

Chapter II

Sanitation and Solid Waste Management

Solid Waste Management is one of the most essential services and needs to be provided satisfactorily so that health and sanitation is maintained and the environment is well protected. This necessitates provision of minimum levels of service to ensure that all roads/streets and public places are cleaned daily and the waste generated in the city is handled properly giving due care to environmental aspects. Every municipal authority shall be responsible for collection, segregation, storage, transportation, processing and disposal of municipal solid waste in accordance with compliance criteria and procedure laid down in Schedule I to IV of the Municipal Solid Waste (Management & Handling) Rules, 2000 framed by Government of India (GOI). The review of the scheme for the period 2001-02 to 2005-06 revealed that the program suffered due to inadequacy of the control system, poor monitoring and slackness in its implementation. The salient points noticed were as under:

Highlights

Roads/ streets were not swept regularly and due to improper control over sweepers, cleaning of ordinary localities was inadequate.

Paragraph 2.6.2.1 (ii), (iii) & (iv)

Irregular expenditure to the tune of Rs 16.73 crore was incurred on deployment of sweepers on agreement.

Paragraph 2.6.2.2

None of the Nagar Nigams test checked had evolved adequate system for collection, segregation and disposal of solid waste.

Paragraph 2.6.3.1 & 2.6.3.1

NN Lucknow and Ghaziabad did not transport the full quantity of the Municipal Solid Waste generated despite having sufficient capacity for transportation.

Paragraph 2.6.3.3(i),(ii) & (iii)

Utilization of transportation capacity of the NN Ghaziabad was not optimal and the expenditure on diesel was doubtful.

Paragraph 2.6.3.3 (iv)

Treatment Plant locked out for want of 'assured MSW', which was to be supplied by NN Lucknow as per agreement.

Paragraph 2.6.3.5

7 Landfill site was not identified in any of the Nagar Nigams test checked. No objection certificate for landfill site obtained by NN Ghaziabad was irregular as intimation provided to UPPCB regarding availability and ownership of identified land was not based on facts.

Paragraph 2.6.3.7

8 Additional payment of Rs 15.16 lakh was incurred on account of custom duty due to inordinate delay in finalization of purchase/ procurement of carcass plant.

Paragraph 2.6.3.8

2.1 Introduction

Solid Waste Management (SWM) is an obligatory function of Urban Local Bodies (ULBs). To deal with waste management in all the ULBs, the Government of Uttar Pradesh (GOUP) adopted (March 2001) the provisions of Municipal Solid Waste (Management & Handling) Rules 2000 (MSW Rules) and Bio-medical Waste (Management & Handling) Rules 1998 (BMW Rules) and amendment thereof in 2000 enacted by the Government of India (GOI). The GOUP also accepted the recommendations of the committee constituted by The Hon'ble Supreme Court of India.

2.2 Audit objectives

The objectives of the review were to:

- evaluate the effectiveness of sanitation, deployment and management of the sweepers in NNs;
- evaluate the effective implementation of parameters of management of Municipal Solid Waste;
- ascertain the implementation of rules and procedure of MSW Rules 2000; and
- ascertain the implementation of rules and procedure of BMW Rules 1998.

2.3 Audit criteria

The criteria used to the review on 'Sanitation and Solid Waste Management' were:

- Municipal Solid Waste (Management & Handling) Rules, 2000
- Bio-medical Waste (Management & Handling) Rules, 1998
- Uttar Pradesh Nagar Nigam Act, 1959
- Health Manual of Uttar Pradesh Government
- Orders and guidelines issued by the State Government

2.4 Audit methodology and scope

The review of Sanitation and Solid Waste Management was conducted during August to October 2005 covering the period from 2001-06 and supplemented by information collected in March 2007 to evaluate the effectiveness of ‘Sanitation and Solid Waste Management’ measures taken by three out of 12 Nagar Nigams in the state. With a view to ascertain the efficacy of solid waste management, data and statistical details were collected from the records of Nagar Nigams Lucknow, Gorakhpur and Ghaziabad. Besides, records of State Department of Urban Development, Uttar Pradesh Pollution Control Board (UPPCB), Director, Local Bodies were also examined.

2.5 Funding pattern

The Nagar Nigams (NNs) allocate funds out of the grants received on the recommendations of State Finance Commission (SFC) and Eleventh Finance Commission (EFC) besides funds from their own sources. Fifty *per cent* of grant received on the recommendations of the Twelfth Finance Commission during 2005-06 was specially earmarked for solid waste management.

2.6 Audit findings

The audit findings are discussed in the succeeding paragraphs.

2.6.1 Financial outlay

During 2001-06, the budget provision and expenditure incurred there against by the three test checked NNs was as follows:-

(Rs in crore)

Name of NNs	2001-02		2002-03		2003-04		2004-05		2005-06	
	Budget Provision	Expenditure	Budget provision	Expenditure	Budget provision	Expenditure	Budget provision	Expenditure	Budget provision	Expenditure
Lucknow	32.47	31.92	33.51	32.01	34.56	34.44	36.36	35.82	47.81	36.81
Ghaziabad	15.50	13.20	16.45	12.99	17.59	15.60	19.91	16.13	21.33	17.46
Gorakhpur	Was not made available				9.63	8.76	10.22	9.53	12.62	11.45

(i) Though the allotment of funds and expenditure there against showed an increasing trend, the funds were allocated without formulation of project for implementation of MSW Rules. In spite of utilizing approximately 90 per cent

of the funds allocated for sanitation and SWM during 2001-06, none of the facilities required under the Rules were provided up to desired level. Thus, the unsatisfactory level of facilities envisaged in SWM could be attributed to non-formulation of projects.

(ii) Out of the budget provision for sanitation and waste management during 2004-05, NN Ghaziabad irregularly diverted and incurred expenditure of Rs 42.66 lakh on other items, thus defeating the objective of budget provision.

2.6.2 Sanitation

2.6.2.1 Roads/Streets sweeping

Laws governing ULBs make it obligatory to ensure daily cleaning/ sweeping of public roads / streets / other public places and disposal of waste collected through road sweeping and door-to-door collection. According to norms prescribed for cleaning of roads as envisaged in Health Manual, requirements and deployment of sweepers during 2004-05 were as follows:

Name of NNs	Population (as per 2001 Census)	Number of wards	Requirement of sweepers (28 sweepers per 10000 population)	Number of sweepers deployed				Shortage (-) Excess (+)
				Regular	Casual	Contract basis	Total	
Lucknow	2185927	110	6121	2875	450	1468	4793	-1328
Gorakhpur	349787	29	629*	---	---	629	629	---
	272914	31	764	660	303	---	963	+199
Ghaziabad	962938	60	2696	983	531	1281	2795	+99

Above statement and records of the test checked NNs revealed that:

(i) No effective mechanism was in force for monitoring the sanitation work. The sanitation work was being monitored by the Sanitary Inspectors of the concerned NNs whose activities were confined only to point out the deficiencies in the sweeping work. Moreover, neither there was any system in the NNs to deal with the complaints received from the residents of the area relating to the sanitation nor complaints registers were maintained for monitoring the position.

(ii) In NN Lucknow, against the requirement of 6121 only 4793 sweepers were deployed for sweeping the roads/ streets & public places. Due to shortage of sweepers, only some roads were swept daily while some of them

* Sweepers deployed in 29 wards by the contractors.

occasionally and some areas covered by launching special drives. Total sweepers deployed were reduced to 4680 (February 2007) which adversely affected the sweeping operations and resulted in unhygienic environmental condition.

(iii) In NN Gorakhpur, roads/streets of 29 out of 60 wards involving a population of 349787 were swept on contract basis during 2004-05. In remaining 31 wards (involving 272914 population), against the requirement of 764 regular/casual sweepers, 963 were deployed. Despite deployment of excess sweepers in these wards, 85 roads/streets and 72 roads/streets of five wards were swept only twice and thrice respectively in a week whereas most of the streets of the other eleven wards were swept weekly due to improper control over sweepers. Insanitation of these roads/streets led to unhygienic environmental condition.

(iv) In case of NN Ghaziabad, in 25 wards having posh localities, sweepers were deployed twice the number of their requirement. In remaining 35 wards, sweepers were deployed up to 78 per cent less than the requirement. Due to excess deployment of sweepers in posh localities, the NN could not provide effective cleanliness in 35 wards.

2.6.2.2 Irregular expenditure on deployment of individual sweepers on agreement

GOUP order^λ allowed that wherever necessary, work may be given on agreement basis but deployment of workers on agreement basis was forbidden. Contrary to the provisions of the Government order, NN Lucknow entered into an agreement (2004-05) on plain paper with individual sweepers on payment of Rs 57/- per day and deployed them in the required area / ward for sweeping. NN Ghaziabad also received applications from individuals for deployment as sweeper on agreement basis and engaged them in a group of 10-20 sweepers. One of the engaged sweepers was named as contractor. Wages of Rs 81.40 per sweeper per day was fixed and cheques on account of wages of sweepers were drawn in favour of Nagar Swasthya Adhikari and disbursed @ Rs 81/- per sweeper per day deducting Rs 0.40 as income tax and trade tax.

^λ वित्त संसाधन (केन्द्रीय सहायता) अनुभाग, उ०प्र० शासन, शासनादेश संख्या० 10/ दस-सं०वि०नि०-1-2001 दिनांक 9-1-2001

Thus, NN Lucknow and Ghaziabad incurred irregular expenditure to the tune of Rs 5.50 crore and Rs11.23 crore (**Appendix-IV**) respectively during 2001-05 on deployment of the sweepers on agreement basis. Deployment of individual workers or a group of workers on agreement basis was in violation of the Government orders.

2.6.2.3 Avoidable expenditure

NN Ghaziabad deployed 1281 sweepers without executing agreement during 2004-05 fixing their wages at Rs 74 and 10% of Rs 74 as contractor's profit per sweeper per day. The NN treated individual sweeper as a contractor and paid their wages @ Rs 81.40 per day after adding 10 per cent contractor's profit against the payable wages of Rs 74 per day. Thus, additional payment @ Rs 7.40 per sweeper per day as contractor profit rendered the avoidable expenditure of Rs 34.60 lakh during the year.

2.6.2.4 Unadjusted/un recovered advance

Out of advances made in NN Gorakhpur during 1995-2000 and NN Ghaziabad during 1998-2003 to staff/private parties for procurement/ supply of items pertaining to sanitation and solid waste management, a sum of Rs 1.41 crore and Rs 0.54 crore respectively were lying unadjusted/ un recovered till February 2007.

2.6.3 Solid Waste Management (SWM)

2.6.3.1 Improper collection and segregation of Municipal Solid Waste

(i) As per provisions laid down in MSW Rules-2000, house to house collection of MSW should be made on daily basis. No system was evolved in the test checked NNs for collection of solid waste resulting in littering in open spaces, road sides and drains treating it as receptacles of waste. NN Lucknow started house to house collection of MSW in 6 out of 110 wards during June 2003 but stopped the service from December 2004 due to lock out of treatment plant installed at Village Aurangabad Jagir on Lucknow – Bijanur Road. NN Gorakhpur also started (September 2005) house to house collection in 6 out of 60 wards. The house to house collection of MSW was however being done only (February 2007) in 10 colonies instead of being done ward wise. NN Ghaziabad had not evolved (February 2007) any system in this regard.

(ii) As prescribed, MSW was required to be segregated at source into biodegradable waste, recyclable waste and hazardous waste by using separate

coloured bins at household level and collection centers. No action was taken by any NN test checked in this regard. Mixed waste collected during street sweeping was being dumped at secondary collection sites. The littering by stray animals and rag pickers all over the places resulted in unhygienic conditions around the secondary collection centers.

2.6.3.2 Disposal of MSW in unauthorized colonies

NNs were responsible for implementation of provisions of MSW Rules within the territorial area of the municipality. Ghaziabad had 153 unauthorized colonies which lacked essential infrastructure facilities. No arrangement was made for disposal of MSW generated in these colonies. According to Government policies, these colonies could either be evicted or regularized by collecting the cost of land and development fees from the occupants and MSW Rules were to be complied. No action was taken in this regard by GDA. Thus, the inhabitants of these colonies continued to live in unhygienic conditions resulting in problems of environmental deterioration and health risk.

2.6.3.3 Transportation of MSW

To avoid littering of MSW the primary storage facilities should be attended daily for clearing of waste. Quantity of waste generated and transported per day by three NNs is given below

Name of NNs	MSW generated (Metric Ton)	MSW transported (Metric Ton)	Capacity of the vehicle used in transportation of MSW (Metric Ton) (Appendix-v)	MSW transported as per cent of capacity of the vehicles
Lucknow	1500	1100	1986	73.33
Gorakhpur	300	300	566	100
Ghaziabad	550	447.90	1132.50	81.44

Source: As per information provided by the NNs test checked.

Above statement and records of the NNs test checked revealed that:-

- (i) NN Lucknow and Ghaziabad could not transport the MSW generated in full despite having sufficient capacity for transportation which proved that the management could not ensure the optimum utilization of fleet of vehicles available. Besides, the accumulated waste left un- disposed of contributed to environmental pollution in addition to being a health hazard to human beings.

(ii) NN Lucknow used 45 vehicles, which were neither closed nor covered. Hence littering of MSW on roads, spreading of foul odour in the squatter areas and its visibility to public could not be prevented.

(iii) In NN Lucknow, actual consumption of diesel could not be ascertained in audit as un metered vehicles having capacity to transport 1986 MT were used for transporting 1100 MT per day. Thus, consumption of diesel in excess of the requirement could not be ruled out.

(iv) NN Ghaziabad transported 447.50 MT MSW per day through the vehicles having capacity to transport MSW 1132.50 MT. Records of 2004-05 revealed that while diesel consumption indicated utilization of full fleet of vehicles with capacity to transport 1132.50 metric ton per day, only 447.50 metric ton of MSW were transported which was far below the solid waste generated in NN Ghaziabad. Thus, utilization of vehicles to its capacity by the Nagar Nigam was not optimal and the expenditure on diesel was doubtful.

2.6.3.4 Solid waste storage centre

MSW Rules directed the Municipal authorities to establish and maintain storage facilities in such a manner that they do not create unhygienic and insanitary conditions. These were to be so designed that stored waste is not exposed to the open atmosphere. The position of secondary collection centers established up to February 2007 was as under:-

Name of NNs	Number of DP Bins		Number of RC Bins		Number of Parav Ghar [#]	
	Open	Closed	Open	Closed	Open	Closed
Lucknow	-	158	671	-	-	-
Gorakhpur	-	200	225	-	20	-
Ghaziabad	-	180	60	-	2	-

In NN Lucknow, Gorakhpur and Ghaziabad, 671, 245 and 62 secondary collection centers respectively were on open spaces due to shortage of dumper bins. As such, littering of MSW in open space by stray animals, rag pickers and spreading of foul odour could not be prevented and overflow and multiple handling of MSW could not be avoided.

[#] Permanent structure which is a secondary collection centre of MSW.

2.6.3.5 Treatment of MSW

- (i) With a view to utilize MSW for energy recovery under the National Pilot Programme launched by Government of India Ministry of Non-conventional Energy Sources (MNES), Lucknow Nagar Nigam (LNN) entered (February 1997) into an agreement with M/S Enkem Engineers Private Limited, Chennai (EEPL).

As per agreement, LNN transferred (March 1997) to M/S EEPL possession of 5 acres of land on lease rent at the rate of Rupee one per square meter for 30 years. Nagar Nigam Lucknow had to supply free of cost 300 metric ton assured MSW comprising of the prescribed characteristics of moisture contents, volatile and non volatile solid. M/S EEPL was to give organic residue to LNN for its own use for environmental up-gradation at its public places at the rate of five *per cent* of total production of organic residue. The firm was also to give one *per cent* of the sale value of net (after EEPL's plant consumption) proceeds of power sold to Uttar Pradesh State Electricity Board. In the mean time M/S EEPL, informed (November 1997) that they had formed a new company named 'Asia Bioenergy (India) Limited (ABIL)' to execute the plant. Consequently, an agreement between M/S ABIL and LNN was signed in April 2001 on the same terms and conditions as agreed between M/S EEPL and LNN.

M/S ABIL installed (June 2003) MSW plant (Rs 76 crore) comprising a 5 Mega Watt (MW) power generation and bio-fertilizer plant with the investment by promoters, loan from financial institutions and subsidy from MNES. Further, M/S ABIL locked out (December 2004) the plant for want of assured MSW and served legal notice to LNN claiming compensation. Due to lock out of the plant, the NN was dumping (February 2007) untreated MSW at the site of the plant in open area without taking adequate precautions to minimize pollution of air, water, etc.

LNN neither claimed the revenue due from sale of power nor received any organic residue from M/S ABIL during the period June 2003 to December 2004. In addition, lease rent amounting to Rs 156899/- was also not received for the period March 1997 to December 2004. Thus, failure of LNN in providing assured MSW to the firm, the untreated MSW had to be dumped in

open area thereby polluting air and water besides depriving of the benefit of additional energy and bio fertilizer.

(ii) NN Gorakhpur and Ghaziabad disposed off MSW on road side and low lying areas without any treatment causing environmental hazards. NN Gorakhpur entered (July 2005) into an agreement with a firm to set up a plant for conversion of MSW into organic manure compost, recycling the waste and other product from the compost and unwanted rejects on built, own & operate basis at the firm's own capital investment. But the same could not be materialized (February 2007) for want of no objection certificate from UPPCB and land from Gorakhpur Development Authority. NN Ghaziabad had not taken (February 2007) any action in this regard.

2.6.3.6 Non improvement of existing landfill sites

The existing landfill sites were to be developed according to the specification prescribed under scheduled-I of MSW Rules by 31 December 2001. The NNs test checked had no landfill site. The un-segregated and untreated MSW was dumped along the road and low-lying areas near habitations without compressing and covering the MSW with inert material. Contamination of ground water and environmental pollution could not therefore be ruled out.

2.6.3.7 Identification of landfill sites for future use

(i) According to the implementation schedule laid down in Schedule I of MSW Rules 2000, landfill sites for future use and making site(s) ready for operation was to be identified by 31-12-2002. GOUP, further, framed an implementation schedule on 17 January 2005. Accordingly, landfill sites were to be identified by 20 February 2005 and its development to be made by 20 August 2005 as per norms prescribed in schedule III of the MSW Rules 2000. Development Authorities were responsible for identifying the landfill sites based on examination of environmental issues that would be large enough to last for 20-25 years in order to be handed over to the concerned NN for its development, operation and maintenance. Development Authorities Lucknow, Gorakhpur and Ghaziabad had not handed over (February 2007) the sites to the concerned NNs.

(ii) NN or an operator of a facility on behalf of NN was required to obtain authorization from UPPCB for setting up waste processing and disposal facilities including landfill. None of the NN except Ghaziabad could get No

Objection Certificate (NOC) from UPPCB till February 2007 due to non-fulfilling the compliance criteria of different parameters of MSW Rules.

The Tenth Five Year Plan contemplated requirement of one acre of land for every 10000 population for landfill site in NNs. NN Ghaziabad identified 47 acres against the requirement of 96.29 acre land at village Dunda Heda adjoining at village Chipiyana for 20 years. The site was to be developed for providing facilities of processing and disposal of 400 m ton of MSW per day. However, out of 47 acres of land, ownership of 33 acres falling under jurisdiction of district Gautam Budha Nagar was not transferred (February 2007) to NN Ghaziabad. Despite the availability of only 14 acres of the land, NN misrepresented the facts to UPPCB regarding availability of 47 acres of land with ownership rights. As a result, the UPPCB issued (August 2004) NOC in favour of NN. Thus, NOC obtained by NN was irregular and illegal. Moreover, no developmental work at the site had been done except for construction of boundary wall as of February 2007.

(iii) Ministry of Urban Development, GOI approved (September 2005) a project costing Rs 13.52 crore for Solid Waste Management in NN Ghaziabad and released Rs 12.76 crore (September 2005 and July 2006) to GOUP. The state Government transferred Rs 9.26 crore (December 2005 to September 2006) to the executing agency Construction and Design Services UP Jal Nigam, Gautam Budh Nagar. The project was not implemented till February 2007 due to poor planning and non availability of the required landfill site.

2.6.3.8 Avoidable expenditure on carcass plant

GOI approved (March 1995) establishment of a modern carcass By-products utilization centre in Ghaziabad on priority basis at an estimated cost of Rs 2.70 crore to be shared between GOI (Rs 2.16 crore) and GOUP/ NN (Rs 0.54 crore). GOI released its share between March 1995 and March 1998. NN Ghaziabad invited tenders for establishment of the plant in 1996 and tenders received up to December 1996 were sent to Government of Uttar Pradesh Urban Development Department in December 1997 for acceptance. The committee set up by the department accepted the lowest tender quoted by M/s Food Processing Equipment Company (contractor) at Rs 1.67 crore in May, 1998 and directed NN to execute agreement within 15 days of the date of acceptance of tender. The agreement was executed in September, 1998

without any penalty clause for commissioning of the plant. Due to delay in import (December 1999) of plant and machinery by the firm, NN had to pay additional custom duty of Rs.15.16 lakh on account of custom duty hike. The installation and commissioning of plant was made at a cost of Rs.2.38 crore in May, 2000 after a delay of one year of its stipulated date (May, 1999). In the absence of any penalty clause in the agreement, no penalty could be imposed on the firm, besides payment of additional custom duty of Rs 15.16 lakh by the NN.

2.6.3.9 Functioning of illegal slaughter houses

Modernization of existing slaughter houses was also emphasized in the Rules. In NN Ghaziabad, illegal slaughterhouses were being run in open places. These open slaughterhouses were potent hazards for nearby Air Force station besides causing environmental pollution. No action was taken for modernization of existing slaughter houses in the NN till February 2007. Although the GOI approved (July 1998) a project amounting to Rs 8.96 crore for establishing a modern slaughterhouse at Ghaziabad on priority basis with assistance of GOI and GOUP/NN in the ratio of 50:50, it was yet to be established (February 2007 due to non approval of the project by NN's board. Even the existing slaughter house being run by the NN was situated in densely populated area and lacked basic facilities like electricity, waste disposal and over all hygiene/ sanitation condition was not following prescribed safety/ health norms.

2.6.4 Bio medical waste

2.6.4.1 Disposal of bio medical waste

(i) Bio medical waste comprises of infectious organic and pathological waste, needles and other sharp instruments, discarded medicines and cytotoxic drugs generated during diagnosis, treatment, immunization of human beings and animals or research activities in the production or testing of biological. Institutions generating biomedical waste include hospitals, nursing homes, veterinary institutions, animal houses, clinical laboratories, etc. As per information collected in June 2005 and March 2007 from UPPCB, total

biomedical waste generated and their treatment in 211 ULBs[#] of the State were as under:-

Year	Number of hospital/nursing homes	Bio medical waste generated per day (in metric ton)	Bio medical waste treated per day (in metric ton)	Untreated bio medical waste per day (in metric ton)	Untreated bio medical waste. (in percent)
2004-05	3045	32	7	25	78.13
2005-06	3320	33.76	8.9	24.86	73.64

Untreated biomedical waste was being mixed with MSW without proper treatment. Inadequate treatment and improper handling and management of biomedical waste cause health risk to health care personal, waste workers and inmates of the institutions and this also is a potential environmental hazard.

(ii) NN Lucknow installed (November 2000) an incinerator plant at a cost of Rs 24.36 lakh having capacity 75 Kg / hour for processing of biomedical waste. The plant was processing only 50 Kg / hour biomedical waste as its one burner was out of order since July 2003 which was repaired after long delay in March 2005. Out of 394 hospitals / nursing homes, 334 were registered with NN's incinerator plant. Incinerator charges of Rs 25.92 lakh was yet to be recovered by NN, Lucknow from 266 hospitals / nursing homes as of February 2007. Thirty hospitals/ nursing homes were not providing their biomedical wastes to NN for processing which was being disposed off by mixing with domestic waste. Besides, the incinerator plant installed by the NN was running without scrubber (pollution control device), causing environmental pollution as of June 2006. However, it was installed in July 2006.

(iii) In Gorakhpur, 308 hospitals/ nursing homes generated 1500 Kg biomedical waste per day. The city had no incinerator /suitable common disposal facility for the treatment of the biomedical waste. This hazardous waste was mixed with MSW and disposed off without its treatment in a scientific manner causing health problems and environmental pollution. However, the NN entered (May 2005) into an agreement with a firm to install an incinerator but progress could not be made till February 2007. NN Ghaziabad had no incinerator of its own. However, there were two incinerators installed by private parties in which bio medical wastes generated by 101 out of 142 hospitals/ nursing homes were being treated.

[#] ULBs having one lakh and above population.

As per information collected (February 2007) from UPPCB, 1253 out of 3320 hospitals/ nursing homes in 211 ULBs[#] of the State had neither their own treatment facilities nor were the members of Common Bio Medical Waste Treatment Facility (CBWTF). BMW generated by these hospitals/nursing homes were being disposed off without treatment.

2.7 Institutional strengthening

Environmental/ Public Health Engineers were required to be posted in cities having population more than one lakh for effective sanitation and waste management. GOUP agreed (January 2005) to create the post of Environmental Engineers in NNs to be filled on priority basis either by direct recruitment or on deputation. But no Environmental Engineers were posted till February 2007 in the test checked NNs.

2.8 Management information system

Municipal SWM department have to collect certain relevant information to have an overall idea of the prevalent situations regarding sanitation and SWM for taking corrective measures, proper planning for future and to assess performance of every one involved in SWM services. Computerization of such information helps management for day to day monitoring of MSW. Thus, management information system (MIS) plays an important role for effective management. However, MIS was not introduced in any one of the NNs test checked.

2.9 Monitoring

NNs were liable to implement the provisions including infrastructure development required for compliance of different parameters laid down in MSW Rules. Monitoring for enforcement of the provisions of the Rules in each NN of the state was to be carried out by GOUP. No effective and efficient monitoring was conducted by GOUP except issuance of instructions/ orders from time to time. Thus, this service was poorly performed and MSW Rules were still not implemented to the desired level by the NNs test checked, resulting in problem of health, sanitation and environmental degradation. Further, no provision was made for fixing accountability in case of non-adherence of instructions/ orders issued for its enforcement.

[#] ULBs having one lakh and above population.

2.10 Recommendations

The Nagar Nigams should:

- ❖ Deploy sweepers according to norms/ requirement for regular sweeping.
- ❖ Evolve adequate control over sweepers for efficient/ effective sweeping.
- ❖ Evolve adequate system for primary collection and clearance of waste daily.
- ❖ Provide coloured bins to ensure segregation of the MSW at source into bio- degradable, recyclable hazardous etc as well as secondary collection centers.
- ❖ Replace open storages by covered storages.
- ❖ Ensure optimum utilization of fleet of vehicles for transportation of MSW.
- ❖ Ensure development of landfill site identified by Development Authorities.
- ❖ Dispose off MSW after treatment as per MSW Rules.
- ❖ Take adequate measures for institutional strengthening.
- ❖ Introduce management information system for strict monitoring.

2.11 Response of Government

The above points were referred to the Government of Uttar Pradesh in January, 2006; reply was awaited (October 2007).