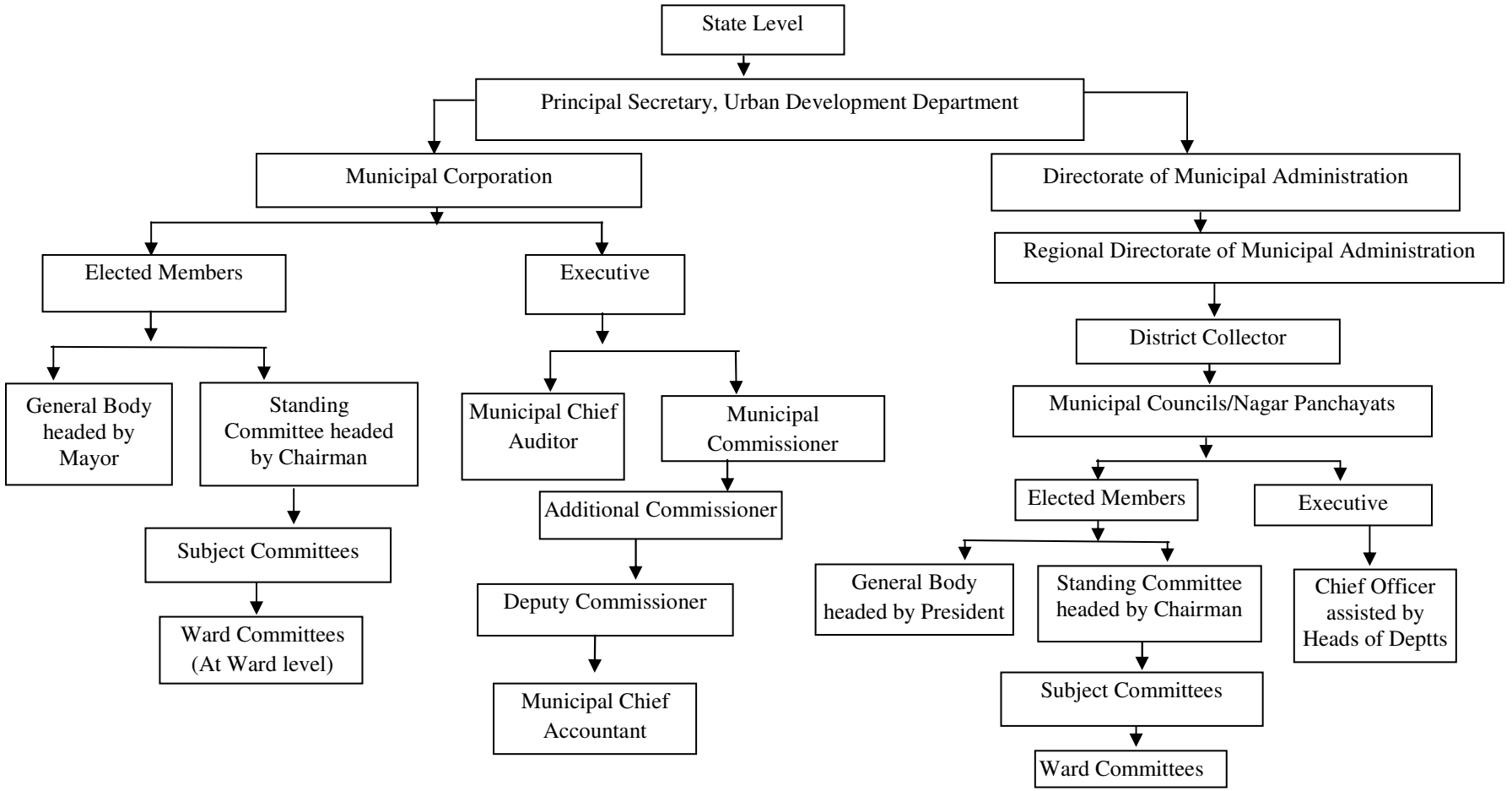
APPENDICES

Appendix-3.I
(Reference: Paragraph 3.2.1; Page 23)
Organisational Structure



Appendix-4.1
(Reference: Paragraph 4.1.5.4; Page 39)
Position of Budget Provision, Expenditure Incurred and Unutilized Fund out of Municipal Solid Waste Budget in respect of the Selected Municipal Corporations

(₹ in crore)

Name of the Municipal Corporations	Particulars	2011-12	2012-13	2013-14	2014-15	2015-16	Total/ (*per cent*)
Amravati	Budget	33.17	57.04	27.49	34.73	73.98	226.41
	Expenditure	15.22	19.92	30.88	23.18	54.22	143.42
	Unspent Budget	17.95	37.12	-3.39	11.55	19.76	82.99 (37)
Kalyan-Dombivli	Budget	83.08	78.01	85.54	92.14	108.00	446.77
	Expenditure	76.60	76.51	83.31	91.34	94.15	421.91
	Unspent Budget	6.48	1.5	2.23	0.8	13.85	24.86 (6)
Kolhapur	Budget	29.94	29.62	37.02	36.24	37.05	169.87
	Expenditure	24.23	26.65	29.20	32.88	34.15	147.11
	Unspent Budget	5.71	2.97	7.82	3.36	2.9	22.76 (13)
MCGM	Budget	463.57	617.82	705.93	809.81	797.09	3394.22
	Expenditure	314.23	404.70	496.65	547.76	649.17	2412.51
	Unspent Budget	149.34	213.12	209.28	262.05	147.92	981.71 (29)
Nagpur	Budget	21.28	23.01	31.51	50.31	44.25	170.36
	Expenditure	25.56	29.52	30.75	36.89	44.58	167.3
	Unspent Budget	-4.28	-6.51	0.76	13.42	-0.33	3.06 (2)
Pune	Budget	213.61	249.82	281.71	281.83	379.49	1406.46
	Expenditure	213.61	209.67	258.85	223.26	260.43	1165.82
	Unspent Budget	0.0	40.15	22.86	58.57	119.06	240.64 (17)
Thane	Budget	114.96	137.49	151.17	173.80	188.41	765.83
	Expenditure	109.91	126.92	138.16	148.18	167.51	690.68
	Unspent Budget	05.05	10.57	13.01	25.62	20.90	75.15 (10)

Source: Information furnished by the MCs

Appendix-4.2
(Reference: Paragraph 4.1.6; Page 40)
Details of Compliance of various Parameters in the Municipal Corporations

Parameters	Particulars	Amravati	Kalyan-Dombivli	Kolhapur	MCGM	Nagpur	Pune	Thane
Average Generation of MSW	Per day in MTD	228	594	162	9230	785	1505	691
Collection System	Houses/ Residential complexes	1. Independent houses: - Door to Door collection. 2. Multistoried buildings :- gate to gate	1. Independent houses: - Door to Door collection. 2. Multistoried buildings :- gate to gate	1. Independent houses: - Door to Door collection. 2. Multistoried buildings :- gate to gate	1. Independent houses: - Door to Door collection. 2. Multistoried buildings :- gate to gate	1. Independent houses: - Door to Door collection. 2. Multistoried buildings :- gate to gate	1. Independent houses: - Door to Door collection. 2. Multistoried buildings: - door to door as well as gate to gate collection.	1. Independent houses: - Door to Door collection. 2. Multistoried buildings :- gate to gate
	Arrangement for door to door collection (No. of Vehicles)	Using Ghanta Gadi of the MC (485)	Using Ghanta Gadi of the MC (64)	By using Tricycles of the MC (310)	Using Ghanta Gadi of the MC (382) and Pvt. Contractor (1246)	By using Ghanta Gadi of the Pvt. Contractors (743)	Using Ghanta Gadi of the MC (297). Engagement of a Co-operative Society (SWaCH)	Using Ghanta Gadi of the MC (44) and Pvt. Contractor (161)
	Arrangement for collection from Slums and squatter area	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection
	Arrangement for collection of Hotels waste	No separate vehicles deployed	Separate vehicles deployed	Separate vehicles deployed	Separate vehicles deployed	No separate vehicles deployed	Separate vehicles deployed	Separate vehicles deployed
	Arrangement for collection of waste from Fruit and Vegetable markets	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection	Bins provided for collection

Parameters	Particulars	Amravati	Kalyan- Dombivli	Kolhapur	MCGM	Nagpur	Pune	Thane
	Arrangement for collection of Biomedical waste	Available except six nursing homes	Available	Available	Available except 83 nursing homes	Available	Available except 17 nursing homes	Available except 52 nursing homes
	Arrangement for collection of waste from slaughter house	No separate vehicles deployed	Separate vehicles deployed	No separate vehicles deployed	No separate vehicles deployed	No separate vehicles deployed	No separate vehicles deployed	Separate vehicles deployed
	Arrangement for collection of Construction and Demolition (C & D) waste	Separate vehicles not provided	Separate vehicles not provided	Separate vehicles provided	Separate vehicles provided	Separate vehicles provided	Separate vehicles provided	Separate vehicles provided
Segregation	At household level	Does not exists	Does not exists	Does not exists	Partially exists	Does not exists	Partially exists in 42 *per cent* households	Does not exists
	At any other level by MC	Does not exists	Does not exists	Does not exists	Does not exists	Does not exists	Partially exists	Does not exists
	Per cent of segregation including directly segregated at Hotels, Fruit and Vegetable markets	No	0.91 to 6.26 *per cent*	18.14 to 36.93 *per cent*	1.37 to 2.86 *per cent*	10 *per cent*	12.96 to 40 *per cent*	15.79 to 31.58 *per cent*
Transport	Arrangement for Transportation (No. of vehicles)	MC's vehicle (4) Contractor's vehicles (34)	MC's vehicles (67)	MC's vehicles (15)	MC's vehicles (35) Contractor's vehicles (307)	Contractor's vehicles (32)	MC's vehicles (238)	MC's vehicles (29) Contractor's vehicles (30)
Processing Facility	Availability of MSW Processing Facility	No	No	No	Yes	Yes	Yes	Yes

Parameters	Particulars	Amravati	Kalyan- Dombivli	Kolhapur	MCGM	Nagpur	Pune	Thane
	Technology and capacity in MTD	Nil	Nil	Nil	Bioreactor-3000 MTD	Composting-600 MTD	1.Biomethanation-105 MTD 2.Composting-1300 MTD (Four plants) 3.Waste to Energy-300 MTD	Biomethanation-20 MTD
	Actual operating capacity	NA	NA	NA	3000 MTD	200 MTD	Biomethanation - 85 MTD Composting-200 MTD (two plants) Waste to Energy- 300 MTD	20 MTD
	Per cent of operating capacity with respect to generation of MSW	NA	NA	NA	33 *per cent*	25 *per cent*	39 *per cent*	3 *per cent*
	Facility for processing of C & D waste	No	No	No	No	No	No	No
	Availability of facility for processing of Plastic Waste	No	Yes	No	No	No	No	No
	Availability of facility for processing of Slaughter House Waste	No	Yes	No	No	No	No	No

Parameters	Particulars	Amravati	Kalyan- Dombivli	Kolhapur	MCGM	Nagpur	Pune	Thane
Disposal	Availability of land	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Scientific Landfill site developed	No	No	No	No	Yes	Yes	No
	Present position of disposal	Dumping of mixed waste at Sukali	Dumping at unauthorized site at Adharwadi	Dumping at unauthorized site at Kasaba Bawada	Dumping of mixed waste at Deonar and Mulund. Bioreactor landfill at Kanjur	Inspite of having scientific landfill site MSW is being dumped at unauthorized site at Bhandewadi	Scientific landfill at Devachi Uruli	Dumping at unauthorized site at Khardi Village, Diva
	Infrastructure at landfill/ dumping site	Fencing- No Firefighting- No Weigh bridge- No	Fencing- Partial Firefighting- No Weigh bridge- No	Fencing- Partial Firefighting- No Weigh bridge- No	Fencing- Partial Firefighting- No Weigh bridge- Yes	Fencing- Partial Firefighting- No Weigh bridge- Yes	Fencing- Yes Firefighting- Yes Weigh bridge- No	Fencing- No Firefighting- No Weigh bridge- No

Appendix-4.3
(Reference: Paragraph 4.1.6.1; Page 42 and 43)
Details of Generation, Collection, Deficit in Collection and Extent of Segregation of Municipal Solid Waste in Seven Municipal Corporations

Name of the MCs	Year	Generation during the year (MT)	Collection during year (MT)	Deficit in Collection (MT)	Percentage of collection	Segregation during the year (MT)	Percentage of segregation
Amravati	2011-12	78519	58762	19757	74.84	0	0.00
	2012-13	80884	70490	10394	87.15	0	0.00
	2013-14	83322	74515	8807	89.43	0	0.00
	2014-15	85830	78639	7191	91.62	0	0.00
	2015-16	88407	78004	10403	88.23	0	0.00
Greater Mumbai	2011-12	2555000	2555000	0	100.00	73000	2.86
	2012-13	3829215	3671900	157315	95.89	50370	1.37
	2013-14	3764245	3704750	59495	98.42	59495	1.61
	2014-15	3557290	3504000	53290	98.50	78475	2.24
	2015-16	3139000	3096295	42705	98.64	67525	2.18
Kalyan-Dombivli	2011-12	200750	150380	50370	74.91	1825	1.21
	2012-13	208050	187245	20805	90.00	1825	0.97
	2013-14	215350	193450	21900	89.83	1825	0.94
	2014-15	222650	200750	21900	90.16	1825	0.91
	2015-16	237250	209875	27375	88.46	13140	6.26
Kolhapur	2011-12	52925	52925	0	100.00	9600	18.14
	2012-13	54750	54750	0	100.00	10080	18.41
	2013-14	60225	60225	0	100.00	11350	18.85
	2014-15	62050	62050	0	100.00	14020	22.59
	2015-16	65700	65700	0	100.00	24265	36.93
Nagpur	2011-12	286482	313346	-26864	109.38	31335	10.00
	2012-13	286482	356689	-70207	124.51	35669	10.00
	2013-14	286482	362091	-75609	126.39	36209	10.00
	2014-15	286482	353420	-66938	123.37	35342	10.00
	2015-16	286482	407024	-120542	142.08	40702	10.00
Pune	2011-12	520125	492750	27375	94.74	63875	12.96
	2012-13	538375	501875	36500	93.22	109500	21.82
	2013-14	556625	520125	36500	93.44	164250	31.58
	2014-15	547500	511000	36500	93.33	182500	35.71
	2015-16	584000	547500	36500	93.75	219000	40.00
Thane	2011-12	233388	221718	11670	95.00	35008	15.79
	2012-13	243184	231024	12160	95.00	43773	18.95
	2013-14	252689	240054	12635	95.00	55591	23.16
	2014-15	261164	248105	13059	95.00	73125	29.47
	2015-16	270662	257128	13534	95.00	81198	31.58
		24081534					

Source: Information furnished by the MCs

Appendix-4.4
(Reference: Paragraph 4.2.9.1; Page 73)
Statement Showing Details of Inspection by Maharashtra Pollution Control Board

Sub-Region	Selected Occupier	Total bed strength	Expected visits by MPCB officials	Actual Visits by MPCB officials	Shortfall in visits
Pune	01 HCE	Above 200	20	06	19
	01 HCE	Less than 50 beds	05		
	01 common facility	-	60	16	44
Mumbai	05 HCEs	Above 200	100	16	129
	03 HCEs	Between 50 to 200	30		
	03 HCEs	Less than 50 beds	15		
	01 common facility	-	60	60	--
Thane	01 HCE	Above 200	20	13	07
	01 common facility	-	60	45	15
Navi Mumbai	01 HCE	Above 200	20	06	14
	01 common facility	-	60	53	07
Nashik	01 HCE	Above 200	20	03	27
	02 HCEs	Less than 50 beds	10		
	01 common facility	-	60	49	11
Kalyan	01 HCE	Between 50 to 200	10	14	--
	Facility not in operation				
Mira Bhainder	01 HCE*	Above 200	20	01	19
	Facility with Thane.				
Pimpri Chinchwad	01 HCE	Above 200	20	10	20
	01 HCE	Between 50 to 200	10		
	01 common facility	-	60	23	37
Source : Information furnished by SROs, MPCB					

Appendix-4.5
(Reference: Paragraph 4.3.1; Page 80)
Receiving Water Quality Standards for Coastal Water Marine Outfall in terms of BOD/SS/DO

Class of Marine Water	Designated best uses of saline water	Marine water standards			Rationale / Remarks
		BOD	Suspended Solids/ Turbidity/Floating materials	Dissolved Oxygen	
SW-I	Salt Pan, Shell Fishing, Mariculture and Ecologically Sensitive Zone	------	SS: Non form sewage	5 mg/l but not less than 3.5 mg/l any time	To protect aquatic life.
SW-II	Bathing, Contact Water Sports and Commercial fishing	3 mg/l	Turbidity: 30	4 mg/l but not less than 3.5 mg/l at any time	To protect aquatic lives.
SW-III	Industrial cooling, Recreation (non contact) and Aesthetics	3 mg/l	Turbidity: 30 NTU	3 mg/l	To protect aquatic lives.
SW-IV	Harbour	5 mg/l	Floating material: 10mg/1	3 mg/l	To maintain water relatively free from pollution caused by sewage
SW-V	Navigation and Controlled Waste Disposal	------	Sludge and solid refuse *etc.*: none except for small solids from treated sewage and industrial waste effluents	3 mg/l	To protect aquatic life
SW-I to V: Saline water I to V; NTU Nephelo Turbidity Unit Source: Table 1.1 to 1.5 below Rule 86 of the Environment (Protection) Rules, 1986					

Appendix–4.6
(Reference: Paragraph 4.3.1; Page 80)
Discharge Standards of Municipal Sewage *viz.,* Schedule-VI of Environment (Protection) Rules, 1986

Sl. No.	Treatment parameters	Environment (Protection) Rules, 1986 (Sch. VI) applicable to sewage	MPCB (Up to 2010)	MPCB (January 2011)	CPCB (April 2015)	CPCB (October 2015)
1.	PH	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	6.5 to 9.0	6.5 to 9.0
2.	Biochemical Oxygen Demand (mg/l)	100	100	20	10	10
3.	Suspended Solids	100	100	30	20	10
4.	Amonical Nitrogen-N (mg/l)	50	---	---	5	5
5.	Nitrate Nitrogen (N-total) mg/l	20	---	---	10	10
6.	Faecal Coliform (MPN/100 ml)	100 MPN/100 ml for SW-II waters and 500 MPN/100 ml for SW-III waters	100	100	<100	<230

Appendix-4.7
(Reference: Paragraph 4.3.1; Page 81)
Summary of Proposed Components of Capital Works as per Master Plan and Cost Estimates
(₹ in crore on 2001 price)

SI. No.	Capital works proposed	Phase I	Phase II	Phase III	Phase IV	Phase V	Total
1	New sewer lines	9.88	9.70	15.02	10.13	15.29	60.02
2	Upsizing of old sewer lines	56.40	143.67	114.42	66.89	0.98	382.36
	Sub total						**442.38**
3	Area sewers	166.41	76.07	59.12	114.73	60.06	476.39
	Sub total						**476.39**
4	Survey of old sewer lines	25.29	28.64	0	0	0	53.93
5	Rehabilitation of old sewer lines including manholes and illegal connection	3.97	185.24	311.48	310.04	310.04	1120.77
	Sub total						**1174.70**
6	Pumping Stations	36.54	148.19	87.43	66.13	153.24	491.53
	Pumping Mains	16.05	11.45	24.34	1.67	2.54	56.05
	Sub total						**547.58**
7	Slum Sanitation	1.85	405.85	405.85	405.85	405.85	1625.25
	Sub total						**1625.25**
9	WWTFs	12.01	25.45	432.75	28.96	316.08	815.25
10	Outfall	12.12	230.21	0	0	0	242.33
11	Transfer	0	15.22	0	130.77	100.53	246.52
	Sub total						**1304.10**
Grand Total							**5570.40**

Appendix-5.1
(Reference: Paragraph 5.1.1; Page 97)
Statement Showing National and State Service Level Benchmarks

Basic Urban Services	Service Level Benchmarks Indicators	National Level Benchmarks	State Level Benchmarks
Water Supply	1. Coverage of water supply connections	100%	100%
	2. Per capita supply of water	135 lpcd	135 lpcd
	3. Extent of metering of water connections	100%	100%
	4. Extent of Non-revenue Water	20%	15%
	5. Continuity of Water Supply	24 hours	24 hours
	6. Efficiency in redressal of customer complaints	80%	80%
	7. Quality of water supplied	100%	100%
	8. Cost recovery in water supply services	100%	100%
	9. Efficiency in collection of water supply related charges	90%	100%
Sewage and Sanitation	1. Coverage of toilets	100%	100%
	2. Coverage of waste water network services	100%	100%
	3. Collection efficiency of waste water network	100%	100%
	4. Adequacy of waste water treatment capacity	100%	100%
	5. Quality of waste water treatment	100%	100%
	6. Extent of reuse and recycling of waste water	20%	20%
	7. Extent of cost recovery in waste water management	100%	100%
	8. Efficiency in redressal of customer complaints	80%	100%
	9. Efficiency in collection of sewage related charges	90%	90%
Solid Waste Management	1. Household level coverage of Solid Waste Management	100%	100%
	2. Efficiency of collection of municipal solid waste	100%	100%
	3. Extent of segregation of municipal solid waste	100%	100%
	4. Extent of municipal solid waste recovered	80%	80%
	5. Extent of scientific disposal of municipal solid waste	100%	100%
	6. Extent of cost recovery in Solid Waste Management services	100%	100%
	7. Efficiency in redressal of customer complaints	80%	100%
	8. Efficiency in collection of SWM related user related charges	90%	100%
Storm Water Drainage	1. Coverage of Storm water drainage network	100%	100%
	2. Incidence of water logging/flooding	Zero	Zero