

Action Plan for Effective
Implementation of Municipal
Solid Wastes (Management &
Handling) Rules 2000.....

Government of Maharashtra

Government Resolution

Urban Development Department, No. SWM 1006/C.R.53/UD-16

Mantralaya, Mumbai - 400 032, Date : 26th October 2006

Read : 1) Municipal Solid Waste (Management & Handling) Rules 2000

2) Bio Medical Solid Waste, Rules 1998

Preface

01. Municipal Solid waste (Management & Handling) Rules 2000 were notified by Ministry of Environment & Forests, Government of India, on 25th September 2000. As per these rules, it is mandatory for the urban local bodies to ban littering of solid waste, to prescribe segregation & storage of waste at the source of waste generation, door to door waste collection & its transportation, recycling of recyclable waste, composing or processing of waste by any of the prescribed methods and disposal of waste that cannot be processed and rejects from processed waste at scientifically developed landfill sites. Also, urban local bodies are responsible to ensure that bio medical waste is disposed off in the prescribed manner.

02. Some of the cities in the state have worked well on some of the components mentioned above. Others have prepared elaborate plans to do so. However, effective implementation of the rules is not seen in most of the cities even after five years since the notification was issued. Segregation & storage of solid waste is not done at the source till today. Citizens throw garbage on roads, nalahs and other public places. Garbage is burnt at many places. Garbage is transported in open vehicles. Waste is disposed off anywhere and without being processed. Thus, it poses health hazards & deterioration of environment in cities.

03. It is necessary for all urban bodies to implement the rules in a time-bound manner. For this, it has become necessary to issue instructions to implement, monitor and review the handling of solid waste in a time bound programme. Considering all the above issues, following decision has been taken regarding measures to be taken by urban local bodies for effective implementation of Municipal Solid Waste (Management & Handling) Rules 2000.

Government Resolution:

State Government has taken a decision that all municipal councils / municipal corporations shall execute a time-bound action plan in the following manner for effective implementation of Municipal Solid Waste (Management and Handling) Rules 2000.

Sr. No.	Action Point	Prescribed time period
1	Collection of debris & bulk waste. Separate collection of waste from Shops, hotels, restaurants etc by special methodology & its disposal. Separate handling of green waste.	Before 30 st November 2006
2	To prescribe methodology for each waste generator for storing waste at source & handing it over to urban local body.	Before 30 st November 2006
3	Door to door waste collection, ensuring its segregation, providing such litter bins to avoid frequent handling of waste, closed vehicles for transportation.	50% City 31 st Dec. 2006 75% City 28 th Feb 2007 100% City 30 th April 2007
4	To establish effective mechanism/system to prohibit nuisance at public places; Enforcement in this regard	31 st December 2006
5	Waste reduction at source and make arrangement for waste processing at decentralized places. Set up recyclable purchase centres.	10% Solid waste upto 30 th April 2007 & afterwards in stages
6	Daily cleaning & sweeping of all roads / public places. Providing smaller litter bins in sufficient numbers at public places.	31 st December 2006
7	Scientific processing of waste. Consider option of having small decentralized plants.	40% Solid waste 30 th January 2007 75% Solid waste 30 th April 2007
8	Scientifically developed land fill sites.	Municipal corporations & A class Municipal councils - 30 th June 2007 Others - 31 st December 2007
9	To take measures for separate collection, transportation, processing & disposal of Bio-Medical waste	Municipal corporation & A class Municipal Council 31 st December 2006 Other Municipal Council - 30 th June 2007

Planning of Time-bound Program:

02. Solid waste management needs to be a planned program. Planning of all the issues addressed above should be done by municipal bodies according to their capacity, taking into consideration various types of waste generated in their cities and the local situation in the city.

03. Accordingly, planning shall be done in two stages (a) Macro planning (b) Micro planning. Initially, it is required to study the quantity of waste generated in each city & its sources and then formulating a general strategy for storage, collection, transportation,

processing and disposal of waste. Subsequently, based on such a Macro plan, ward wise planning will have to be undertaken for solid waste management. Changes & modifications in the plans shall be required from time to time.

04. The following issues should be taken into consideration while planning / implementing each of the above time bound Action Plan.

Action Point 1 - Separate collection & disposal of debris & bulk waste

05. Each city needs to have separate mechanism for collection & disposal of waste from bulk waste producers & debris. Separate collection of garden / green waste can be prescribed wherever possible.

06. Processing is not required for construction waste & debris. It can be used as it is, for land filling of low lying areas. This is possible only if it is collected separately & not allowed to be mixed up with municipal waste. Its separate collection not only reduces municipal waste by 15-20%, but it improves quality of rest of the waste. Such waste of better quality is more suitable for composting, waste to energy etc. Also it is criminal to throw debris into land fill site that is acquired & developed with great efforts. Therefore the following action be taken:

a) Waste / debris producers be held responsible for separate disposal of construction waste/debris. Municipal bodies should prohibit to mixing up construction waste with municipal waste by any means and heavy penalty should be charged on those who are found to have done so.

b) Municipal bodies should earmark certain sites where citizens can for throwing debris. Private operators/municipal bodies can give special litter bins on hire for debris collection & storage.

c) The best way to collect construction waste is to give a contract to a private operator. He shall collect debris/ construction waste from the producers at a predetermined rate and he shall dispose it off legally & as may be prescribed. Private operator shall be allowed to collect fees directly from the waste producers. Contractor be allowed to sell the debris where land filling is required.

d) Debris can also be used for land filling at low lying areas, at places where mosquitoes breed & for creating playgrounds. It can also be used for manufacturing bricks & tiles.

Provide separate collection mechanism for bulk waste generators.

07. Bulk waste generators produce 20 to 30% of total city waste. This waste is fairly uniform and easier to be processed when collected separately. Bulk waste producers can further segregate it into more categories. They can afford to pay for such services. Separate collection & transportation of waste from bulk waste generators, will also help establish a system for segregated waste collection and its transportation. Therefore the following action be taken:

i) Municipal bodies should put in place a system to collect waste separately from the places of bulk waste generation such as hotels, restaurants, wedding halls, abettors, markets, shopkeepers, hawkers on roads, offices, cowsheds, etc.

ii) Private operators should be appointed for collection, transportation and processing of waste from bulk waste producers. Waste can be collected separately from each class of generators at a time convenient to the waste generator.

iii) Service charges be levied on bulk waste producers to recover the expenses. Private operators should be allowed to collect charges directly.

iv) Implementation of the above should be done after taking the waste generators into confidence. Wherever possible involve organizations while appointing private operators.

v) Such waste should be processed separately through biogas/vermi-composting projects.

08. If a certain type of waste is produced in the city on a large scale, set up separate mechanism for its collection. This may include waste generated in cotton mills / handlooms etc, which can be collected & disposed off separately. Arrange for separate collection & disposal of the bulk waste generated at religious places & temples.

Arrange for separate collection of garden / green waste.

09. Garden / green waste contains substances that can easily be composted. Green waste from municipal gardens should be converted into organic manures in this way. Residents can also be asked to place their garden/green waste for pick up only on one specified day in a week. Separate vehicles shall be provided to collect it. Such garbage should not be allowed to be mixed up with normal municipal waste.

Action point 2: Specify how waste producers can handover waste to municipal body.

10. As per clause 3 of Maharashtra Non-biodegradable Garbage (Control) Ordinance, 2006, "no person shall knowingly or otherwise, place or permit to be placed, except in accordance with such procedure & after complying with such safeguards as may be prescribed by local authorities, any waste in any public place or in a place open to public view unless the garbage is deposited in a place/bin designated by a the local authority for the disposal of such garbage.

11. Also, as per clause 6, "it is compulsory for every waste generator to provide two separate litter bins (for biodegradable & non-biodegradable waste), maintain them properly & store the solid waste produced after segregation." It means that, as per law, citizens do not have an unprefered right to throw or dump their garbage at any public place other than in a manner and place prescribed by the municipal body. In order to maintain clean & healthy environment in city. It is the legal responsibility of Municipal bodies to prescribe & specify how, when and after following what measures, citizens can handover or place their waste in public places.

12. Therefore it is necessary for the municipal body to specify how each waste generator shall store waste at his place & then hand it over to municipal body. The following actions be taken:

a) Municipal body shall specify how each different waste generator can handover waste to the public body. This shall include the manner of segregation, place & time for collection of waste. It will also explain what safety measures have to be followed while handing over the waste.

b) Municipal bodies shall prohibit mixing of debris and construction waste with usual municipal waste.

c) Municipal bodies will decide to what extent segregation of waste is required. It could be different for each type of waste and for each type of waste generator. For example, household waste could have to be segregated in two categories (dry & wet); bulk waste producers may be asked to further segregate the dry waste into paper, plastics, bottles & others. Hawkers could be required to keep small dustbins that can be emptied each day at a certain place. Motor garages can be asked to keep hazardous waste separately.

d) Municipal bodies should ban throwing or depositing waste & garbage at public roads, water bodies, and other public places. Pedestrians and those traveling in vehicles should be required to throw waste in the small litter bins kept in the city.

e) Burning of municipal waste will be prohibited. Burning produces smoke in the city & causes pollution. Sweepers / Contractors of the municipal bodies also should not allowed to burn waste.

Action Point 3: Undertake door to door waste collection / Ensure that segregated waste is handed over.

13. Door to door waste collection is mandatory for all municipal bodies. Unless this is done, generators who do not segregate their waste can not be detected.

14. Segregation is beneficial for the municipal body. A large number of recyclables are removed from the waste & thus they do not reach the processing centres / land fill sites. There is saving in transportation cost. Costly land fill space is saved. Employment opportunities are created for urban poor. Fertilizers, manures, etc. manufactured from segregated waste is of much better quality than that produced from mixed waste.

Planning of door to door waste collection

15. Door to door collection should be carried out from all waste generators. Ensure that this facility is provided for all 365 days in a year (including Sundays & holidays also). The following actions be taken:

i) Start implementing door to door waste collection in a part of the city. Replicate the model rapidly throughout the city.

ii) Plan a different mechanism for door to door waste collection from large housing complexes / housing societies, and for independent houses and for slums. Bigger

vehicles will be necessary for large residential complexes. and smaller vehicles (auto rickshaws etc) and bell vans will be required for independent houses/slums.

iii) Biodegradable waste should be collected daily from each household. Recyclable waste/dry waste can be collected once/twice a week or in a manner prescribed by the municipal body. Separate collection eliminates the need for two bins/compartments in ghanta gadies.

iv) Some of the municipalities have decided to collect only biodegradable waste & has laid the responsibility of managing dry waste upon the citizens. This is neither a good practice nor it is in accordance with the rules. All types of dry waste is not recyclable (thin plastic, broken bulbs, tubelights, small empty bottle, etc.) If not collected, this dry waste gets mixed up with biodegradable waste and costs more to segregate during processing. Therefore municipal bodies need to collect dry waste too.

Should community bins be kept?

16. Segregated waste should be collected from door to door and directly transported to the processing site. This will eliminate the need to keep community bins. Cities will become cleaner and more space will be available for pedestrians. The nuisance around community bins (due to rats, dogs, cattles, cows, buffaloes, etc.) can also be avoided. Right type of community bins should be provided only in markets and crowded areas with arrangements to empty them twice a day, or before they overflow with garbage.

17. Direct transportation of waste to the processing sites may be costly in case of large cities. Here waste transfer stations can be created. Such transfer stations should not be accessible to public. Only sanitary staff or the agency engaged for door to door waste collection should be allowed to enter these, to transfer the waste into larger vehicles (bulk transport vehicles) and transport it to processing site.

18. Dust bins made of cement pipes, metal rings, masonry construction should not be allowed in the city. Neat mobile, bulk containers should be kept for waste storage at community places. These municipal bins should have automatic closing facility and the facility for being emptied without the waste being required to be handled manually.

Contract should be awarded to NGO/Self help groups

19. While planning for door to door waste collection, wherever possible this work can be given to sanitary workers of the Municipal body. Quantity of garbage thrown on the roads will be reduced due to house to house waste collection, thereby reducing the workload of road sweeping. Thus sanitary workers can be diverted for door to door collection of waste.

20. In some cities separate contracts are given for waste collection & for transportation. This methodology does not reduce the number of community bins. The responsibility of keeping the city clean gets divided. The results in accusing & blaming each other in matters like whether waste got mixed up during collection or during transportation etc. Such separate contracts should be avoided.

21. If adequate number of sanitary workers are not available with the municipal bodies, keeping in view the increasing population in the city, comprehensive contract for a certain area/location should be given to a private agency. Municipal body will then be free from

micro managing of handling of waste and monitor the work with better efficiency. Private agency can directly take the waste collected from house to house to processing units (via transfer stations where required). This will eliminate community bins totally. Contractor shall have rights to sell dry waste, & thus will encourage each waste producer to handover segregated garbage. Incentives can be given to private agency to reduce amount of waste reaching landfill area after processing.

22. One of the best options is to give contracts for door to door waste collection to NGO's or SHG's. This option is less expensive and can provide employment to the deprived section of urban population. For skills of ragpickers to segregate the waste can also be put to use. Instead of keeping them at the end of waste collection chain and obtaining recyclable things only from community bins or from the mixed garbage thrown on land fill sites, ragpickers should be given multiple contract to collect waste from door to door and take it to processing plants. In many cities, underprivileged sectors of the society such as ragpickers, women & youth groups are being involved for waste collection. Therefore NGOs, voluntary organizations and self help groups should be appointed for door to door collection. Preference should be given to co-operative organisations of ragpickers women groups under Suvarna Jayanti Shahari Rojgar Yojna. Following actions be taken:

- i) Loans from the bank and subsidy under SJSRY should be made available for these groups.
- ii) Wearing uniforms, carrying identity cards, assigning attractive designations (*Swatchhata Doot*) will help them gain status and dignity in the society.
- iii) Contractor will collect waste from house to house & carry it to processing site. Wherever possible, ask the contractor to sweep roads or clean a designated area. Such area should include gutters, nallah, drainage, open public places etc. This will give incentives to the contractor to see that people handover garbage directly to his employees and do not throw the same on the roads and open places.
- iv) The freedom of selecting the way to carry out designated work of door to door waste collection and cleaning of assigned area be given to the contractor. He should have scope to improve his efficiency and reduce cost.
- v) Many cities have awarded such contracts where in certain number of labourers or vehicles are required to be provided and certain rounds are to be completed in fixed hours etc. This is a wrong practice and such contracts should not be given.
- vi) Rights to enforce handing over of garbage in the prescribed manner can be given to the contractor. He can have pre-printed receipts of certain fixed amounts which he can use to collect penalties whenever required. He be allowed to keep with himself a part of the charges collected.
- vii) The contractor can be allowed to sell the recyclables and also collect a part of their emoluments directly from the waste generators.
- viii) The contractor can be allowed to convert biodegradable waste into manure in a nearby gardens and sell the manure so produced.

23. Municipal bodies are allowed under the Suvarna Jayanti Shahari Rojgar Yojana to award such contracts to self help groups below poverty line without tendering. Also women groups can be awarded such contracts under the Kamdhenu Scheme. Such contracts should however be awarded with transparently awarded.

Charging fees for door to door waste collection.

24. Better results are obtained when houses have to pay contractor for waste collection. Residents ensure that service is provided daily & in proper way. Municipal bodies need not inspect daily & record muster for workers presently. Therefore contractor should be allowed to collect save user charges directly from each house.

25. If contracts are given to self-help groups only for waste collection, then they can recover Rs. 5 to 10 per house per month. If contract includes collection & transportation, then can be allowed to recover approx Rs. 20/- per month per house. Municipal bodies can initially pay a part of this amount till contractor can encourage citizens to pay the charges. The municipal bodies can subsequently reduce the direct payment gradually. This amount can be paid through 12th Finance Commission Grants. Under no circumstances payments should be made on the basis of attendance. It should be in accordance with the number of houses in the area of works.

26. A local committee comprising of representatives of local residents and elected corporators can monitor the work of such agency.

Transportation :

27. Transportation of waste should be carried out through closed vehicles. It should be ensured that the waste is not visible and does not come in contact with the atmosphere. Avoid multiple & manual handling of waste. The system of transportation of waste must synchronize with that prescribed for segregated of waste. The following actions be taken:

i) Along with compulsion to give segregated waste at the household level, mechanism to collect segregated waste & its transportation should be in place.

ii) As per Government Resolution dated 10th Sept 2001 issued by the Finance Department, purchase of new vehicles is prohibited. Therefore, instead of purchasing newer vehicles, municipalities should give contracts for transportation of waste where the contractor has to provide his vehicles. Contractor can also provide community bins as found suitable by him. Municipalities can make it compulsory for large waste generators to keep bins suitable for the transportation vehicles provided by the contractor.

iii) Even when vehicles are owned by the municipal body, they should invariably be operated by private operators under a contract. The transportation contractor will deploy his own staff, provide fuel and carry out repair and maintenance of the vehicles. The vehicles will be returned to the municipal body in good condition at end of the contract. Municipal bodies can carry out periodical inspections to avoid any misuse.

iv) The period of the contract should be such that it provides adequate time for the contractor to recover the investments made. It could be of 3 years where vehicles are

provided by municipal body and 5-7 years where agency has to provide his own vehicles/community bins.

Remuneration to contractors :

28. The payment to the contractor should not be on per tonne basis. Here the private operator has no incentive to reduce the waste through segregation. In fact, it provides an incentive to discourage segregation, and even bring debris, etc. to get more payment. The ideal system would be to pay a fixed amount for a certain specified locality alongwith having an effective system for daily monitoring of work done of cleanliness in the area of operation.

29. A fixed payment for maintaining cleanliness in a given area alongwith an incentive for bringing less waste for land fill (on weight basis) can however be effective. This is possible where system to accept mixed and segregated waste differentially has been established. The operator can be allowed to bring unlimited quantity of segregated waste, but only a limited quantity of mixed waste. The municipal body can deduct money / charge tipping fees for the mixed waste brought over & above the sanctioned free limit. The free limit for mixed waste can be reduced gradually every month.

Action point 4 : Set up effective mechanism to prevent nuisance in public places.

30. Enforcement is essential for effective solid waste management. Each municipal body should set up an effective mechanism for nuisance detection at public places. It is naive to expect that all the citizens would give waste in the manner specified. While some of the citizens quickly understand the need for integrated waste management and hence starts co-operating, it is possible to convince other citizens through proper & sustained awareness campaign. Disposal of waste in the manner specified by municipal body will not be effective unless other citizens are penalized for not following the rules. Each municipal body should take the following actions:

a) In case of door to door collection monitoring should be done through sanitary workers or private agencies undertaking door to door collection. They should be given the rights to collect on the spot fines for non-compliance with the rules.

b) Separate nuisance detection squads are essential for other public places. Ideally such squad could be formed by deploying ex-serviceman, ex-police staff etc. Squads of women, unemployed youth, etc could also be formed. Such nuisance detection squads should be given the right to levy penalty on the spot itself. Preprinted & numbered receipts of fixed denominations could be given to such employees/squads.

c) Part/full amount of honorarium due to the members of the squad should be linked with the fine collected by them. A legal agreement can be entered into with each of them to avoid subsequent problems.

d) These nuisance detection squads can also be given the authority / responsibility to take action against use of thin plastic bags/encroachments/illegal banners and pamphlets/ noise pollution/people defecating at public places, etc.

Action point 5 : Encourage waste reduction

31. Decentralized waste processing and reduction of waste is today's need. Collection, transportation & at the land-filling of unlimited and consistently increasing amount of waste is not a viable either financially or environmentally, Therefore there is need to encourage citizens to reduce waste. The following actions be taken:

- a) Encourage bulk waste generators to process their waste themselves through biogas or vermi-composting projects. Encourage residents' groups to set up small composting pits. Provide free technical guidance for vermi-composting, etc.
- b) Levy reduced lesser service charges from generators who hands over only dry waste.
- c) Set up purchase centers / processing centers for dry waste.
- d) Consider charging lesser property tax on shops of kabariwala, bhangarwalas, etc which buy recyclable items.

Action point 6 : Ensure regular sweeping of all roads.

32. It is the duty of the municipal bodies to keep all public places clean. Once the waste is collected directly from the generators, the road cleaning load would come down sharply. This will not however, eliminate the need to sweep the roads regularly. For this the following actions be taken:

- a) Municipal bodies should ensure that all roads are swept regularly. The arterial and main roads, where there is heavy traffic and are crowded during the day, can be cleaned up at night. Roads in markets may have to be swept for more than once in a day.
- b) Wherever municipal staff is inadequate, instead of appointing new staff, an integrated contract for door to door waste collection, along with cleaning up a part of the city / specific locality should be given. Gutters, nalah and playground too should be cleaned regularly through the same contract.
- c) Though community bins should be removed, it is a necessary to provide small litter bins at crowded public places for people to get rid of their waste conveniently. The municipalities should survey such areas and provide adequate number of small litter bins along all public roads/gardens/public places.

Action point 7 : Scientific processing of waste.

33. As per Municipal Solid waste (Management and Handling) Rules 2000, the municipal bodies are responsible for processing of waste. Only rejects & residual non-compostable waste after processing and hazardous waste are to be brought to the landfill site.

34. Under no circumstances, unprocessed waste should be thrown with landfills. Facility for waste processing should be created as early as possible & only rejects should be landfilled.

35. Disposal of recyclable waste should be done separately..

36. Waste processing is a capital intensive activity. Moreover, processing plants employ complex technology and are difficult to be operated efficiently by municipal staff. As per 12th Finance Commission guidelines, facility for solid waste processing should be provided and run by private operators. Following should be considered while appointing private operators.

i) Municipal bodies should not get stuck to a specific technology. Getting waste processed in the most cost effective method and by a legally acceptable technology be the objective of municipal bodies. The operator can select the technology to be used. Private operator should obtain necessary permissions from Maharashtra Pollution Control Board. Also, upgrading technology as may be required time to time should be the responsibility of private operator.

ii) The private operators are willing to provide their own land for setting up a processing facility. Cost of the land is a small proportion of the total cost of waste processing. If the project is set up on the land owned by private operator, entering into a contract as well as its termination becomes simpler. Operator can also enjoy the freedom to process the waste from nearby cities in the same location.

iii) If the contractor engaged in house to house collection waste has been allowed to bring mixed waste in a limited quantity (as per Para 29), the responsibility of mutually deciding the quality of garbage will be between the two operators - one transporting the waste to the processing site & the other processing the received waste. Disputes could be resolved by municipal bodies.

iv) Municipal bodies should pay the operator tipping fees for the waste to be processed. Payments may be made on the basis of tonnage processed. The rates should be different for segregated and for mixed waste. Operator may be required to pay royalty to the municipal body for the segregated waste.

v) Operator must accept all the municipal waste (except hazardous & bio-medical waste). A permission to levy fine for non acceptance of waste must be build in to the agreement.

37. The responsibility of land filling the rejects after processing should be that of the operator. It may be difficult for the operator to find a scientific site for the landfill of the rejects and he may resort to illegal & unscrupulous dumping. To prevent this, municipal bodies could allow landfill of treated waste on its landfill site after levying of suitable tipping charges over & above the permissible limits. There should be a limit to the amount of rejects generated by the operator. This limit will depend on the technology adopted for processing. Also, transportation of the rejects should be the responsibility of the contractor.

38. The sustainability of solid waste processing plants depends upon regular sale of the compost / products. Under no circumstances, should municipal bodies take up the responsibility of such sale. Operator should have full rights to sell compost, energy or any other product obtained on processing the waste. The private operator could supply certain quantity of compost to municipal body for use in city gardens free of cost.

39. If a private operator is ready to process waste on his own land and at his own cost, there should be no objection to give such waste on 'First Come First Serve basis and without

any tenders. However, operators should transport waste at their own cost and process it legally / dispose it off. They should be given rights to bring limited quantity of rejected waste to the landfill site belonging to municipal body. At a later date if any private operator is ready to pay a royalty for the municipal waste, a condition enabling municipal bodies to collect similar royalty from previous operators can be included in the agreement.

40. Carbon credits may be a very attractive way to finance scientific processing of waste. Carbon credits are available under the Kyoto Protocol. If there is an uncertainty, the operator can be asked to do the necessary spade work. The municipal bodies may retain a clause in the agreement to share the benefits in case carbon credits become available in the future.

Consider option of having decentralised small centres

41. A large portion of the municipal budget on solid waste management is spent on waste transportation. Fragile city environment is degraded due to smoke from vehicles etc. Moreover, the transportation of municipal solid waste to the landfill site itself burdens the already critical road transport network in the cities. Therefore it is necessary to go for decentralized processing on waste wherever possible. 0

42. Each municipal body should attempt to process the waste closer to waste generation. Residual waste & rejects should only be transported to landfill sites.

43. Composting or biogas technology developed by BARC (in which Methane gas and fertiliser of high quality are produced) should be adopted. It is an ideal option for smaller municipal councils where 5-10 tons of waste is generated daily and one or two such plants can handle total amount of waste produced in the city. Consider following issues while setting up such projects:

a) Such projects should not be set up only on experimental basis. They should be able to process at least 20 to 40% of the total waste generated in the city.

b) Such projects should be set up in various localities in the city. Biogas projects should be set up in areas where consumers for the gas are available. Under no circumstances, electricity generation projects through this gas should be undertaken through municipal funds. These may be taken up only on BOOT basis.

c) Set up & execute such projects through a private operator. If this is not possible, then municipal bodies should set up the project and hand it over to Self Help Groups or private agencies for maintenance & management.

Action point 8 : Scientifically developed landfill sites for land-filling.

Availability of landfill site

44. Adequate land for landfill is required for disposal of rejects from the processed waste and hazardous waste. Municipal bodies should acquire proper & adequate land fill sites that would last at least for 25/30 years. An alternate site is to be acquired in case the present landfill site is not as per rules or is not adequate for the next 25/30 years. Government lands can be made available for this purpose free of charge. In case of non-availability of a suitable government land, the municipal bodies can purchase private lands for this purpose after obtaining the approval of the district collector.

45. Before acquiring new lands for landfill, groundwater and environmental survey should be done. The landfill site should be away from habitation clusters, forest, water bodies, protected monuments, wet lands and places cultural, historical and religious importance. It is also essential to get a clearance from the committee under the Chairmanship of the District collector and from Maharashtra Pollution Control Board (MPCB) before selecting the land fill site.

Development of the land fill site.

46. It is important to demarcate the area around landfill site as a buffer zone to prevent new developments around it. To avoid conflict as a later stage this must be done at the earliest and definitely before site becomes operational.

47. It will be essential to plan and develop the site properly.

48. Proper fencing of the landfill site is a must. A brickwall should be constructed from along the roadside or at places adjoining residential areas. Wire fencing should be done on rest of the sides. The landfill site must be enclosed and trees must be planted all around. There should be a room each for office/store and watchman's cabin along with toilet facilities & bathroom in the complex. Water facility should be available. If required a borewell / electrical motor and water tank can be provided. There should be facilities provided to monitor quality of air & water. Minimum lighting may be provided at the landfill site. A few tower lights rather than a large number of poles are definable. If electricity is not available nearby option of using solar energy can be explored. Provide roadssuitable for transporting waste through out the year to the landfill site.

49. It is not necessary that each small city should set up its landfill site. A group of small towns can operate a common landfill site. The site can be operated by one of the towns. It can charge the other towns tipping fees on the basis of rejects received for landfill.

Scientific landfill site for bigger cities.

50. As per the decision of Supreme Court / Guidelines under 12th Finance Commission, cities having population of 1,00,000 & above only need to develop a scientific landfill site.

51. The landfill site should be planned in a scientific manner. The site is required to have proper facilities for collecting the leachate from the waste during processing so that it does not contaminate the ground water. Also, development shall be done in a way not affect quality of air adversely.

52. Scientific development of landfill sites should be undertaken in phases considering quantity of solid waste generated in the city, instead of developing the full site at once. In the first phase, pits required for next 2 to 3 years should be developed. Once these pits are getting exhausted another portion of the land could be developed. Use the soil dig out of next pit to cover and close earlier pits in a scientific manner. Cover exhausted landfill with soil & plant trees on them.

Expected action till waste processing facility becomes available

53. Till such time a facility is set up to process the waste, consider simple bio degradation methods. Suitable chemical /culture can be used to increase rate of bio-degradation.
54. Existing open waste dumps in the city should be improved. Care should be taken to prevent monsoon water percolation through the heaps and its accumulation at the base. Waste heaps should be convex to eliminate standing water. Construct proper drainage, nalahs to collect leachate from heaps so that groundwater will not be polluted.
55. Under no circumstances, use pesticides at the processing site. Do not burn waste on the landfill site. Ensure that no animals/illegal persons enter the landfill site.
56. Close the landfill site, once it is exhausted. Cover with soil and plant trees once the scientific processing facility becomes available.

Action point 9 : Facilitate setting up of a common facility for Bio-medical waste.

57. The responsibility of management of biomedical waste lies on its generators. However, each hospital in the city and every medical practitioner cannot make individual arrangements for managing their biomedical waste. The technology to process biomedical waste is quite complex. It has to be updated from time to time and requires certification of competent authorities. The process is expensive and requires trained personnel. Therefore municipal bodies should not set up such facility on their own. Tenders should be called from operators to set up a common facility for the medical community in the city on Build, Own, Operate, Transfer (BOOT) basis. Consider following issues while selecting an operator on BOOT basis.

i) Since the facility is aimed to provide service to the medical practitioners, it must have their active involvement to run successfully. Since medical professionals are eager to get quality service, they can better monitor & control the operator. They will also encourage all the medical professionals to avail of the services from the operator and there will be no need for the municipal body to pressurize them for the same. Therefore an Advisory committee to guidance & supervision may be formed with the Medical Association, municipal body, Maharashtra Pollution Control Board and if needed the Collector as members. This committee may select & appoint the BOO operator.

ii) Operators should preferably set up the plant on their own land and also maintain suitable vehicle for transporting bio-medical waste and obtain necessary licence for it. It should be binding on them to obtain license from pollution control board and if not taken, there should be a provision for penalty. License for Bio-medical waste centre is valid for 3 years. Therefore agreements should be of short time span (3- 5 years)

iii) It should be binding for the Operator to provide services to all medical professionals in the city. They should have rights to collect bio-medical waste from nearby cities also. Wherever it is feasible, an exclusive right should not be given to one Operator to collect biomedical waste in the city. The possibility of more than one Operator should be explored. Competition can ensure better service at lower cost.

iv) Colour coded bags can be supplied by the Operator on cost basis. The generators should have an option to procure their own rule compliant bags. The Operator should be required to provide training to the hospital staff to segregate the biomedical waste as per rules.

v) An agreement should be signed between the Operator and the generators, so that it will be possible for waste generators to control the quality of the service provided by the operator. Municipal bodies can mediate between operators and generators. It can help operator to recover dues from the generators, as also help generators if the Operator does not give satisfactory services. Suitable penalty can be levied on the operator for not collecting the waste on time.

vi) The service charge for medical professionals should be based in a manner to encourage good practices. Rates should be charged on per bed basis. The payment should be on bed basis/fixed basis so that the generators does not have any incentive to minimize their costs by illegally selling / disposing off their biomedical waste through municipal bins.

vii) The municipal bodies should ensure direct collection of service charges by the operator. Municipal bodies should not collect the charges under any circumstances.

58. Instead of appointing separate operator, smaller cities / towns can enter into agreement with the operator appointed by an adjoining municipal body & enter in to a binding contract so that operator can not later withdraw his services. More than one adjoining cities can come together & select an operator to process bio-medical waste where no such nearby operator is available/willing.

Participation of the Private Sector

59. Involvement of the private Sector is essential for the effective management of the municipal solid waste. There is not a single city found in the survey done by the City Managers' Association of Maharashtra (CMAM), where effective management of municipal waste has been done through deployment of municipal staff alone. The local bodies face both financial and technical limitations to do so on their own. Participation of the private sector for carrying out the waste management activities is also essential since it has to be financially and economically viable.

60. The need for such participation from the private sector has been recognized both by the committee appointed by the Supreme Court and also by the 12th Finance Commission. The later has prescribed that 50% of its funds flowing to the municipal bodies would have to be spent for solid waste management activities through public private partnerships during the next 5 years. It is expected that processing of solid waste and door to door collection, segregation and transportation shall be undertaken by private agencies.

61. Such participation of private sector would have to be based on options such as Build, Own and Operate (BOO) or Build, Own, Operate and Transfer (BOOT) basis, depending upon the situation. Another option for the municipal bodies is to procure/buy machinery and engage contractor to operate it. The cost of maintenance, repair, manpower, fuel etc. should be borne by the contractor, and he will have to return the vehicles/equipments to municipal body, in good condition after expiry of the contract.

62. Consider private sector participation for the following facilities in Solid waste Management.

a) Involve private sector for collection of debris and waste from bulk waste generators, shops, hotels, restaurants etc. and its transportation.

b) Involve private agencies, voluntary organisations, NGOs, Rag pickers' groups for door to door waste collection and transportation.

c) If adequate sanitary workers are not available keeping in view the increasing population of the city, a comprehensive contract for certain locality/area of the city can be given to a private agency.

d) Projects like vermi-composting, biogas should be given to private agencies on BOT basis.

e) Scientific processing on waste, electricity/fertiliser production from waste and landfilling of rejects from processed waste should be done on private participation basis only.

f) Projects such as collection, transportation and processing of bio medical waste should be run on BOOT basis through private operators.

63. While involving private sector, make use of model tender documents, collected & distributed by City Managers' Association of Maharashtra in its CD for private sector participation.

64. Instead of handling plethora of smaller contracts, try to award comprehensive and performance oriented contracts. This will reduce the municipal council's administrative burden to a great extent.

65. Some of the cities have given such contracts based upon certain number of labor or trips to be made etc. This is an incorrect practice. With a view to make sure that the system works efficiently, it is essential that contracts be performance oriented or be output based. This could include keeping a given part of the city clean, collecting waste from various waste generators and disposing it off as per rules, processing of waste as to generate minimum reject. Contractor should be allowed to use various options acceptable as per the rules to provide contracted services.

66. It is important that the operator has a financial stake in the contract. Capital investment in tools & equipments and their maintenance should therefore be part & parcel of outsourcing. The operator has to recover the cost of assets provided and shall thus optimize investments and maintenance of assets.

67. The responsibility of compliance with the labor laws should be fully and squarely be that of the contractor. Municipal bodies must ensure that only contractors registered with labor department are engaged. This ensures that it is the responsibility of the contractor to provide necessary facilities to the workers as per the Contract Labour Act and other labor legislations. The contractor also should ensure payment as per Minimum Wages Act. Contractor cannot employ staff under 18 years of age. The workers must be given identify cards, as well as two sets of uniforms, gloves, mask, boots, raincoats, etc. The contractor

should keep the municipal body indemnified in respect of all claims and should insure all his workers as well as equipments.

68. There should be total transparency while awarding a contract. Guidelines issued by Government/Director, Municipal Administration on this subject should be strictly followed.

69. Wherever possible, contractor should be allowed to charge service fees directly from the waste generators. It should be seen that waste generators do not disobey the rules to save service charge. Municipal bodies should take care to pay the dues in time and avoid any uncertainty in this respect.

Importance of awareness creation.

70. A change in the community habits is essential for effective solid waste management. Awareness creation is extremely essential to make people realize their responsibilities such as not to litter waste except in the way prescribed by the municipal body. Segregation of waste & its disposal as per rules & cooperation with the municipal body for solid waste management in the city is required. Without this the idea of a clean and beautiful city will never become a reality.

71. Such type of awareness creation is especially needed for following components of the solid waste management chain:

i) Door to door waste collection system as per the norms prescribed by the municipal body.

ii) Decentralized processing of waste & its disposal.

iii) Enforcement that citizens should not litter anywhere in public places.

72. It will be essential to take the political leaders in city into confidence and involve community organizations during planning for solid waste management. While macro planning about storage & segregation of waste in city, a detailed plan of action should be published so that everyone is aware of it. Complimentary atmosphere should be created among the citizens to encourage them to reduce waste at source. Planning should be done involving NGOs and political leadership in the city. Such involvement is also required to appoint nuisance detection squads for monitoring whether execution is being carried out as per the declared plan or not, and also for setting up monitoring committees, etc.

73. The help of elected members, NGO, CBO, cultural clubs, voluntary organization and students of NSS/NCC, women groups and women workers and housewives should be taken for awareness creation. Ward wise committees of retired citizens, voluntary organization, youth groups should be formed.

74. Mass awareness should be carried out by conducting public meetings, group discussions, debates, competitions, workshops, rallies, showing documentaries, etc. Municipal bodies can organize rangoli competitions, essay competitions, debates, etc. Local news papers, cable TV and other media can also be used facilitate this process. Office bearers / citizens / officers / staff who have carried out excellent work in solid waste management must be rewarded through public functions. Movies, posters, handbills, documentaries, etc prepared on this subject by various municipal bodies can be used for this purpose.

75. Involve students from schools & colleges. Awareness campaign for handing over segregated waste can start from schools & colleges. School children could be made aware of the importance to keep their environment & habitat clean. They are the best messengers to take home the message of keeping the city clean & of segregation to their parents.

Financial Management

76. Solid waste management is the basic responsibility of municipal bodies and it is obligatory upon them to make available adequate financial resources for this activity.

77. It is essential that municipal bodies should estimate capital and revenue expenditure and provide for the same in their budget. Considering the financial capacity of municipal body, funds / capital required for this work can be raised through following options.

a) 56% of the total funds made available under 12th Finance Commission are to be spent on solid waste management.

b) Municipal bodies recover adequate service fees from waste generators.

c) Financial resources can be created through sale of by products generated through waste processing.

d) MLA, MP funds can be utilized for this purpose (Government Resolution No. SVK/2004/Desk 43/ 1445 dated 20th February 2004)

78. Considering that solid waste management is a long term activity, it has to be financially viable in the long run. It is essential that a monthly charge be recovered from all categories of waste producers. The bulk waste producers as well as generators of debris, commercial establishments, biomedical waste generators etc. can easily pay for the services. Service charges can be levied within the frame work of the bylaws passed by the municipal bodies for solid waste management.

79. It is estimated that it costs a city about Rs. 1 per day per household to efficiently manage the municipal waste. The charges could vary for different economic classes. For example, Rs. 20-30 can be charged from low income group, and Rs. 30-50 from high income group. To encourage segregation at source, 50% concession can be given to households giving segregated garbage and 75% concession to those giving only dry waste.

80. Voluntary organizations and private agencies should be allowed to collect service charge (at least part payment) directly from the citizens. This idea will help the citizens to keep a control on contractor's work. Municipalities can help by issuing authority letter. Another alternative is that local body can pay a higher amount to the agency for the initial period and this amount can be reduced progressively every month, during which period the contractor will be able to convince more & more people to pay as a result of good quality service provided by him. Public representatives should take initiative to convince people the requirement of paying charges for this work. Local corporations can convince people for paying service charges.

Put proper Administrative structure in place.

81. Usually, Health Officers look after solid waste management. They have other responsibilities too. Besides, their understanding of the mechanical equipment deployed to handle municipal waste is at best limited. They are assisted by sanitary inspectors with a limited understanding of the subject.

82. It is the statutory responsibility of municipal body to dispose off solid waste in a scientific manner. The service is also required to be provided over a long period of time and in fact as long as the city lasts. While initially, external assistance can be obtained either through a state level cell or through the engagement of an external agency, the in-house expertise has to be built up, sooner rather than later. In order to provide sustainable, effective and economically viable service, each municipal body should have such trained staff / officers who can handle the municipal waste in a cost effective manner. Each municipal organization needs trained Environment Engineers who are knowledgeable about development of landfill area, machinery & vehicles, as well as Social Welfare Officer/Public Relations Officer to involve people through awareness campaign. Suitable posts should be created & recruited the required staff after following proper methodology.

83. Staff / officers appointed for solid waste managements should have thorough knowledge on this subject. They should have expertise to plan solid waste management activity properly, to obtain participation from people through awareness campaigns, to involve private sector as per the requirement, to keep control on private agencies and continue to improve the systems on a continuous basis. Such ability will be required for day to day monitoring of the work also. Therefore, municipal employees should be given adequate training about advanced solid waste management techniques.

84. Cleanliness of the city/implementation of law will ultimately depend upon sanitary workers. Therefore municipal bodies should arrange to provide, its sanitary workers suitable training on this subject. Such type of training is given by Yashada at Sangli-Miraj-Kupwad & Pune Municipal Corporations and excellent results have been achieved by it.

85. Solid waste management cell has been established (for capacity building) in All India Institute of Local Self Government in Mumbai. This institute organizes workshops and discussions at state, divisional, district and city levels and offers proper technical advice and guidance to municipal bodies. City Managers' Association of Maharashtra has made available an implementation program and guidelines for private participation in the 'Compendium of Best Practices in Municipal Waste Management.' These should be used to guide the employees.

Monitoring & review

86. A time bound program is expected under Municipal Solid Waste (Management & Handling) Rules 2000, from each municipal body. The responsibility for implementation lies with the Municipal Body, its senior officers as well as the President/Mayor.

87. The reporting/MIS system for the Action Plan specified in Para 1 of this resolution (Form 1 to 7). These forms are to be filled on a monthly basis by the Chief Officer/Municipal Commissioner. Municipal councils are required to send the prescribed forms to the Collector. The Municipal Commissioners may review the matter at their own level every month. A quarterly report may also be submitted to the Commissioner of Municipal Administration.

88. The District Collectors shall call meetings of Chief Officers, every month and review the situation and will send progress report regarding this issue to the Commissioner of Municipal Administration by MIS report, every month. The Divisional Commissioners shall review this issue in the quarterly meeting.

89. The Commissioner, Municipal Administration shall review the work during each quarter & submit a comprehensive report to the Government on a quarterly basis. Division wise names of three Municipal councils that have carried out excellent work and names of three municipal councils that have not done good work (along with the reasons for not doing so) shall be indicated in this report. Similarly, names of three municipal corporations carrying out excellent work in state and three municipal corporation showing least progress will be mentioned. Principal Secretary (UDD-2) will hold a quarterly meeting to review the measures taken to improve the work of solid waste management.

Further guidance and improvement

90. Commissioner and Director Municipal Administration shall issue additional instructions from time to time for effective solid waste management. Steps should be taken to make available training as well as experts/consultants at the divisional level to guide municipal bodies, with the funds available under the 12th Finance Commission. This can be done through All India Local Self Government, Mumbai and/or City Managers' Association of Maharashtra.

91. Commissioner & Director, Municipal Administration shall also prepare required guidelines / model agreements needed for involving private agencies for solid waste management. Help of All India Institute of Local Self government, Mumbai and City Managers' Association of Maharashtra be taken for this purpose. He should also prepare a Document of Best practices on this subject every year.

92. Changes/modifications required to be made in these instructions if any should be issued by Commissioner & Director, Municipal Administration, from time to time.

By order & name of the Governor of Maharashtra

(Dr. J. M. Phatak)
Principal Secretary
Urban Development Department
Government of Maharashtra

Copy to:

1. Secretary, Water Supply & Sanitation Department, Mantralaya, Mumbai 32.
2. Senior Adviser, All India Institute of Local self Government, Andheri, Mumbai.
3. Director, Municipal Council Administration Directorate
4. All Divisional Commissioners.
5. All District Collectors.
6. Commissioners, All Municipal Corporations.
7. Chief Officers, All Municipal Councils.
8. All Under Secretary, Section Officers, Urban Development Department.
9. Personal Assistant to Principal Secretary / Secretary (Urban Development)

