

CHAPTER 19

INSTITUTIONAL ASPECTS & CAPACITY BUILDING

19.1. INTRODUCTION

The subject of solid waste management (SWM) has remained neglected for the past several decades with the result the level of service is highly inadequate and inefficient. For improving the solid waste management services it is essential to adopt modern methods of waste management having a proper choice of technology which can work in the given area successfully. Simultaneously, measures must be taken for institutional strengthening and internal capacity building, so that the efforts made can be sustained over a period of time and the system put in place can be well managed. Institutional strengthening can be done by adequately decentralizing the administration, delegating adequate powers at the decentralized level inducting professionals into the administration and providing adequate training to the existing staff. It is also necessary to fix work norms for the work force as well as for supervisory staff and the output expected from the vehicles and machinery utilized. Non-Governmental Organisations/private sector participation also needs to be encouraged to make the service competitive and efficient. It is therefore, necessary that the local body takes adequate measures for institutional strengthening through induction of professionals, decentralization of administration, delegation of powers, human resources development, and private sector and non participation. **This may be done as under:**

19.2. DECENTRALIZATION OF ADMINISTRATION

In large cities the SWM services can be performed effectively only if its administration is adequately decentralised. Decentralisation can be at least 3 tiered -one at the Ward level, second at the Zone level and third at the city level. The SWM functions would get focussed attention if all functions of the city administration are decentralised at Ward/Zone/Division levels and senior officers are placed in-charge of each Zone/Division functioning independently with adequate delegated powers.

The SWM functions may be decentralised as under:

19.2.1 Ward Level Administration

The ward level administration should be fully responsible for ensuring storage of segregated waste at source, primary collection of waste, street sweeping and taking the waste to waste storage depots, clearing debris and cleaning surface drains and public spaces. The cleaning of each street, lane, by-lane, markets and public space should be regularly supervised by the ward-level supervisors. The presence of all SWM officers in the field during morning hours is most essential. A grievance redressal system of the Ward should be put in place in each ward.

Involvement of Ward Committees:-

The 74th Constitutional Amendment envisages formation of Ward Committees in each city above 3 lac population. These Ward Committees, as and when formed, may be very profitably involved in improving SWM services at the Ward level. These Committees could be motivated to help in the following areas:-

- Creating public awareness at the Ward level;
- Formation of Residents Association/ Neighbourhood Committees to ensure public participation in source segregation of recyclable waste and deposition of domestic waste in the handcarts on time during primary collection;
- Involving school children to be watch dogs in preventing littering of streets by the people;
- Interfacing with the people and officials and help in redressal of public grievances on SWM at the ward level;
- Supporting the effort of cost recovery for the services rendered;
- Encouraging NGO participation.

19.2.2 Zonal Administration

Administrative Zones should be made for a group of wards. Each Zone can cover a population of about 5 lac people.

The Zonal administration should effectively supervise and support the work of the Ward administration and also provide Zonal level support such as construction and upkeep of flooring under the communal waste storage sites, transportation of waste from the communal storage sites to the transfer station, processing plant and disposal sites. If the Zones are not allotted adequate vehicles for the transportation of waste due to paucity of vehicles, the transportation of

waste may be coordinated centrally for optimum utilization of the fleet of vehicles in 2 or 3 shifts.

19.2.3 City Level Administration

The city level administration should supervise and support the Zonal administration and in cases where the fleet of vehicles is not decentralized at the zonal level, the central SWM Department should look after the transportation of waste from the waste storage sites on a daily basis. The Central SWM Department should be responsible for procurement and upkeep of vehicles, construction of transfer stations, setting up and maintenance of processing plants, incineration plants as well as for managing the disposal sites in an environmentally acceptable manner.

The central SWM department should also be responsible for the procurement of land for processing and disposal of waste. As a Head Office it should take policy decisions and co-ordinate the activities of all the zones and the wards and be answerable to the Chief Executive and elected body for the efficient functioning of the department. It should look after the recruitment of manpower, human resources development, training etc.

19.3. DELEGATION OF POWERS

Authority and responsibility should go hand in hand. For fixing accountability there should be adequate delegation of fiscal and disciplinary powers to the officers and the supervisory staff responsible for managing solid waste and carrying out all day-to-day functions smoothly.

The Head of the SWM department should also have the power to punish subordinates including supervisory staff. Adequate in-built checks may be introduced to ensure that the delegated powers are not misused.

19.4. ORGANIZATIONAL SET UP/PUBLIC HEALTH ENGINEERS

The subject of solid waste management, so far being handled by Health Officers (who are medical doctors) in most cities, now needs to be handled by environmental engineers or public health engineers with the support of mechanical/automobile engineers to handle the workshop facilities. Qualified engineers should, therefore, be regularly inducted in cities above 100,000 population. The following yardstick could be followed for induction of professionals in the solid waste management services:

19.4.1 Towns Below 1,00,000 Population

One qualified sanitation diploma holder as

Sanitary officer (S.O.) if the population is more than 50000.

One qualified Sanitary Inspector (S.I.) @ 50000 population.

One qualified Sanitary Sub-Inspector (S.S.I) @ 25000 population.

One Sanitary Supervisor (S.S.) @ 12,500 population.

19.4.2 Cities Between 1 and 2 lacs Population

- Public Health/Environmental Engineer /or Civil Engineer having training in environmental/public health engineering in the grade of Assistant Engineer to be in charge of SWM department.
- Qualified Sanitation Diploma holder/Sanitation Officer @ one S.O. per 1 lac population or part thereof to look-after the collection, transportation, processing and disposal of waste or @ 1 per 2 Sanitary inspectors, whichever is less.
- Qualified Sanitation Diploma holder Sanitary Inspector(S.I.) @ one S.I. per 50,000 population or part thereof or @ 1 per 80 sweepers, whichever is less.
- Qualified sanitation diploma holder Sanitary Sub-inspector (S.S.I.) @ one S.S.I. per 25,000 population or part thereof or @ 1 per 40 sweepers, whichever is less.
- Sanitary Supervisors (a person who can read, write and report) @ one S. S. per 12,500 population or part thereof, or 1 per 20 sweepers, whichever is less.

19.4.3 Cities Having Population Between 2 and 5 lacs

- Public Health/Environmental Engineer/or Civil Engineer having training in environmental or public health engineering in the Grade of Assistant Executive Engineer to be in charge of SWM department.
- Public Health/Environmental Engineer in the grade of Assistant Engineer to look after the transportation, processing and disposal of waste.
- Sanitary Officers @ one S.O. per 1 lac population for supervising the storage, street sweeping and primary collection of waste.

- Sanitary Inspectors, Sanitary Sub-inspectors, Sanitary Supervisors should be as per the yardstick indicated in 19.4.2 above.

19.4.4 Cities Having Population Between 5 and 20 lacs

- Public Health/Environmental Engineer/or Civil Engineer having training in environmental or public health engineering of the level of Executive Engineer to be in-charge of the SWM department.
- Public Health/Environmental Engineers/or Civil Engineer having training in environmental or public health engineering of the level of Assistant Executive Engineer per 5 lacs population.
- Public Health/Environmental Engineers/or Civil Engineer having training in environmental or public health engineering of the level of Assistant Engineer per 2.5 lacs population.
- Sanitary Officers, Sanitary Inspectors, Sanitary Sub-inspectors and Sanitary Supervisors as per yardstick indicated in 19.4.2 above.

19.4.5 Cities Having Population Between 20 and 50 lacs

- Public Health Engineer/Environmental Engineer/or Civil Engineer having training in environmental or public health engineering of the level of Superintending Engineer to be the Head of SWM Department.
- Public Health/Environmental Engineers/or Civil Engineer having training in environmental or public health engineering of the level of Executive Engineer @ one Ex. Eng. per 20 lacs population or part thereof.
- Rest of the supervisors and staff as per the yardstick already indicated in 19.4.2 to 19.4.4 above.

19.4.6 Cities Above 50 lacs Population

- Public Health Engineer/Environmental Engineer/or Civil Engineer having training in environmental or public health engineering of the level of Chief Engineer to be in charge of the SWM department.
- Superintending Engineer per 40 lac population or part thereof. Rest of the officers, supervisor's etc. as per yardsticks already indicated in 19.4.2 to 19.4.5 above.

Note: In cities where health officers are looking after SWM or part thereof, in addition to their principal function of taking preventive health measures, they may be gradually made free from this responsibility and replaced by environmental or public health engineers.

Typical organogram for a large city is suggested as at Annexure – 19.1

19.5 HUMAN RESOURCES DEVELOPMENT

Human resources development is very essential for internal capacity building for any organisation. Training, motivation, incentives for outstanding service and disincentives for those who fail to perform are essential for human resources development.

Concerted efforts should be made by the local body to inculcate among its officers and staff a sense of pride in the work they do and to motivate them to perform and give their optimum output to improve the level of services of the city and the image of the local body.

19.5.1 Training

Solid Waste Management has been a neglected subject for the past several decades. Systems have, therefore, not developed to improve the service. Knowledge of new technology and methods coupled with training at all levels is necessary. No specialized courses have so far been designed to meet need of different levels of staff. Short and medium term courses should, therefore, be designed for the sanitation workers and supervisory staff. Special training and refresher courses may also be conducted as under:-

19.5.1.1 Special Training To Unqualified Staff

Unqualified supervisory staff should be given in service training to qualify for supervising sanitation works. They may be sent out for training to the All India Institute of Local Self Government or such similar institutions which designs special courses for sanitation supervisors.

19.5.1.2 Refresher Courses For All Levels of Staff

Refresher courses should be conducted for the sanitation workers as well as supervisory staff at least once in every 5 years, or they should be sent for training to get an exposure to advance in this field. The course content could be as per Annexure-19.2.

19.5.1.3 Exposure to Municipal Commissioner/ Chief Executives

It is necessary to give an orientation to the Municipal Commissioners/Chief Executives of the local bodies and make them aware of this important aspect of

Urban Management. They may therefore be given exposure to SWM through short training programs.

19.5.1.4 Exposure to Elected Members

Whereas the Municipal Commissioners or the Chief Executives are responsible for day-to-day affairs of the urban local bodies, the elected members are the policy makers and their sanctions are essential for any major investments or improvements in SWM services. It is, therefore, necessary that the members of the elected wing such as the Mayors/Presidents of the Corporations/Municipalities and other important office bearers of the local bodies are given appropriate orientation towards the need of modernization of solid waste management practices in the urban areas and the importance of the same in terms of health and sanitation in the cities/towns. If these members are given an appropriate exposure, they would automatically support adequate financing for solid waste management services and strengthen the hands of chief executives in the implementation of modern methods of waste management and they would also help in getting public support through their network of field workers.

19.5.1.5 Design SWM Courses

SWM courses may be designed and regularly updated for Engineering, Medical and applied science disciplines. Academic institutions at the national and state levels should be involved in this exercise by the concerned departments of Central and State Governments respectively. The syllabus of the engineering colleges, medical studies as well as sanitary inspectors' diploma courses should lay adequate emphasis on solid waste management.

19.5.2 Promotional Opportunities

Adequate promotional opportunities should be available in the decentralised SWM hierarchy to maintain the interest of the supervisory staff to remain in the department.

19.6. WORK NORMS

Norms of Work for Street Sweepers

The sweepers may be given "Pin point" individual work assignments according to the density of the area to be swept. The yardsticks given earlier could be adopted as under:-

WORK NORMS:

19.6.1 Norms of Work for Street Sweepers

- High density area & Markets (Population above 50000 per sq.km.) = 250 to 350 Running Metre (RMT)
- Medium density area (Population from 10000 to 50000 per sq.km.) = 400 to 600 RMT
- Low Density area (Population less than 10000 per sq.km.) = 650 to 750 RMT

The sweepers may be directed to sweep the roads and footpaths in the area allotted to them as well as to collect the domestic, trade and institutional wastes in their handcart from the households, shops and establishments situated on the road/street allotted to them.

The above sweeping norms are for cleaning the streets in the first 4 hours of the working day. In the remaining hours of the day, if there is a continuous 7/8 hours duty, or in the evening session, if there is broken duty, the sweepers should be assigned pin point work for cleaning the streets in slums and unauthorized settlements to ensure hygienic conditions in the city and prevent the problems of health and sanitation arising in such areas.

The roads, which have a central verge or divider, should be considered as two roads. In such cases, the length of the road allotted for sweeping should be reduced to half or alternatively separate sweepers may be engaged for sweeping two sides of the road.

The yardstick for cleaning open spaces should be prescribed looking to the local situation. However, 30,000 sq.ft. of open space can be given to a sweeper for cleaning per day.

Similarly work norms can be prescribed for variety of vehicles used depending upon the distance to be traveled and the places to be covered. These norms may be prescribed after conducting time and motion study.

Normally one vehicle carrying containers could make 7 - 8 trips to the processing and disposal site if the distance is less than 5 kms. If the distance is between 5 and 10 Kms, 5 trips could be made. In cases where the distance is beyond 10 kms, the no. of trips could reduce to 3 or 4 per shift depending on the distance to be travelled.

Norms of work for supervisors may be prescribed and monitored by the local body for inspection of sweeping done, clearance of waste storage depots, transportation of waste carried out, etc. Inspection of processing and disposal sites by various levels of supervisors may also be prescribed to ensure adequate output of all the supervisory staff.

The first level supervisors could be asked to inspect the work of all the sweepers at least once in two days. The sanitary sub-inspectors should inspect all the beats twice a week and the sanitary inspector at least once a week. All temporary waste storage depots must also be inspected by the same level of supervisors with the same frequency.

All Supervisory Officers right from Sanitary Sub Inspector to Health Officer/Chief Engineer in-charge of SWM department must remain on the field for 4 hours in the morning between the time of street sweeping and lunch break. The timings for the lower and middle level supervisor should extend beyond the duty hours of the sanitation workers in the afternoon/evening to verify whether work has been done properly. This supervision will have a direct impact on the quality of service.

For capacity building of the department, senior officials should be frequently exposed to developments taking place in various parts of the State/country by sending them out on city visits and for attending seminars, workshops and training courses. They should also be involved in all decision making processes.

19.7 THE ENTIRE ADMINISTRATION OF SWM DEPARTMENT TO BE UNDER ONE UMBRELLA

With a view to avoiding the problems of lack of coordination and passing of the responsibility on others, it is necessary to have one person exclusively in charge of SWM in the city. The overall control in relation to collection, transportation, processing and disposal of all waste, including workshop facilities, should lie with him. He should also be responsible for the cleaning of open drains under 24 inches depth, collection of silt, construction waste and debris and vehicle deployment and maintenance. This work should not be left to the Engineering Department, which should however continue to be responsible for the removal and transportation of silt from the underground drains, storm water drains or surface drains exceeding 24 inches depth, and the left over waste material from their Engineering and major road works.

19.8 INTER-DEPARTMENTAL CO-ORDINATION

Since the SWM department depends greatly upon the support of various departments of the local body, more particularly the Engineering department, the Chief Executive of the local body should hold regular monthly co-ordination meetings to sort out problems faced by the SWM department such as expeditious repairs of roads, drains, water-supply pipe-lines etc. which cause hindrance to street and city cleaning. The reinstatement of roads dug up by utility services should also be given priority.

The procurement procedures for the SWM equipment also need to be expedited and simplified in such meetings. A Rate-contract system should replace time consuming tendering procedures.

There should be an Apex Committee comprised of representatives of various utility services, headed by the Chief Executive of the local body, to co-ordinate the laying of underground services in the city by various utilities and the reinstatement of the roads as soon as the underground services are laid. The Apex Committee should ensure that repeated digging of road is avoided for laying of services by various utilities at time. The works to be carried out by various utilities on a particular road should be coordinated to prevent frequent digging of roads. Laying and maintaining of services in slums, provision of public health engineering services and water supply for public toilets and road construction in the slums to improve overall health and sanitation in the city may also be regularly reviewed in the co-ordination committee meetings.

19.9. ENCOURAGEMENT TO NGOS AND WASTE COLLECTOR CO-OPERATIVES

NGOs may fully involved in creating public awareness and encouraging public participation in SWM planning and practice.

The local body may also encourage NGOs or co-operative of rag pickers to enter this field and organise rag pickers in doorstep collection of waste and provide them an opportunity to improve their working conditions and income. The local body can give incentives to NGOs in their effort of organising rag pickers in primary collection of recyclable and/or organic waste, and provide financial and logistic support to the extent possible. (Refer Chapter 18)

19.10 VOLUNTARY ORGANIZATION/ NGO/ PRIVATE SECTOR PARTICIPATION

SWM services are highly labour intensive on account of increased wage structure of the Government and municipal employees this service is becoming more and more expensive. Besides, the efficiency of the labour force employed in the urban local bodies is far from satisfactory. High wage structure and inefficiency of the work force results into steep rise in the cost of service and yet the people at large are not satisfied with the level of service being provided by the urban local bodies. Efforts to increase the efficiency by Human Resource Development and institutional strengthening will, to some extent improve the performance but that may not be enough. It is, therefore, necessary that the local bodies seriously consider Voluntary Organisations/NGO/private sector participation in solid waste management.

Private sector participation or public private partnerships may be considered by urban local bodies keeping in mind the provisions of the Contract Labour (Regulation and Abolition) Act 1970 of the Government of India, the details of which are described in chapter 20. This will check growth in the establishment costs, bring in economy in expenditure and introduce an element of healthy competition between the private sector and the public sector in solid waste management services. There should be a right mix of private sector and public sector participation to ensure that there is no exploitation of labour as well as of the management.

19.11 INCENTIVES TO THE PRIVATE SECTOR

Solid waste management, processing and disposal is an area where the private sector has still not shown much interest. The private sector has, therefore, to be given some incentives by way of long term contract, assured supply of garbage at the plant site, lease of land at nominal rates for entering this field. This matter is explained in detail in chapter 20 of the Manual.

19.12 LEVY OF ADMINISTRATIVE CHARGES

With a view to ensure adherence to the instructions given by the civic body to the citizens and making them aware of their civic responsibility of not littering the street and throwing the solid waste anywhere on the streets or open spaces, it is recommended that provision should be made in the relevant by-laws, rules etc to recover Additional Cleaning Charges from the citizens who dispose of waste on the street or in open public places necessitating the cleaning of the road again by the local body. The power to levy such charges should be delegated to the supervisors of the level of Sanitary Inspectors and above. The amount of

additional cleaning charges to be levied should be specified for different categories of offenders and should be kept higher for repeat offences. Refer Chapter 24).

19.13 MOBILE SANITATION COURTS

It is the tendency of the public to take their civic responsibilities lightly. It is therefore necessary that while on one hand people are motivated to participate effectively in keeping the cities clean, there should be a fear of punishment if they fail to discharge their civic obligations. Provision of Mobile Sanitation Courts is therefore recommended in one million plus cities to punish on the spot the offenders violating the sanitation laws and civic instructions for keeping the cities clean. The mobile court's jurisdiction should be for the entire city covering areas managed by railway, cantonment, airport etc. within the city boundaries. The working arrangements could be made with various authorities operating in the city to make the mobile sanitation court effective in the city. The mobile sanitation court would be able to recover its full cost from the fines that may be imposed by the court. There is, therefore, no likelihood of any financial burden on the local body, railways, cantonments, etc.

19.14 DOCUMENTATION OF BEST PRACTICES

It is seen that good practices are seldom documented. This may be arranged from time to time by the Ministry/Department of Urban Development of Central/State Governments in order to have development through spread effect.

19.15 REDRESSEL OF PUBLIC GRIEVANCES

The local body should draw up a citizen's charter clearly stating what level of service it proposes to provide to the citizens and how soon citizens can expect their grievances to be attended. Sanitation being very vital for health and environment, an efficient machinery should be organized by the local body to receive public complaints and attend to them expeditiously. Formats may be prescribed for receiving such complaints, replying to the applicants as soon as the complaints has been redressed and for monitoring the pending complaints. (Refer Chapter 24 on Legal Aspects).