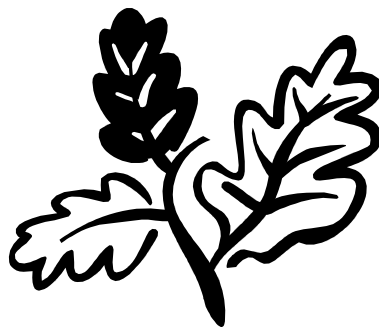


MUNICIPAL CORPORATION OF GREATER MUMBAI
SOLID WASTE MANAGEMENT DEPARTMENT

INFORMATION OF
SOLID WASTE MANAGEMENT
DEPARTMENT UNDER SUB SECTION 4(1)(b)
OF CENTRAL GOVERNMENT'S
RIGHT TO INFORMATION
ACT-2005



Manual – I

The particulars of organization, functions and duties;

(Revised up to 31.03.2015)

MANUAL - I

One) Functions, duties and other particulars of Solid Waste Management Department

Mumbai is the 'Urbs Prima' of India and capital of Maharashtra State. Alongwith Maharashtra State, it is an industrial, financial and commercial capital of India. Mumbai is the nerve Centre of trade, commerce and industry in not only India but also South-East Asia in particular and Asia in general.

The geographical pervasion of Mumbai City is from Colaba to Dahisar in Western Suburbs and from Colaba to Mulund in Eastern Suburbs and same is termed as Brihanmumbai. As per census of year 2011, the population of Brihanmumbai is approx. 1crore 25 lakhs and floating population is 30 lakhs. The area of Brihanmumbai is 437 sq.km. out of which area of city division is 68.71 sq.k.m., area of western suburbs is 210.54 sq.k.m. and area of eastern suburbs is 158.46 sq.k.m. The density of population in City area varies from 46,000 per sq.k.m.. The density of population in suburbs per sq.k.m. is about 20,000. The total length of roads in Brihanmumbai is 1941 k.m.

The day to day administration and rendering of public services within Greater Mumbai is provided by Brihanmumbai Mahanagarpalika. Brihanmumbai Mahanagarpalika is an local self government body of 227 elected councillors on a five years term. The Corporation discharges it functions and duties as per the various provisions of the Mumbai Municipal Corporation Act, 1888(amended till date). The civic administration comprises of following 9 Statutory authorities :-

- a) The Corporation.
- b) The Standing Committee.
- c) The Improvement Committee.

- d) The B.E.S. & T. Committee.
- e) The Education Committee.
- f) The Ward Committees.
- g) The Mayor
- h) The Municipal Commissioner.
- i) The General Manager of B.E.S. & T.

The above mentioned committees are constituted through the elected Corporators and are responsible for taking decisions on the respective subjects pertaining to them.

As per the section 365 to 373 of Chapter No.15 of MMC Act, Mumbai Mahanagarpalika performs obligatory / discretionary duties out of which Solid Waste Management Department performs following obligatory duties as per the provisions under Section 61 (A) & 61 (C) of Mumbai Municipal Corporation Act, 1888:-

- a) street sweeping
- b) collection of solid waste including temporary storage.
- c) removal and transportation of collected solid wastes.
- d) disposal of solid wastes.
- e) disposal of dead bodies of animals.
- f) cleansing of public streets.

The Solid Waste Management Department is headed by the Chief Engineer [SWM] Conservancy, Operation, Planning and Transport Sections of S.W.M. and being head of Environmental Departmental, Dy. City Engineer [Civil] Environment Deptt. comes under his control. He functions under the control of Dy. Muni. Commissioner(SWM) / Addl. Muni. Commissioner (City)/ Hon'ble Muni. Commissioner. The Chief Engineer [SWM] is assisted by 5 Dy. Ch. Engrs., 22 Ex. Engrs, 58 Asst. Engrs., 90 Sub. Engrs., Junior Engrs. 37 and other supporting staff of Transport such as 4 Ex. Engrs, 8 Asstt. Engrs, 16

Sub Engrs, 40 Junior Engrs and a Head Supervisor, 8 Dy. Head Supervisor, 30 Asstt. Head Supervisors, 65 Supervisors, 636 Junior Overseers, 2312 Mukadams and 28,018 Labour Staff on the conservancy side. The area of entire Mumbai is divided into 24 Administrative Wards. Each Ward is placed under the control of one Asstt. Comm. As far as giving services of Solid Wastes Management is concerned, such as day to day removal and transportation of municipal solid wastes in ward, Asstt. Engrs(swm), Asstt. Head Supervisor and other staff below him upto labourers, work directly under the control of Asstt. Comm. who is responsible for the same. The total staff strength of conservancy section of SWM Deptt. is about 29,500 in various categories including administrative wing, 4181 of Transport Section and 169 of Dy.City Engineer [Civil] Environment Section.

Generation of garbage in Brihanmumbai

The per capita generation of waste in Mumbai is about 450 gms. per day. The wastes are in form of garbage, debris, silt removed from drains and nallahs, cow-dung and also waste matters removed from common house gullies or inaccessible narrow lanes between old buildings. Quantity of solid waste generated within Greater Mumbai It is broadly classified as 6472 MTPD of biodegradable waste, 532 MTPD of Recyclable waste, 1507 MTPD of inert matter, 734 MTPD of construction waste & silt.

The sources of generation of wastes are :-

- 1) House hold wastes.
- 2) Commercial wastes.
- 3) Hotels & restaurants' wastes.
- 4) Market wastes.
- 5) Institutional wastes i.e. schools, offices. Hospitals etc.
- 6) Construction wastes such as earth, stones, sand etc.

- 7) Street sweeping.
- 8) Trade wastes.
- 9) Silt removed from cleaning of drains, nallahs.

The composition of solid wastes in Mumbai is as under (by wet weight) :-

1) Papers, earth and cardboards	:	04%
2) Plastics	:	03%
3) Metals (ferrous) and Glass	:	03%
4) Sand & fine earth	:	17%
5) Compostable matters.	:	53%
6) Market Waste	:	20%

Street sweeping & collection of wastes :-

To maintain good health of Mumbai City & citizens, role of Solid Waste Management Department in Corporation's administration is vital important and therefore, responsibilities of the department are required to be carried out quickly and effectively with full dedication. All the public roads in Mumbai are swept every day. This gigantic task is carried out in areas manually only in beat system. The beat area in City is around 4000 to 5000 sq. mtr. and in suburbs it is 8000 to 10,000 sq. mtr.. A pair of sweepers for each beat does the street sweeping. The activity is carried out in two shifts; from 6.30 a.m. to 1.30 p.m. & from 2.00 p.m. to 8.00 p.m. The pair uses a wheeled dustbin (Easy Bins) for this purpose. This container is of 120 Ltrs. and 240 Ltrs. Capacity & waste collected in these containers is deposited in nearby community dustbin or directly in to vehicles.

Collection & temporary storage of solid waste :-

Almost 78% population is covered under house-to-house collection system and 22% of population of Greater Mumbai is served by the community bin collection system. There are about 3055 public places where dustbins of different designs & fabrications are provided. The particulars are as under :-

1) 1.1 cubic meter containers	6108 nos.
2) 5.2 cubic meter containers	325 nos.
3) Stationary Compactors	56 nos.

Removal and transportation of solid waste

For removal and transportation of municipal solid waste, the Corporation employs manual and mechanical means. This work is also done using private contractor's labour and vehicles alongside municipal labour and vehicles. Though the vehicles of both Corporation and private Contractors are used for removal and transportation of garbage, majorly Municipal labours are engaged in this work. However, for lifting debris, silt etc. Contractors' vehicles or their vehicles and labours are used.

Types of various vehicles used for collection of transportation of municipal solid waste

	<u>Municipal</u>	<u>Private</u>
1) Tipper	98	--
2) Tractor- Trailer	12	--
3) Refuse- collector- compactors	117	634
4) Refuse- collector- compactors	38	456
5) Dumper- placers	84	--
6) Small Closed Vehicle	--	325
7) Stationary compactor	56	--

8) Prime Mover	12	5
9) Silt & Debris Dumpers	--	54
10) Bulk Refuse Carriers	--	33
11) Dry Waste Tempos	--	46

Removal and transportation of garbage is done mainly in two shifts i.e. from 6.30 a.m. to 1.30 p.m. and from 2.00 p.m. to 8.00 p.m. However, if the situation so warrants, the vehicles are deployed in night shift also. The removal and transportation of debris, silt etc. is done only in general shift i.e. from 8.00 a.m. to 5.00 p.m. Maximum municipal vehicles are of closed and hydraulic tipping type but the contractor's vehicles are of open body and are of tipping type. The contractors are appointed on five years term on the basis of per vehicle shift and per trip. The Corporation operates 4 refuse transfer stations. One in City area at Mahalaxmi, second in Eastern suburbs at Kurla and third & fourth in Western Suburbs at Versova and Gorai. All these four transfer stations handle about 700, 750, 350 and 450 M.T. garbage respectively per day. The transportation of the garbage from the transfer station is done by using 15 to 20 cubic meter capacity trailer and bulk refuse carriers. The Corporation does the work of operation and maintenance of the municipal vehicles through network of transport garages. As per the practice followed for removal and transportation of garbage, 6 or 4 municipal labours and 1 mukadam are deployed on each Municipal/Contractor's compactor vehicle.

The Bio-Medical Waste generated by the Hospitals, Nursing Homes, Maternity Homes, Test Laboratories, Clinics and Dispensaries in the City and by Municipal Hospitals is estimated as 7 M.T. and 5 M.T. (per day), respectively. 12 M.T solid waste is transported and disposed off daily by M/s. SMS Envoclean (P) Ltd at Deonar where incineration facility is provided. These treatment facilities will be equipped with autoclave and shredder machines to deal with different categories of bio-medical waste.

Disposal of Municipal Solid Waste :-

The various methods adopted for disposal of Municipal Solid Wastes in Mumbai, are as under :-

- A) Processing to produce organic manure.
- B) Vermiculture / composting project.
- C) Landfill.

The waste is collected all over Mumbai city is disposed some part of its wastes is disposed off through environment friendly, natural process known as vermiculture. By this method, 3 % waste is disposed at various sites in city per day mainly collected from hotels and housing society's.

Integrated Solid Waste Management Projects :

In order to process MSW Scientifically MCGM has undertaken Integrated Solid Waste Management Projects at Deonar Dumping Grounds & Mulund Dumping Grounds and Kanjur Landfill Site as per MSW (M & H) Rules 2000. Brief description of these projects are as follows:

Deonar Dumping Ground:

Deonar dumping ground site has been handed over to the private operator M/s.Tatva Global Environment (Deonar) Ltd. in December 2009 to implement project activities at the site. Project mainly consists of i) Partial Closure of 65 hectares area and ii) Site Development Work in the remaining 55 hectares area. Partial Closure work comprises of shifting of scattered MSW to the partial closure area, reformation of the slope, etc. Site Development Work includes construction of boundary wall, Site bunds, administrative building, approach road, internal roads, lighting system, water supply etc. It also covers erection and commissioning of two modules of waste to compost plants each of capacity 1000 TPD (tones per day). Also, two leachate treatment plants are being erected at sanitary landfill site to prevent polluting of creek water and to protect mangroves.

Following are the measures being taken to have effective control over environment status in and around Deonar.

1. Private operator carries out spraying of herbal based deodorant regularly to suppress the foul smell on the surface at the time of disposal of MSW. Sporadic incidents of fire/smoke nuisance caused by the combustion on account of methane emission, is controlled by deploying fire fighters & water tankers.
2. Air Quality Monitoring & Research Laboratory, Khar of MCGM conducts environmental monitoring each month to have effective control over environment status in and around Deonar site. This keeps check on ambient air quality by measuring gases like sulphur dioxide, nitrogen dioxide, carbon monoxide, hydrogen sulphide, ammonia, methane, etc. The quality of surface water is also monitored by checking the parameters like pH, suspended solids, BOD, colour, odour, etc. Similarly, noise level is also monitored to keep tab on noise pollution and to reduce noise levels at the site.
3. In order to protect mangroves and prevent pollution of the creek adjacent to dumping site, erection of leachate treatment plant is included in the said project.
4. The commissioning of 2000 TPD waste to compost facility and its subsequent regular operation will enable to process all the 2000 TPD of MSW.

After the successful completion of the project, the pollution in the locality will decrease and people of the nearby localities will benefit from the health point of view.

Mulund Dumping Ground:-

A bio-methanation plant is proposed to be installed in Mulund Dumping Ground for generation of about 6.9 MW of electricity from 500 MTPD hotel and market waste. The concessionaire has started preparatory work like survey of dumping ground, etc. A 4 hector land for Bio-methanation plant is made available. To abate the nuisance of foul smell, insects, incidents of fire and control of smoke in the dumping grounds, MCGM has provided adequate number of water tankers and tractors mounted with spraying mechanism at each dumping grounds to spray water mixed with disinfectants of eco-friendly quality, which have given good results. Spraying is done on refuse vehicles at check posts to control smell in the interest of public health. Similarly, gas-venting pipes have been provided in the dumping grounds, because of which fire incidents have been reduced considerably.

Kanjur landfill Project:-

As per orders of Hon'ble High court and Supreme Court, the Government of Maharashtra handed over a plot admeasuring 141.77 hectares excluding forest area at Kanjur to MCGM in October 2005 for developing MSW landfill site. Thereafter considering mangroves area and CRZ area the available land for project work is 65.96 Ha. On the recommendation of technical appraisal committee of Central Pollution Control Board in its meeting held in July 2011 Maharashtra Pollution Control Board gave the authorization under MSW (M&H) Rules 2000 in October 2011. Revised Environmental Clearance for the project is received from SEIAA on 05.12.2014. Erection of 1000 MT capacity windrows compost plant is in progress. Receiving of MSW in Bioreactor Landfill Cell-1 is started from 06/03/2015.

Future Plans :-

1. In order to fulfill MSW (M & H) Rules 2000, MCGM is in the process of setting up of 2 nos. waste to energy plants of 1000 TPD capacity

each with help of Finance Ministry of GoI. Presently, 2 projects are at RFQ (Request For Qualification) stage for generation of electricity from MSW. Each project has 2000 TPD capacity. Every Project is based on DBFOT basis. In future, 3000 MT (approx. 40% of daily MSW) generated within Mumbai will be disposed off and consequently energy will be generated.

2. It is further to state that emphasis is being given on decentralization of waste processing plants. Accordingly, Expression of Interest (EoI) for decentralization of processing plants of MSW has been processed & scrutiny of the same is in progress.
3. As dumping sites of Deonar & Mulund is about to reach saturation point; Hon'ble M.C. has requested in January 2015 to State Govt. to allot plot of land at Taloja for the waste processing of MSW. GoM is in the process of handing over land at Taloja to MCGM for solid waste disposal and processing facility.

Zero garbage concept:-

Corporation plans to implement the concept of zero garbage by-

1. Segregating, recycling and composting of MSW.
2. Encouraging vermiculture within the residential complexes.
3. Diverting the vegetable market waste to gardens for vermiculture.
4. Employment of rag pickers for house-to-house collection of waste and also for vermiculture with the help of NGOs/CBOs.
5. Development of landfill site and plantation.
6. Processing of about 43 MTPD of market waste at 24 sites by vermi-composting, which is environment friendly natural process.

Removal of dead animals :-

As per the provisions of Section 385 of the Mumbai Municipal Corporation Act, 1888, the Municipal Commissioner has to arrange for collection, removal and disposal of carcasses of animals dying within Greater Mumbai Limits. The Municipal Commissioner is further empowered to charge a fee for the removal of carcasses from the owners who own the dead animals or whose premises the dead animals are removed.

Though this is the obligatory duty of the Corporation, the Corporation has no suitable site and plant for the disposal of carcasses. Hence, the right of collection, removal and disposal of carcasses is awarded to the private agencies on contract basis. The agencies so appointed is allowed to recover removal fee from the owners of carcasses of dead animals as per schedule prepared by the Commissioner. M/s Bombay Khadi & Village Industries Board are appointed as contractors for last more than 20 years. This work is entrusted to them taking into consideration the following factors :-

- A) The Association has built up a dry rendering plant for the work of disposal of carcasses at Bapne Village in Thane District and installed machinery for this work with the help of the Food & Agriculture Organisation. To keep the plant working, the Association depends upon the Corporation for raw material in the form of carcasses.
- B) The Association has the privilege of working in this field in the past. They have an assurance from the Food & Agriculture Organisation of the United Nations Organisations for procuring equipment and technical know-how free of cost on the condition that the Association will obtain the required number of dead animals from the Municipal Corporation.
- C) The Association working on “No Profit No Loss” basis for the upliftment of village industries and the benefit accrued by them goes to the masses living in that area.

D) As per the provisions of the Section 385 of Mumbai Municipal Corporation Act, 1888, it is necessary for the Corporation to direct the land for the disposal of dead animals. However, at present there is no suitable single site in possession of the Corporation. The site, for the disposal of dead animals of the Association is situated beyond the Greater Mumbai limits at Bapne Village in Vasai Taluka, District Thane and it is found that this place is suitable for the disposal of dead animals.

Future plans for Environmental Balance :-

From the action plan, which is being implemented by the civic authority, it will be observed that though adequate measures are taken to control the overall cleanliness, much is needed to be considered for likely imbalance of the ecology and environment due to disproportionate generation of garbage and limitations of human beings. To maintain the environmental balance within permissible limit for the Mega City of Mumbai continuous efforts will be necessary. Shortage of dumping grounds in a City like Mumbai and substantial increase in the slum localities is posing with challenges before the civic administration to deal with the problems in relation with to the generation and disposal of garbage.

M.C.G.M. has been taking up various campaigns for past 3 to 4 years with the ideology of educating the citizens and emphasizing on convincing the importance of cleanliness for their own health and hygiene. Introduction of such cleanliness campaigns have shown positive results and as such, in the recent times the cleanliness campaigns have been launched on permanent basis. All the efforts are put to motivate and encourage the municipal workers to enhance their own inherent efficiencies for greater productive output, whereas the citizens through the elected City Councillors are taught about awareness and of their involvement in such campaigns. Such objectives can only be accomplished with the help of the citizens. As such, many NGOs and the “Advance Locality

Management Schemes” are inducted. The participation of citizens and their zonewise forums have yielded assertive signs for a significant improvement. Imposition of penal actions on the citizens for littering, squatting, spitting etc. has been strengthened and these campaigns that are aimed for the citizens has given lot of impact.

Many schemes in different manner have been put on its anvil that are asserted to take shape for its completeness gradually in a period of 2 years. This scheme as envisaged and comprises of segregation of the dry and wet waste at the source of generation itself, vermi-composting, part of the segregated garbage to attribute partly for beautifying areas. Development of the dumping grounds for enhancing the capacities of landfill sites by introduction of “Waste-To-Energy Plants”, adopting the mechanization towards sweeping and collection of garbage, introducing “House to House Collection” and prominently transporting the garbage during night hours. It will be worth to mention that the slum areas do not stand neglected from the above mentioned schemes in addition to increase in the facilities for the citizens in the form of public sanitary conveniences (PSCs) in perfect proportion to the increase in population.

Optimization with the optimistic approach imposes the confidence in the civic administration to meet the projected and formulated targets for maintaining the environmental plans towards health and hygiene of the citizens of Mumbai.

Advance Locality Management (A.L.M.) :-

The ALM concept envisages great involvement and interaction of MCGM with neighborhood groups in the Wards. These groups form the A.L.M. Street Committees, and co-ordinate with the respective ward office for a better

management of civic related issues e.g. garbage, street adoption etc. At present there are about 719 A.L.Ms.

Under A.L.M. some small steps are to be taken as follows :-

1) REDUCE the waste generated and what is generated should be reused and recycled. This step is more applicable to dry (packaging) wastes.

2) STORE the wet and dry wastes in containers of choice e.g.bins, bags, drums etc. prior to disposal.

3) DISPOSE off the separately stored wet and dry wastes through separate channels of convenience. Dry waste is disposed through scrap dealer, rag pickers and sweeper. In few A.L.Ms composting is done. About 5 tonnes of biodegradable waste is composted per day.

Raste Swacchata Yojana :-

For cleaning unserviced area; especially in suburbs and newly developed areas of Mumbai, “Raste Swacchata Yojana” is being implemented by the Corporation. Under this campaign, cleansing work is being given to registered co-operative societies initially for a period of 7months.

Swachha Mumbai Prabodhan Abhiyan :-

Slum sanitation programmed is closed and Swachha Mumbai Prabodhan Abhiyan program is started from April 2013. For maintaining the health and hygiene of citizens residing on slum's, Solid Waste Management Department was implementing Dattak Vasti Yojana for providing cleanness.

Dattak Vasti Yojana was discontinued from 31.03.2013 and new scheme under Swach Mumbai Prabodhan Abhiyan (Vasti Swachata Yojana) was started by Solid Waste Management Department from 01.04.2013. At slum colonies in Mumbai and suburban were M.C.G.M. cannot provide regular cleanness services by its own staff. In this scheme a unit is made of 150 families

of 750 population. For implementation of this scheme monthly allowance is provided on per unit basis. Accordingly for one unit an allowance of Rs. 5400/- per month and for the organization an addition allowance of Rs. 600/- per unit has provided for carrying out activity's like awareness, public participation and a conducive environment for the scheme. For this a provision of Rs. 80 crores is made in the budget of 2013-14.

In this scheme eligible organization is awarded area of minimum 5 units and maximum 18 units. For implementation of scheme, a group of such units is termed as vasti. The above scheme is implementing in all 24 wards of M.C.G.M.

Byelaws :-

“Greater Mumbai Cleanliness & Sanitation Buelaws, 2006” are framed under Section 461 (ei) of Mumbai Municipal Corporation Act, 1888 for regulating all matters and things connected with the collection, removal and disposal of solid waste. Maharashtra Government has given approval to these byelaws and same are published under No.BMC/2326/4074/C.R.238/06/UD-21 dtd.14.12.06 through Gazette. Continuous efforts are being made by the Corporation to keep the health of citizens unaffected by keeping the areas of Mumbai City and suburbs clean. For the said purpose, people are convinced about importance of cleanliness through various medias and by creating consciousness in them various measures, schemes are implemented. For this, participation and co-operation of the people, Hon'ble individuals, councillors, various government / non-government organisation is being taken. Appointment of Nuisance Detectors Squad is made to take penal action on the nuisance creator who creates nuisance by creating uncleanliness at public places. To do this work more vigorously and effectively “Greater Mumbai Cleanliness & Sanitation Byelaws, 2006” are framed. It is necessary and mandatory for each

citizen to follow the rules of these byelaws. Those citizens who violates these rules and will be eligible for punishment as per the schedule attached with these Byelaws. Implementation of these Byelaws is started though “Clean-up Marshals” w.e.f. 15.11.2007 effectively.

Sr. No.	Byelaw No.	Sub-division / Description of Byelaw	Amount of Fine applicable for breach of Byelaw
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Byelaw No. 4.1: Littering, Creating Nuisance and Clean Aangan

1	No.4.1 to 4.4	Littering on roads / streets	Rs. 200
2	No.4.5	Creating Nuisance, Spitting	Rs. 200
3		Bathing	Rs. 100
4		Urinating	Rs. 200
5		Defecating	Rs. 100
6		Feeding animals/birds in non-designated areas	Rs. 500
7		Washing vehicles	Rs. 1000
8		Washing utensils / clothes / any other object	Rs. 200
9	No.4.6	For not maintaining Clean Aangan: for a) for owners / occupiers of single premises b) for others	Rs.1000 Rs.10000

Byelaw No. 5 : Segregation, storage, delivery and collection

10	No.5.1 and 5.2	For delivering waste that is not segregated and stored as specified in separate bins: a) individual b) bulk generator	Rs.100 Rs.500
11	No.5.3	For not delivering bio-degradable waste in a segregated manner as specified	Rs.100
12	No.5.5	For not delivering specified hazardous waste in a segregated manner as specified Individual Bulk	Rs.1000 Rs.10000
13	No.5.6	For not delivering biomedical waste in a segregated manner as specified	Rs. 20000
14	No.5.7	For not delivering Construction and Demolition waste in a segregated manner as specified	Rs. 20000

15	No.5.8	For not delivering “dry” waste in a segregated manner as specified	Rs. 100
16	No.5.9	For not delivering garden waste and tree trimmings as specified	Rs. 100
17	No.5.10	For disposal of waste by burning	Rs. 100

Byelaw No. 7: Specific Categories / Situations

18	No.7.2	For not delivering (non-household) fish, poultry and meat waste in a segregated manner as specified	Rs. 1000
19	No.7.3	a)For a vendor / hawker without a container / waste basket b) For a vendor / hawker who does not deliver waste in a segregated manner as specified	Rs. 500 Rs. 500
20	No.7.4	For not keeping a house gully clean	Rs. 200
21	No.7.5	For littering by pet / owned animals	Rs. 500
22	No.7.6	For not cleaning-up after public gathering / event within 24 hours	Forfeiture of the Cleanliness deposit
23	No.7.8	Uncleanliness due to Car/vehicles parking on the road at the sweeping	Rs. 500
24	No.7.10	Sticking of posters Banners, hoardings.	Rs. 500 to Rs. 5000