medical waste from 27²⁸ hospitals were collected by private contractors and stated to be buried at Kurumbapet dumping site. The municipalities have not maintained any record of pits used for deep burial, as required under the rules. During joint inspection of Kurumbapet site, it was noticed that procedures envisaged in the rules were not adhered to for disposal of bio-medical waste through deep burial. The Municipalities have not purchased lime and the burial pits were not covered with lime as required under the rules. Stray dogs were noticed at the burial site. Thus, due to failure of the municipalities to dispose the bio-medical waste as per rules, the possibility of exposure of hazardous bio-medical waste to environment, contamination of ground water and surface water could not be ruled out.

(ii) Disposal through incineration

As per details furnished by PPCC, eight²⁹ incinerators are in use in the UT of Puducherry. During joint inspection of incinerators maintained by four³⁰ test checked hospitals, it was noticed that the incinerators were in working condition.

²⁸ Five Government Hospitals (other than the waste sent for incineration to Government Chest Hospital) and 22 private hospitals.

²⁹ Puducherry region- Gorimedu (for GH and Maternity Hospital), JIPMER, Mahatma Gandhi Medical College and Research Institute (MGMCRI), Aarupadai Veedu Medical College and Hospital, Puducherry Institute of Medical Sciences.

Karaikal region – GH and Vinayaga Mission Medical College and Hospital
Mahe region - GH

³⁰ Government Chest Hospital at Gorimedu, JIPMER, GH Mahe and MGMCRI



The incinerator purchased by Yanam Government Hospital (January 2004) was not installed due to public protest and the parts of the incinerator were found dumped at the selected site without any protection from the date of purchase. The incinerator could not be installed at the alternative site

also as the condition of the incinerator deteriorated due to efflux of time. Approval of Health department for the proposal sent (December 2008) by GH, Yanam to repair the incinerator at a cost of ₹ 9.93 lakh was still awaited (June 2010). The expenditure incurred (₹ 5.68 lakh) on procurement of incinerator remained unfruitful and the lack of incinerator facilities in the region had deprived the public of hygienic environment.

(iii) Disposal of plastic bio-medical waste

Plastic bottles used for intravenous fluid were to be disinfected by autoclaving/micro waving before disposal. The disinfected plastic bio-medical waste should be shredded³¹ before disposal to recyclers for recycling. It was noticed that out of 22 test-checked hospitals, only one hospital³² disposed the used intravenous fluid bottles after shredding.

1.2.9 Manufacture and Usage of Plastics

Plastics have replaced the traditional materials like paper and cloth used for packing. India has witnessed a substantial growth in the consumption of plastics and increased production of plastic waste. Non-bio degradable and non-recyclable plastic waste thrown in the drainage channels block the free flow of liquid waste and create an unhygienic environment resulting in various health hazards like water borne diseases.

According to Plastics Manufacture, Sale and Usage Rules, 1999 (as amended in 2003), every manufacturer of carry bags or containers of virgin plastic or recycled plastic or both shall register with PPCC before commencement of production. Details collected from the Directorate of Industries and Commerce showed that 135 manufacturers of plastic bags and containers were operating in the UT as of May 2010. Out of them, only eight manufacturers have registered with PPCC. The PPCC has not maintained complete data of plastic manufacturers so as to initiate action against the defaulters for non compliance of rules.

³¹ Shredding is a process by which waste are de-shaped or cut into smaller pieces so as to make waste unrecognizable

³² Aravind Eye Hospital, Puducherry

The UT Government banned (December 2009) the use, sale or store of polythene or plastic disposable cups and carry bags of size less than 8 x 12 inches of thickness 50 microns or below and notified the officers³³ to implement the order with the Member Secretary, PPCC as coordinator for implementation of the order. To an audit query, PPCC stated (August 2010) directions were issued to fifteen traders and manufacturers for adhering to the Government order. However, no case was filed by the officers notified for implementing the rules from the date of issue of ban order. During exit conference, the Development Commissioner replied (September 2010) that ban on use and store of plastic carry bags and containers of less than 50 microns would be strictly enforced.

1.2.10 Monitoring

The PPCC is responsible for monitoring of various quality parameters relating to ground water, surface water, ambient air, noise pollution, operating and emission standards for incinerators, standards for liquid waste etc in the UT of Puducherry. The Municipal Health Officers are responsible for supervising sanitary works, day and night garbage cleaning, monitoring the free flow of liquid wastes in drains etc.

1.2.10.1 Monitoring by PPCC

(i) Besides enforcement of various rules and regulations relating to management of municipal solid waste, bio-medical waste and plastic waste, the functions of PPCC include, *inter alia*, planning of comprehensive programme for prevention and control of pollution, advise the UT Government in framing environmental and industrial policy and preparation of action plan on solid waste, bio-medical waste and hazardous management. As per the provisions of the Water (Prevention and Control of Pollution) Act, 1974, a full time Member Secretary possessing qualifications, knowledge and experience of scientific, engineering or management aspects of pollution control should be appointed for PPCC. However, PPCC did not have a full-time Member Secretary. Director, Department of Science, Technology and Environment was holding the additional charge of Member-Secretary during the period covered under audit. It was also noticed that the incumbents did not have the requisite qualification as recommended by the High Powered Committee on management of hazardous wastes constituted by the Hon'ble Supreme Court of India.

Monitoring and enforcement of rules by PPCC was deficient

³³ Sub Divisional Magistrates, Regional Administrators of Mahe and Yanam, Director, Department of Science, Technology and Environment / Member Secretary PPCC, Puducherry, Director, Department of Civil supplies and consumers affairs, Puducherry, Commissioners of Municipalities and Commune Panchayats, Health officers of Municipalities, Sanitary Inspectors of Municipalities and Commune Panchayats and Food Inspectors of Food and Drug Administration of Health Department, Puducherry.

(ii) Section 15(1) of the Environment (Protection) Act, 1986 provides for appropriate penalties to be levied by PPCC against the violators of rules relating to management of wastes. PPCC issued 16 directions³⁴ to municipalities during 2005-10 for violation of the MSW rules. The PPCC, however, had not taken any penal action against the municipalities and the municipalities continued to dispose of municipal solid waste without complying with the MSW Rules.

(iii) Though envisaged in the Act, the PPCC had not conducted any study on possible risks to human health from factors like contamination of soil and chemical poisoning from improper disposal of municipal solid waste, bio-medical waste and plastic waste. In the absence of assessment by PPCC, the potential damage to the environment and human health may go unnoticed. When this was pointed out by Audit, PPCC replied (September 2010) that the issue would be addressed by strengthening PPCC with additional manpower. During exit conference, the Development Commissioner instructed (September 2010) Director, LAD to make risk assessment.

(iv) The PPCC had not fixed any norms for inspection of HCEs. In the absence of norms for inspection, shortfall in conduct of inspections could not be ascertained in audit. During the period covered by audit, only five surprise inspections were conducted by PPCC. Further, the PPCC had not inspected the incinerators installed at GH Karaikal and GH Mahe to verify the compliance of standards as required under the Rules.

The PPCC to an audit query stated that as against the requirement of eight officials (5 – technical and 3 – non-technical), the available strength was one (technical) and due to insufficient man power, monitoring of HCEs and local bodies was not done periodically. PPCC replied (August 2010) that the proposal for additional posts has been sent to CPCB.

1.2.10.2 Monitoring by municipalities

As per the Pondicherry Municipalities Act, 1973, a Municipal Health Officer (MHO) should be posted in each municipality to monitor the public health and sanitation activities. It was noticed that MHOs were posted in only two³⁵ out of the four test-checked municipalities. In Mahe and Yanam municipalities, the post of MHO was not sanctioned by Government. In the absence of MHOs, the public health and sanitation activities in these municipalities were looked after by lower level staff. During exit conference, the Development Commissioner stated (September 2010) that the Commissioners would be instructed to submit proposals for filling up of the post of MHO.

³⁴ Puducherry Municipality (6), Oulgaret Municipality (5), Karaikal Municipality (2), Mahe Municipality (1) and Yanam Municipality (2)

³⁵ Puducherry and Oulgaret municipalities

1.2.11 Conclusion

The present arrangements in the municipalities for solid waste management suffer from a number of deficiencies. Landfills had not been established and all the municipalities were dumping the solid waste in open dumpsites and burning the waste posing environmental and health hazards. Almost all health care establishments violated bio-medical waste management rules while handling the bio-medical waste. Monitoring by PPCC, the regulatory authority to enforce the implementation of rules, was deficient.

1.2.12 Recommendations

- Municipal solid waste management rules need to be implemented by giving priority to segregation of different wastes and setting up of processing units and landfills.
- All payments to contractors should be made strictly in accordance with the terms and conditions of the contract.
- Common treatment facility for treatment of bio-medical waste should be provided by municipalities.
- Puducherry Pollution Control Committee should collect information about all the health care establishments in the Union Territory and ensure all these establishments function with valid authorisation.
- Puducherry Pollution Control Committee should conduct periodical inspections of waste generating units and ensure safe disposal of waste.