

Q2-11 ***(Only for persons who chose "NO" in question Q2-1)*** Do you want to receive a garbage collection service?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Yes	22	44%	4	8%	16	32%	42	28%
2 No	6	12%	1	2%	3	6%	10	7%
99 Irrelevant	22	44%	45	90%	31	62%	98	65%
Total	50	100%	50	100%	50	100%	150	100%

3. Questions on Waste Discharge from Your Premises

Q3-1 How do you dispose of garbage generated in your premises?

	Low		Middle		High		Total	
	Main	Other	Main	Other	Main	Other	Main	Other
	1 Discharge it outside of the house for the house to house collection	13	0	13	3	2	0	28
2 Discharge it at the specified place for the collection service	4	0	6	0	6	0	16	0
3 Open dumping outside of the house	0	1	2	1	1	0	3	2
4 Ask the relevant authority to send garbage collectors	0	0	0	0	0	0	0	0
5 Self-dispose	29	3	29	17	39	2	97	22
6 Composting (producing fertilizer from waste)	0	0	0	2	2	1	2	3
7 Give for recycling	0	0	0	0	0	0	0	0
8 Other	4	0	0	0	0	3	4	3
Total	50	4	50	23	50	6	150	33

	Low		Middle		High		Total	
	Main	Other	Main	Other	Main	Other	Main	Other
	1 Discharge it outside of the house for the house to house collection	26%	0%	26%	13%	4%	0%	19%
2 Discharge it at the specified place for the collection service	8%	0%	12%	0%	12%	0%	11%	0%
3 Open dumping outside of the house	0%	25%	4%	4%	2%	0%	2%	6%
4 Ask the relevant authority to send garbage collectors	0%	0%	0%	0%	0%	0%	0%	0%
5 Self-dispose	58%	75%	58%	74%	78%	33%	65%	67%
6 Composting (producing fertilizer from waste)	0%	0%	0%	9%	4%	17%	1%	9%
7 Give for recycling	0%	0%	0%	0%	0%	0%	0%	0%
8 Other	8%	0%	0%	0%	0%	50%	3%	9%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Note: Other means "place them directly to either collection truck or hand cart."

Q3-2 How often do you dispose of garbage generated in your premises?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 As soon as waste arises	1	2%	3	6%	5	10%	9	6%
2 Once daily	40	80%	41	82%	42	84%	123	82%
3 Once every 2 or 3 days	9	18%	3	6%	1	2%	13	9%
4 Less frequently	0	0%	3	6%	2	4%	5	3%
Total	50	100%	50	100%	50	100%	150	100%

Q3-3 Who mainly handles wastes at home?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 An adult male member	2	4%	2	4%	3	6%	7	5%
2 An adult female member	48	96%	47	94%	39	78%	134	89%
3 Servant	0	0%	1	2%	8	16%	9	6%
4 Others	0	0%	0	0%	0	0%	0	0%
Total	50	100%	50	100%	50	100%	150	100%

Q3-4 (Only for persons who chose 2 in question Q3-1) Who mainly brings the wastes to a specific collection point?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 An adult male member	0	0%	2	4%	5	10%	7	5%
2 An adult female member	4	8%	4	8%	0	0%	8	5%
3 Child	0	0%	0	0%	0	0%	0	0%
4 Servant	0	0%	0	0%	1	2%	1	1%
5 Others	0	0%	0	0%	0	0%	0	0%
99 Irrelevant	46	92%	44	88%	44	88%	134	89%
Total	50	100%	50	100%	50	100%	150	100%

Q3-5 What type of container do you use for carrying garbage to a collection point or for placing the garbage outside of your house? (Choose one or more)

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Plastic bag	21	29%	31	41%	21	30%	73	33%
2 Paper bag	0	0%	1	1%	0	0%	1	0%
3 Metal/plastic/wood garbage bin	11	15%	31	41%	36	51%	78	36%
4 Box	3	4%	2	3%	0	0%	5	2%
5 Basket	10	14%	1	1%	5	7%	16	7%
6 None-place directly	28	38%	9	12%	8	11%	45	21%
7 Others	0	0%	0	0%	0	0%	0	0%
Total	73	100%	75	100%	70	100%	218	100%

Q3-6 Why do you use it? (Choose one or more)

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 It is clean after collection work	9	11%	14	18%	16	19%	39	16%
2 It prevents foul odors	2	2%	3	4%	6	7%	11	5%
3 It is easy handling	40	49%	48	63%	48	58%	136	57%
4 It keeps away pests such as flies	4	5%	1	1%	7	8%	12	5%
5 It is cheap or easy to get	26	32%	10	13%	6	7%	42	18%
6 Other	0	0%	0	0%	0	0%	0	0%
Total	81	100%	76	100%	83	100%	240	100%

Q3-7 **(Only for those who did not choose 2 in Q3-1)** If you are requested to carry your garbage to a specified garbage collection point, would you cooperate to do so?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Yes, if it is located within 25m distance (30 sec to walk)	25	50%	34	68%	29	58%	88	59%
2 Yes, if it is located within 50m distance (1 min to walk)	9	18%	1	2%	3	6%	13	9%
3 No, I do not prefer the collection system mentioned above anyway	12	24%	9	18%	12	24%	33	22%
4 Others	0	0%	0	0%	0	0%	0	0%
98 Don't know	0	0%	0	0%	0	0%	0	0%
99 Irrelevant	4	8%	6	12%	6	12%	16	11%
Total	50	100%	50	100%	50	100%	150	100%

Q3-8 Do you have garden wastes (fallen leaves and branches or grass and weeds)?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Yes	27	54%	47	94%	44	88%	118	79%
2 No	23	46%	3	6%	6	12%	32	21%
Total	50	100%	50	100%	50	100%	150	100%

Q3-9 How do you discharge your garden wastes generally?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Discharge it at the collection point with the other wastes for collection	0	0%	0	0%	0	0%	0	0%
2 Discharge it outside of my premises with the other wastes for collection	2	4%	2	4%	1	2%	5	3%
3 Ask the relevant authorities to send garbage collectors	0	0%	1	2%	0	0%	1	1%
4 Self-dispose	24	48%	42	84%	41	82%	107	71%
5 Composting (producing fertilizer from waste)	0	0%	2	4%	2	4%	4	3%
6 Give for composting	0	0%	0	0%	0	0%	0	0%
7 Others	1	2%	0	0%	0	0%	1	1%
99 Irrelevant	23	46%	3	6%	6	12%	32	21%
Total	50	100%	50	100%	50	100%	150	100%

Note: Other means "direct to the collection vehicles."

Q3-10 **(Only for those who chose 3 in Q3-1)** Where do you dispose of your garbage by open dumping?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 On banks of or in stream / river	0	0%	2	4%	0	0%	2	1%
2 On vacant land	1	2%	1	2%	1	2%	3	2%
3 In a gully	0	0%	0	0%	0	0%	0	0%
4 In the sea	0	0%	0	0%	0	0%	0	0%
5 Others	0	0%	0	0%	0	0%	0	0%
99 Irrelevant	49	98%	47	94%	49	98%	145	97%
Total	50	100%	50	100%	50	100%	150	100%

4. Questions on Recycling and Waste Reduction

Q4-1 Recycling of waste is most effective if the waste can be sorted into different categories by the household. If the relevant authorities such as municipal councils and urban councils introduce a *separate garbage collection system*, you will be requested to separate your wastes into a number of categories, for example, such as i.) compostable waste such as food waste, paper and garden waste ii.) recyclable waste such as metals, glass, plastics, paper and iii.) other wastes. Are you willing to cooperate with this type of system?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Very much willing to cooperate	30	60%	42	84%	45	90%	117	78%
2 Somewhat willing to cooperate	10	20%	4	8%	3	6%	17	11%
3 Less willing to cooperate /somewhat unwilling to cooperate	5	10%	3	6%	2	4%	10	7%
4 Not willing to cooperate at all	5	10%	1	2%	0	0%	6	4%
5 Am doing already	0	0%	0	0%	0	0%	0	0%
Total	50	100%	50	100%	50	100%	150	100%

Q4-2 *If you answered either 1 or 2 and 5*, why do you think recycling is important? (Choose one or more)

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Recycling would reduce the amount of waste going to landfill	14	17%	17	25%	17	24%	48	22%
2 Recycling would help to protect environment	34	42%	44	65%	47	65%	125	57%
3 Recycling would allow you to earn some money	23	28%	3	4%	6	8%	32	14%
4 Others	0	0%	0	0%	0	0%	0	0%
99 Irrelevant	10	12%	4	6%	2	3%	16	7%
Total	81	100%	68	100%	72	100%	221	100%

Q4-3 *If you answered either 1 or 2 and 5*, how many categories would you be willing to separate your wastes into?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Two	22	44%	32	64%	31	62%	85	57%
2 Three	15	30%	13	26%	16	32%	44	29%
3 More than that	3	6%	1	2%	1	2%	5	3%
99 Irrelevant	10	20%	4	8%	2	4%	16	11%
Total	50	100%	50	100%	50	100%	150	100%

Q4-4 *If you choose 2, 3, or 4 in Q4-1*, what are the reasons? (Choose one or more)

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 It is inconvenient and difficult	17	25%	8	15%	5	9%	30	17%
2 It may increase financial burden regarding to the discharging cost	4	6%	0	0%	0	0%	4	2%
3 It will take much time	5	7%	3	5%	2	4%	10	6%
4 Needs for the recycling system is not clear	3	4%	0	0%	0	0%	3	2%
5 Benefits of the recycling system is not clear	3	4%	1	2%	0	0%	4	2%
6 There may be poor contribution from household members	4	6%	1	2%	2	4%	7	4%
7 Others	1	1%	0	0%	0	0%	1	1%
99 Irrelevant	30	45%	42	76%	45	83%	117	66%
Total	67	100%	55	100%	54	100%	176	100%

Note: Other means "not enough amount of recyclables left."

Q4-5 Is there someone who comes around to collect or buy your reusable or recyclable materials?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%

1	Yes	38	76%	45	90%	39	78%	122	81%
2	No	12	24%	5	10%	11	22%	28	19%
Total		50	100%	50	100%	50	100%	150	100%

Q4-6 Which materials do they collect or buy from you?

		Low		Middle		High		Total	
		Number	%	Number	%	Number	%	Number	%
1	Glass	15	26%	29	43%	20	29%	64	33%
2	Cardboard	1	2%	1	1%	0	0%	2	1%
3	Paper	4	7%	12	18%	19	28%	35	18%
4	Metal can	2	3%	2	3%	1	1%	5	3%
5	Other metal	3	5%	2	3%	3	4%	8	4%
6	Kitchen waste	0	0%	1	1%	0	0%	1	1%
7	Garden waste	0	0%	0	0%	0	0%	0	0%
8	Plastics	0	0%	1	1%	0	0%	1	1%
9	Textiles (e.g. clothes)	0	0%	0	0%	0	0%	0	0%
10	Leather, rubber	0	0%	0	0%	0	0%	0	0%
11	Wood / Timber	0	0%	0	0%	0	0%	0	0%
12	Tyres	0	0%	0	0%	0	0%	0	0%
13	Others	0	0%	0	0%	0	0%	0	0%
98	Not selling	21	36%	14	21%	14	21%	49	25%
99	Irrelevant	12	21%	5	7%	11	16%	28	15%
Total		58	100%	67	100%	68	100%	193	100%

Q4-7 Do you take for recyclable materials to shops for refund or sale?

		Low		Middle		High		Total	
		Number	%	Number	%	Number	%	Number	%
1	Yes	15	30%	8	16%	9	18%	32	21%
2	No	35	70%	42	84%	41	82%	118	79%
Total		50	100%	50	100%	50	100%	150	100%

Q4-8(a) Which materials do you return or sell to shops?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Glass	12	23%	5	10%	6	12%	23	15%
2 Cardboard	0	0%	0	0%	0	0%	0	0%
3 Paper	4	8%	4	8%	3	6%	11	7%
4 Metal can	0	0%	0	0%	1	2%	1	1%
5 Other metal	1	2%	0	0%	0	0%	1	1%
6 Kitchen waste	0	0%	0	0%	0	0%	0	0%
7 Garden waste	0	0%	0	0%	0	0%	0	0%
8 Plastics	0	0%	0	0%	0	0%	0	0%
9 Textiles (e.g. clothes)	0	0%	0	0%	0	0%	0	0%
10 Leather, rubber	0	0%	0	0%	0	0%	0	0%
11 Wood / Timber	0	0%	0	0%	0	0%	0	0%
12 Tyres	0	0%	0	0%	0	0%	0	0%
13 Others	0	0%	0	0%	0	0%	0	0%
99 Irrelevant	35	67%	42	82%	41	80%	118	77%
Total	52	100%	51	100%	51	100%	154	100%

Q4-8(b) (Only for those choosing Yes in either Q4-5 or Q4-7) What are the major materials collected from you or returned / sold to shops, and how much do you sell these for per month?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 First	Bottle (21)		Bottle (29)		Bottle (22)		Bottle (72)	
2 Second	Iron (4) + other metal (3)		Paper (16)		Paper (22)		Paper (43)	
3 Third	Paper (5)		Iron (4)		Iron (4)		Iron (12) + other metal (4)	

Note: Bracketed figures show the number of households that sell these materials.

(Rs.)	Low	Middle	High	Total
Avg. monthly income from recycling	26	40	47	38

Note: Number of effective answers is 86.

Q4-9(a) Are you using kitchen and/or garden waste for compost?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Yes	0	0%	2	4%	3	6%	5	3%
2 No	50	100%	48	96%	47	94%	145	97%
Total	50	100%	50	100%	50	100%	150	100%

Q4-9 (i) If yes to the previous question, how much of these wastes do you compost per month?

(Kitchen wastes)	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Less than half	0	0%	0	0%	0	0%	0	0%
2 Half	0	0%	1	2%	0	0%	1	1%
3 More than half	0	0%	1	2%	2	4%	3	2%
4 All	0	0%	0	0%	1	2%	1	1%
5 Irrelevant	50	100%	48	96%	47	94%	145	97%
Total	50	100%	50	100%	50	100%	150	100%

(Garden wastes)	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Less than half	0	0%	0	0%	2	4%	2	1%

2	Half	0	0%	0	0%	0	0%	0	0%
3	More than half	0	0%	0	0%	0	0%	0	0%
4	All	0	0%	2	4%	1	2%	3	2%
5	Irrelevant	50	100%	48	96%	47	94%	145	97%
Total		50	100%	50	100%	50	100%	150	100%

(ii) How much compost do you produce per month?

(Kg.)	Low	Middle	High	Total
Monthly compost production	—	3.0	4.8	4.2

Note: Number of effective answers is 3 only.

(iii) What do you do with it?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Sell	0	0%	0	0%	0	0%	0	0%
2 Own use	0	0%	2	4%	3	6%	5	3%
3 Irrelevant	50	100%	48	96%	47	94%	145	97%
Total	50	100%	50	100%	50	100%	150	100%

Q4-10 Hazardous waste refers to items like dead batteries, used spray cans, old medicines, old household chemicals, solvents, paints, etc. Considering all the solid waste produced by your household, how many hazardous waste items would you dispose of per month?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 None	26	52%	28	56%	22	44%	76	51%
2 One to two	18	36%	17	34%	21	42%	56	37%
3 Three to five	5	10%	5	10%	7	14%	17	11%
4 Six to ten	1	2%	0	0%	0	0%	1	1%
5 More than ten	0	0%	0	0%	0	0%	0	0%
Total	50	100%	50	100%	50	100%	150	100%

Q4-11 Suppose that you are satisfied with the service of Municipal solid waste management, either as is or as a result of improvement. Think for a moment about the largest amount of money that your household would be willing to pay each month as a garbage collection fee. (Important: If the garbage collection fee is more than this amount, your household will not be able to afford to pay and will not be able to use the garbage collection service.)

(Rs.)	Low	Middle	High	Total
Avg. amount of WTP (willingness to pay)	27	93	78	66

5. Public cooperation / Community participation

Q5-1 Now, we would like to ask about the community you live. In your community, do you have any community-based organizations to solve not only the waste problems but also other community problems?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Yes	44	88%	47	94%	39	78%	130	87%
2 No	5	10%	2	4%	4	8%	11	7%
98 Don't know	1	2%	1	2%	7	14%	9	6%
Total	50	100%	50	100%	50	100%	150	100%

Q5-2 If yes, when did the community-based organization start functioning?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Within five years	3	6%	3	6%	1	2%	7	5%
2 Between six to ten years	6	12%	0	0%	1	2%	7	5%
3 More than eleven years ago	9	18%	13	26%	16	32%	38	25%
98 Don't know	26	52%	31	62%	21	42%	78	52%
99 Irrelevant	6	12%	3	6%	11	22%	20	13%
Total	50	100%	50	100%	50	100%	150	100%

Q5-3 How is the leader of this community chosen?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Democratically elected	25	50%	37	74%	30	60%	92	61%
2 Appointed by elders	0	0%	1	2%	0	0%	1	1%
3 Appointed by administration	1	2%	0	0%	0	0%	1	1%
4 Inherited	0	0%	0	0%	0	0%	0	0%
5 Others	0	0%	0	0%	0	0%	0	0%
98 Don't know	18	36%	9	18%	9	18%	36	24%
99 Irrelevant	6	12%	3	6%	11	22%	20	13%
Total	50	100%	50	100%	50	100%	150	100%

Q5-4 How often do you have the meetings?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 More often than once a month	23	46%	28	56%	17	34%	68	45%
2 Once in two months to five months	3	6%	10	20%	7	14%	20	13%
3 Once in six months	1	2%	0	0%	2	4%	3	2%
4 Once in seven to eleven months	0	0%	0	0%	0	0%	0	0%
5 Less often than once in a year	1	2%	0	0%	4	8%	5	3%
6 No meeting	0	0%	0	0%	0	0%	0	0%
98 Don't know	16	32%	9	18%	9	18%	34	23%
99 Irrelevant	6	12%	3	6%	11	22%	20	13%
Total	50	100%	50	100%	50	100%	150	100%

Q5-5 Have you ever discussed the methods of proper garbage handling and discharge at the meetings?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Yes	4	8%	13	26%	18	36%	35	23%
2 No	24	48%	23	46%	11	22%	58	39%
98 Don't know	16	32%	11	22%	10	20%	37	25%
99 Irrelevant	6	12%	3	6%	11	22%	20	13%
Total	50	100%	50	100%	50	100%	150	100%

Q5-6 Have you ever been taught methods of proper garbage handling and discharge?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Yes	18	36%	17	34%	26	52%	61	41%
2 No	32	64%	33	66%	24	48%	89	59%
Total	50	100%	50	100%	50	100%	150	100%

Q5-7 If "Yes" to the previous question, who taught these to you? (Choose one or more)

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Parents	0	0%	3	5%	2	4%	5	3%
2 Community leaders	6	10%	3	5%	6	12%	15	9%
3 School teachers	5	8%	5	9%	6	12%	16	10%
4 Local government	10	16%	3	5%	3	6%	16	10%
5 Central government	3	5%	0	0%	3	6%	6	4%
6 NGOs	0	0%	1	2%	0	0%	1	1%
7 Others	5	8%	8	14%	7	14%	20	12%
99 Irrelevant	32	52%	33	59%	24	47%	89	53%
Total	61	100%	56	100%	51	100%	168	100%

Note: Other means "mass media".

Q5-8 Does anyone in your family or your servant clean the side of the road or adjacent public area in front of your premises?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Yes, almost everyday	23	46%	28	56%	24	48%	75	50%
2 Yes, sometimes	16	32%	19	38%	22	44%	57	38%
3 No	11	22%	3	6%	4	8%	18	12%
Total	50	100%	50	100%	50	100%	150	100%

Q5-9 Here please tell me about the behavior of your community population, and not yours. What are the most common methods to dispose of the garbage in this community?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Picked up by garbage collection service	22	41%	25	33%	14	21%	61	31%
2 Burnt	29	54%	22	29%	30	45%	81	41%
3 Thrown in the open space or rivers	1	2%	14	19%	14	21%	29	15%
4 Just dumped on the yard / in the garden	0	0%	2	3%	0	0%	2	1%
5 Buried on the yard / in the garden	2	4%	12	16%	8	12%	22	11%
6 Others	0	0%	0	0%	0	0%	0	0%
98 Don't know	0	0%	0	0%	1	1%	1	1%
Total	54	100%	75	100%	67	100%	196	100%

Q5-10 Has anyone in this household, including children, received any health and environmental education or information relating to solid waste?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Yes	46	92%	50	100%	49	98%	145	97%
2 No	4	8%	0	0%	1	2%	5	3%
Total	50	100%	50	100%	50	100%	150	100%

Q5-11 If yes, where did this information come from? (Choose one or more)

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Parents	0	0%	2	1%	1	1%	3	1%
2 School	37	29%	35	24%	35	26%	107	26%
3 Medical worker /center / hospital	14	11%	3	2%	5	4%	22	5%
4 Community organization/ NGOs	0	0%	2	1%	1	1%	3	1%
5 Newspaper	9	7%	35	24%	31	23%	75	18%
6 Radio program	19	15%	12	8%	17	13%	48	12%
7 TV program	26	20%	50	35%	39	29%	115	28%
8 Local government	19	15%	1	1%	1	1%	21	5%
9 Central government	1	1%	4	3%	2	2%	7	2%
10 Others	0	0%	0	0%	0	0%	0	0%
99 Irrelevant	4	3%	0	0%	1	1%	5	1%
Total	129	100%	144	100%	133	100%	406	100%

Q5-12 Do you think a campaign to raise awareness of people for maintaining the cleaner city and environment is necessary?

	Low		Middle		High		Total	
	Number	%	Number	%	Number	%	Number	%
1 Very necessary	32	64%	37	74%	34	68%	103	69%
2 Somewhat necessary	15	30%	11	22%	14	28%	40	27%
3 Not very necessary	3	6%	2	4%	2	4%	7	5%
4 Not necessary at all	0	0%	0	0%	0	0%	0	0%
Total	50	100%	50	100%	50	100%	150	100%

3.2 Commercial/Industrial and Institutional Waste Generator Survey Results

Commercial/industrial and institutional interview survey results for 60 samples located within the Gampaha, Yakkala and Mirriswatta areas of GMA are summarized in this section.

3.2.1 Garbage Discharge and Collection

The following table sets out the main interview survey results relating to garbage discharge and collection. Some key points are summarized below:

- (a) 43 (72%) enterprises are provided with a garbage collection service by GMC, with 41 (68%) of these using this service. 13 of the 17 enterprises not receiving a service would like one.
- (b) 13 (22%) enterprises pay garbage collection workers informally, the average payment being 1,485Rs/yr (range = 50 (small shop) to 7,200Rs/yr (garment factory)).
- (c) 30 (73%) of the 41 enterprises using the garbage collection service are not satisfied with it. The main reasons for dissatisfaction are:
 - Poor garbage discharge system (26).
 - Garbage collection/sweeping frequency is too low (22).
 - Garbage collection/sweeping is not done properly (18).
 - Garbage collection/sweeping is irregular (17).
 - Collection point is too far away (17).
 - Collection time is too early or late (17).

The Base Hospital is also concerned about the handling and disposal of hazardous healthcare wastes.

- (d) 17 (28%) enterprises have complained to GMC about the garbage collection service at least once in the last 3 years.

Table 3-1: Survey Results - Garbage Discharge and Collection

Item	Small Waste Gen'rs	Large Waste Generators			Total
		Comm./ industrial	Other Inst'ns	Hospitals	
No of respondents	21	23	13	3	60
Q1.5 - Garbage storage within premises (main method) - No of responses^{2,3}					
a. Plastic bag	2	2	1	1	6
b. Open container	16	10	11	0	37
c. Container with lid	1	9	0	3	13
d. Place on ground/floor	1	1	1	0	3
e. Direct disposal	0	0	0	0	0
f. Other	1	1	0	0	2
Q1.6 - Main method of garbage disposal - No of responses³					
a. Place outside for collection	2	1	0	2	5
b. Carry to collection vehicle	9	0	0	0	9
c. Take to collection point	3	4	2	0	9
d. Labourers collect from premises	3	7	4	1	15
e. Bury on site	0	0	3	0	3

Item	Small Waste Gen'rs	Large Waste Generators			Total
		Comm./ industrial	Other Inst'ns	Hospitals	
f. Burn on site	4	5	4	0	13
g. Recycle	0	5	0	0	5
h. Compost	0	0	0	0	0
i. Open dumping	0	0	0	0	0
j. Other	0	1	0	0	1
Q1.8 – Walking distance to garbage collection point – No of responses (only if chose Q1.6c)					
a. 0-25m	3	2	1	0	6
b. 25-50m	0	1	1	0	2
c. 50-100m	0	0	0	0	0
Q1.12 to 1.13 – Provision and use of garbage collection service – No of responses					
Provided	21	12	7	3	43
Not provided	0	11	6	0	17
Use	19	12	7	3	41
Want service	N/a	8	5	N/a	13
Q1.14 - Garbage discharge and collection frequency – No of responses					
Discharge at least once daily	17	11	7	3	38
Collection at least daily	14	7	4	2	27
Q1.15 to 1.17 – Garbage collection worker payment³					
No giving payments	4	7	1	1	13
Average payment (Rs/yr)	175	2,867	400	1,000	1,485
Range (Rs/yr)	50-300	200 – 7,200	N/a	N/a	50 – 7,200
Total (Rs/yr)	700	17,200	400	1,000	19,300
Q1.18 - Satisfaction with existing garbage collection service					
Satisfied (no)	5	3	2	0	10
Dissatisfied (no)	14	9	5	2	30
No response	0	0	0	1	1
Reasons for dissatisfaction:					
a. Poor discharge system	13	7	5	1	26
b. Collection point too far away	7	6	3	1	17
c. Coll'n/sweep. not done properly	8	5	5	0	18
d. Collection/sweeping is irregular	7	5	4	1	17
e. Coll'n/sweep. frequency too low	10	6	5	1	22
f. Collection time is too early/late	9	5	3	0	17
g. Garbage workers behave badly	3	0	2	0	5
h. labourers demand payment	0	1	0	0	1
i. LA garbage fee is too high	0	1	0	1	2
j. Lack of recycling	4	5	4	1	14
k. Other	2	2	3	1	8
l. Problems handling hazardous healthcare waste	N/a	N/a	N/a	1	1
Q1.19 – Complaints to GMC in last 3 years – No of responses					
a. None	12	9	2	1	24
b. Once only	1	1	0	0	2
c. Several times	4	1	1	1	7
d. More than 5 times	2	1	4	1	8

Notes: Hospital garbage storage and disposal results apply to normal garbage; N/a = not applicable.

3.2.2 Improvements to Garbage Collection and Disposal

The following table sets out the main interview survey results relating to garbage discharge and collection. Some key points are summarized below:

(a) The five most desired improvements to garbage collection and disposal in descending order are:

- Improved discharge system (Weighted average rank, WAR = 45.0).
- Public education (WAR = 42.0).
- Shorter distance to collection point (WAR = 31.5).

- More reliable service (WAR = 18.5).
 - Greater recycling/composting (WAR = 18.5).
- (b) Most enterprises thought that GMC (42, 70%) or the Central government (6, 10%) should pay for improved garbage collection and disposal. However, nine (15%) supported the introduction of an individual garbage collection fee.
- (c) 33 (52%) enterprises indicated a willingness to pay (WTP) a garbage collection fee while six enterprises were not willing to pay anything. The average WTP¹ was 755Rs/mth (range = 30 to 5,000Rs/mth). Another 21 enterprises did not respond to this question. The non-respondents are mainly large commercial enterprises/industries and institutions, where the survey respondent felt unable to make such a decision without referring it to the owner/manager for discussion, or in the case of institutions, referring it to provincial/central government.

Table 3-2: Survey Results – Improvements to Garbage Collection and Disposal

Item	Small Waste Gen'rs	Large Waste Generators			Total
		Comm./ industrial	Other Inst'ns	Hospitals	
No of respondents	30	23	30	8	91
Q2.1 - Desired improvements to garbage collection/disposal – weighted average rank					
a. Improved discharge system	11.5	20.0	11.0	2.5	45.0
b. Closer collection point	13.5	9.5	7.0	1.5	31.5
c. More reliable service	10.5	5.5	0.5	2.0	18.5
d. Improved collection frequency	8.5	4.5	1.5	3.0	17.5
e. Greater recycling/composting	4.5	3.0	7.0	4.0	18.5
f. Improve landfill operation	0.0	0.0	2.0	2.0	4.0
g. Public education	14.0	15.5	10.0	2.5	42.0
h. Other	0.0	4.0	1.5	3.0	8.5
i. Improved collection/disposal of hospital hazardous waste	N/a	N/a	N/a	2.0	2.0
Q2.2 – Who should pay for improved garbage collection/disposal – No of responses					
a. Central government	1	2	3	0	6
b. Provincial Council	1	1	2	1	5
c. Local authority	16	17	8	1	42
d. Individual garbage fee	2	3	3	1	9
e. Other	1	1	0	0	2
f. No response	1	2	0	0	3
Q2.3 - Willingness to pay for improved garbage collection/disposal					
Willing to pay (no)	14	12	6	1	33
Not willing to pay (no)	2	1	3	0	6
No response (no)	5	10	4	2	21
Willingness to pay (Rs/mth)	179	1,454	722	1,200	755
Range (Rs/mth)	30–1,000	100 – 5,000	200–1500	N/a	30 – 5,000
Total WTP	2,860	18,900	6,500	1,200	29,460

Notes: N/a = not applicable

3.2.3 Recycling and Possible Source Separation Collection System

The following table sets out the main interview survey results relating to recycling and a possible source separation collection system. Some key points are summarized below:

¹ The WTP is based on all enterprises/institutions indicating they were willing to pay a non-zero amount and all those indicating they were not willing to pay anything.

- (a) 60 (100%) enterprises believed recycling is necessary, with 47 (78%) enterprises being either very willing (45) or somewhat willing (2) to cooperate in separating their garbage at source, while five are doing this already. The main reasons given by those enterprises not willing to cooperate are that it is inconvenient/difficult (7) or takes too much time (4). The main reasons given by those willing to cooperate are that recycling protects the environment (48), followed by it reduces the amount of waste to disposal (13). 27 of these respondents are willing to sort their wastes into three (11) or more (16) categories, with the preferred source separation system being either coloured containers or plastic bags, collected from outside their premises.
- (b) Eight enterprises are willing to pay for permanent containers, while another six are not willing to pay anything, giving an average WTP for permanent containers of 931Rs. There were 37 non-responses mainly from commercial/industrial enterprises and institutions, for the reasons described above.

Table 3-3: Survey Results – Recycling and Possible Source Separation System

Item	Small Waste Gen'rs	Large Waste Generators			Total
		Comm./ industrial	Other Inst'ns	Hospitals	
No of respondents	21	23	13	3	60
Q2.4 – Recycling – No of responses					
Necessary	21	23	13	3	60
Q2.5 - Willingness to cooperate in separating wastes at source – No of responses					
a. Very willing	17	15	11	2	45
b. Somewhat willing	2	0	0	0	2
c. Less/somewhat unwilling	0	0	0	0	0
d. Not willing at all	0	6	1	1	8
e. Already sort	2	2	1	0	5
f. No response	0	0	0	0	0
Q2.6 – Reasons for not being willing to cooperate – No of responses (only if chose Q2.5c or d)					
a. Increased financial burden	0	1	0	1	2
b. Inconvenient/difficult	0	5	1	1	7
c. Takes too much time	0	2	1	1	4
d. Needs/benefits not clear	0	0	0	0	0
e. Other	0	1	0	0	1
f. No response	0	0	0	0	0
Q2.7 – Reasons for being willing to cooperate – No of responses (only if chose Q2.5a, b or e)					
a. Reduces waste to landfill	1	5	5	2	13
b. Protects environment	19	17	11	1	48
c. Earn some extra money	0	1	1	0	2
d. Other	0	0	0	0	0
Q2.8 – No of categories willing to separate waste into – No of responses (only for Q2.5a,b or e)					
a. Two	13	6	1	0	20
b. Three	4	6	1	0	11
c. More than three	2	3	9	2	16
d. No response	0	2	1	1	4
Q2.9 – Preferred separate collection system – Weighted average rank (only for Q2.5a,b or e)					
a. Coloured plastic bags collected from outside premises	10.5	10.5	4.5	0.0	25.5
b. Permanent coloured containers collected from outside premises	7.5	6.0	10.5	2.5	26.5
c. Own bags/containers collected from outside premises	10.5	7.5	1.5	2.5	22.0
d. Own bags/containers taken to community collection point	0.0	0.0	0.0	0.0	0.0
e. Other	0.0	0.0	0.0	0.0	0.0
Q2.10 – Willingness to pay for permanent containers for source separation system – (only for Q2.5a,b or e)					

Willing to pay	1	2	5	0	8
Not willing to pay	3	2	1	0	6
No response	15	13	5	2	35
Willingness to pay (Rs)	37.5	375	1,542	0	931

3.2.4 On-site Composting

The following table sets out the main interview survey results relating to on-site composting. Some key points are summarized below:

- (a) 13 (22%) enterprises are willing to undertake on-site composting, while two are doing so already. However, the majority (45, 75%) of enterprises are not in favour, mainly due to a lack of space on site (16) and it taking too much time (16). Only six enterprises indicated a WTP for a compost container, giving an average WTP of 532Rs. Another two enterprises did not respond to this question.
- (b) 41 (68%) enterprises were willing to store their organic wastes for up to one day, if they were to be collected for composting at a centralized facility.

Table 3-4: Survey Results – On-site Composting

Item	Small Waste Gen'rs	Large Waste Generators			Total
		Comm./ industrial	Other Inst'ns	Hospitals	
No of respondents	21	23	13	3	60
Q2.11 – Willing to compost – No of responses					
a. Already compost	0	0	2	0	2
b. Willing	1	7	4	1	13
c. Not willing	20	16	7	2	45
d. No response	0	0	0	0	0
Q2.12 – Willingness to pay for compost system – (only if chose Q2.11b)					
Willing to pay (no)	Not asked	4	2	Not asked	6
Not willing to pay (no)		0	2		2
Willing to pay all cost (no)		1	0		1
No response (no)		2	0		2
Willingness to pay (Rs)		500	563		531
Q2.13 – Reasons for not being willing to compost – No of responses (only if chose Q2.11c)					
a. Not enough space on site	Not asked	11	5	Not asked	16
b. Takes too much time		11	5		16
c. LA/contractor should do		0	0		0
d. No equipment		0	0		0
e. Lack of knowledge		0	0		0
f. Concern about smell/pests		4	1		5
g. Not interested		0	1		1
h. Other		1	0		1
Q2.14 – Factors that would encourage on-site composting (only if chose Q2.11b or c)					
a. Free compost container	Not asked	1	1	Not asked	2
b. Availability of cheap, easy to use, nuisance free system		6	3		9
c. Reduction in LA taxes		0	2		2
d. Education/training		3	1		4
e. Earning extra money		0	1		1
f. Other		1	0		1
g. No response		17	7		24
Q2.15 – Willingness to store organic wastes between collection – No of days					
a. Half a day	1	3	0	0	4
b. One day	16	11	7	3	37
c. Two days	3	4	4	0	11
d. Three days	0	2	0	0	2
e. More than 3 days	1	1	3	0	5
f. No response	0	2	0	0	2

3.2.5 Environmental Education and General Cleanliness

The following table sets out the main interview survey results relating to on-site composting. Some key points are summarized below:

- (a) 22 (37%) enterprises indicated they have received some health/environmental education related to SWM. Most people received this training as part of their work, including vocational training (e.g. hospitals), on the job training and seminars.
- (b) 60 (100%) enterprises consider a campaign to raise peoples' awareness for maintaining a cleaner city and environment is either somewhat necessary (59) or very necessary (1).

Table 3-5: Survey Results – Environmental Education and General Cleanliness

Item	Small Waste Gen'rs	Large Waste Generators			Total
		Comm./ industrial	Other Inst'ns	Hospitals	
No of respondents	21	23	13	3	60
Q3.1 to 3.2 – Receipt of Health/environmental education/knowledge about SWM					
No of responses	5	12	22	6	45
Source:					
a. School	0	0	0	0	0
b. Leaflets/posters, etc.	0	0	0	0	0
c. Health worker/centre	0	1	2	2	5
d. Community organization/NGO	0	0	3	0	3
e. Newspaper	0	0	2	0	2
f. Radio programme	0	1	2	0	3
g. TV programmes	2	1	2	0	5
h. Local authority	0	0	2	2	4
i. Local authority contractor	0	4	5	2	11
j. Central government/MOH	2	2	2	0	6
k. Other	0	0	0	0	0
l. No response					
Q3.2 – Necessity for campaign to raise peoples' awareness of need for cleaner city/environment					
a. Very necessary	20	23	13	3	59
b. Somewhat necessary	1	0	0	0	1
c. Not very necessary	0	0	0	0	0
d. Not necessary at all	0	0	0	0	0
e. No response	0	0	0	0	0

Note: MOH = Ministry of Health

3.2.6 Other Comments

Other comments covered a broad range of issues and are summarized below. The most common comments relate to:

- (a) Widespread support for recycling (13).
- (b) A need for public education/awareness raising (11).
- (c) Improve the present SWM/cleaning system (4).
- (d) Give/build new permanent bins (3).

Table 3-6: Survey Results – Other Comments

Comments	Small Waste Genr's	Large Waste Generators			Total
		Comm./ Indust.	Other Inst'ns	Hosp -itals	
Five or more comments					
Supports recycling	3	6	3	1	13
Undertake public education/awareness raising, including for traders (1)	2	5	4	0	11
Three or four comments	2	2	4	1	9
Improve present SWM/cleaning system	1	3	0	0	4
Give build permanent bins	3	0	0	0	3
Two comments					
Take legal action, especially against king coconut sellers (1)	0	2	0	0	2
Start compost facility	0	2	0	0	2
One comment	0	0	3	1	4
Ban polythene	0	0	1	0	1
Introduce appropriate laws and regulations	0	0	0	1	1
Introduce good waste management system	0	1	0	0	1
Privatise cleaning service – MC can't do this job	0	0	1	0	1
Landowners should clean nearby roads	0	1	0	0	1
Provide necessary facilities to MC for cleaning	0	0	1	0	1
Collect two times per day	1	0	0	0	1
Want night cleaning services	1	0	0	0	1
Spray chemicals to canals/bins every 2 weeks	1	0	0	0	1
Wants daily collection service	0	1	0	0	1
Introduce scheduled waste collection time	1	0	0	0	1
Introduce alternative for polythene	0	0	1	0	1
Form small groups and keep city clean through their programmes	1	0	0	0	1
Train our members about recycling (garment factory)	0	1	0	0	1
Give technical knowledge about recycling to schools	0	0	1	0	1
Need incinerator	0	0	0	1	1
Need financial assistance (e.g. for setting up colour coded waste disposal system; providing gloves, etc. to labourers)	0	0	0	1	1
Introduce a new system to use cut hair	1	0	0	0	1
Other comments	0	0	1	0	1
Improve drain/canal cleaning	2	1	0	0	3
Rebuild drains/canals	3	0	0	0	3
Build toilet facilities, including in Mirriswatta (1)	3	0	0	0	3
Introduce good wastewater disposal system	0	1	0	0	1
Supply drinking water	1	0	0	0	1
Willing to participate in environmental education programmes	1	0	0	0	1
Supervisors and collection vehicles should be deployed in each street	1	0	0	0	1
Also clean Cross St and other secondary sts	1	0	0	0	1
Put waste collection points close to shops	0	1	0	0	1
Build new collection point by Army Camp	0	0	1	0	1
Establish large scale composting/recycling factories	0	1	0	0	1
Give households knowledge/equipment for compost making	0	0	1	0	1
Prison inmates can be used as labourers in waste handling with government approval.	0	0	1	0	1

3.3 Cleansing Workers Survey

Findings from Cleansing Workers Survey in Gampaha

A questionnaire survey was conducted among 30 municipal cleansing workers, in order to gather;

- Basic socio-economic profiles of cleansing workers.
- An appreciation of working condition of municipal cleansing workers.

Period of survey: The third and fourth week of August and the first week of September, 2002

Sample size: 30

1. General Questions

Q1-1 Gender

	Gampaha	
	Number	%
1 Male	24	80%
2 Female	6	20%
Total	30	100%

Q1-2 Ethnicity

	Gampaha	
	Number	%
1 Sinhala	22	73%
2 Muslim	0	0%
3 Tamil	8	27%
4 Other	0	0%
Total	30	100%

Q1-3 Religion

	Gampaha	
	Number	%
1 Buddhist	22	73%
2 Islam	0	0%
3 Hindu	5	17%
4 Christian	3	10%
5 Other	0	0%
Total	30	100%

Q1-4 Household information

(person)	Gampaha
Avg. number of family members	4.9
(Rs.)	Gampaha
Avg. household income	7,715
(Rs.)	Gampaha
Income per person	1,592

Q1-5 How much is the total expenditure of your household per month on average?

(Rs.)	Gampaha
Avg. household expenditure	6,163

(Rs.)	Gampaha
Expenditure per person	1,271

Q1-6 Please specify the priority for your daily life regarding the improvement of the following aspects ?

	Gampaha	point
1 First	Storm water drainage	32
2 Second	Others (Toilet / housing problems / mosquitoes)	26
3 Third	Garbage collection	18
4 Fourth	Water supply	17
5 Fifth	Wastewater collection	9
6 Sixth	Access road to my house	7
7 Seventh	Electricity supply	2

2. Questions about Your Work

Part A : Status and Wage

Q2-1 Are you a permanent worker or a casual worker?

	Gampaha	
	Number	%
1 Permanent	24	80%
2 Casual	6	20%
Total	30	100%

Q2-2 How long have you been doing this job?

(years)	Gampaha
Average working years	11.7

Q2-3 How many days do you usually work per week?

(days)	Gampaha
Average working days per week	5.7

Q2-4 How many hours do you usually work per day?

(hours)	Gampaha
Average working hours per day	7.2

Q2-5 Had either your father or mother done this same job?

	Gampaha	
	Number	%
1 Yes	9	30%
2 No	21	70%
Total	30	100%

Q2-6 How much is your monthly wage on average (including official allowance such as holiday pay, overtime and so on)?

(Rs)	Gampaha
Average monthly income	5,296

Q2-7 Do you have any secondary jobs after working hours?

	Gampaha	
	Number	%
1 Yes	8	27%
2 No	22	73%
Total	30	100%

Q2-8 How often and what type of work do you do as a secondary job?

- (1) How often: Frequency varies from every day to a few times per month.
- (2) Type of work: Labor work such as cleaning houses, cleaning toilets, shoe repairing and so on.

Q2-9 How much is your monthly wage on average from this secondary resource?

(Rs)	Gampaha
Average monthly income from secondary job	2,200

Note: Number of effective answers are 8.

Q2-10 Are there some waste generators which give you small allowance, including the reward to your extra cleaning work?

	Gampaha	
	Number	%
1 Yes	11	37%
2 No	19	63%
Total	30	100%

Q2-11 How much is your income from small allowance per month on average?

(Rs)	Gampaha
Average monthly allowance from waste generators	85

Note: Number of effective answers are 11.

Q2-12 Do you know other solid waste laborers who sometimes receive a small allowance?

	Gampaha	
	Number	%
1 Yes	17	57%
2 No	7	23%
98 Don't know	6	20%
Total	30	100%

Q2-13 Do you collect recyclable materials from waste for sale?

	Gampaha	
	Number	%
1 Yes	7	23%
2 No	23	77%
Total	30	100%

Q2-14 If yes to Q2-13, what materials do you collect, how much do you collect per month and who do you sell them to?

	Gampaha	
	Number	%
1 Bottle	5	15%
2 Iron	1	3%
3 Aluminum	2	6%
4 Tin	2	6%
5 Copper	0	0%
6 Other metal	0	0%
7 Paper	0	0%
8 Irrelevant	23	70%
Total	33	100%

(Rs.)	Gampaha
Average monthly income from recycling	62

Note: Number of effective answers are 7.

Part B : Working Conditions and Technical Problems

Q2-15 These are the possible difficulties you may face. Please prioritize your difficulties?

	(points)	Gampaha
1	Heavier workload and unhealthier conditions due to the improper discharge as waste by people	22
2	Unsanitary waste such as human waste / excrement is mixed with other waste	26
3	Heavier workload for you due to absenteeism among your colleagues	19
4	Heavier workload for you due to alcoholism among your colleagues	9
5	Insufficient wage	44
6	Health problems	30
7	The working schedule such as allocation of vehicles and routes are so changeable	4
8	Lack of protecting clothing (boots, gloves, apron and so on)	58.5
9	Vehicle often breakdown	25
10	Not enough tools for cleansing work	22
11	Vehicle parked on the street makes your work more difficult	21
12	Others	11
Total		291.5

Note: Others are "not enough overtime payment", "difficult to fetch water for cleaning" and "people scold us."

Q2-16 Are there any particular areas of the city where you feel difficult to collect garbage?

	Gampaha	
	Number	%
1 Yes	9	30%
2 No	21	70%
Total	30	100%

Q2-17 If yes to the previous question, what are the reasons of difficulties?

	Gampaha	
	Number	%
1 Improper discharge of waste by people	4	13%
2 Physically difficult work	0	0%
3 Large amount of garbage	3	10%
4 Traffic and many people	0	0%
5 Road conditions	0	0%
6 Other	2	7%
98 Don't know	0	0%
99 Irrelevant	21	70%
Total	30	100%

Note: Other means "much unsanitary waste" and "a steep road".

Q2-18 When difficulties relating to your work arise, whom you talk to first? (**Choose only one.**)

		Gampaha	
		Number	%
1	Officer in charge such as PHI and MOH	17	57%
2	Supervisor	5	17%
3	Minor supervisor	2	7%
4	Colleagues	6	20%
5	Others	0	0%
Total		30	100%

Q2-19 How do you think MC / UC can improve the garbage collection system? Please give your honest opinion.

		Gampaha	
		Number	%
1	Household / citizens contribution	1	2%
2	Need salary increase	6	12%
3	Need more workers	10	19%
4	Need awareness program	4	8%
5	Need more equipments / vehicles	19	37%
6	Health protection incl. introducing protecting clothing	6	12%
7	Others	6	12%
Total		52	100%

Note: Other means "government and MC's proper attention to workers should be paid." "Discharge rules should be introduced", "all workers should work hard equally."

3.4 Middlemen Survey

3.4.1 Survey Sheet

Middlemen and Micro-industries Recycling Survey

Interviewer:		Date:	
--------------	--	-------	--

General Information:

Name of Interviewee:	
Position of Interviewee:	
Name of Business:	
Address/location:	
No of Years of Operation:	

Nature of Business:

a) What are the main activities of your business?

Recycling Activities Collection Details

3.1 What materials do you recycle and in what condition? *(please circle the materials recycled and their condition in the table below)*

Materials	Condition				
	Plastics	Mixed, unwashed	Sorted, unwashed	Sorted, clean	Other
Polythene	Mixed, unwashed	Sorted, unwashed	Sorted, clean	Other	
Bags	Polysacks	Flour bags	Poultry feed bags	Sugar bags	Other
Paper	Old newspapers	Old exercise books	White paper	Cardboard/boxes	Other
Glass	Whole Arrack bottles	Whole beer bottles	Other whole bottles/jars	Broken bottles	Other
Metals	Aluminium	Beer cans	Copper/brass	Ferrous	Other
Tyres	Small			Large	
Other	Old battery cases (washed, cleaned)		Wood	Other	

Please describe what "other" means below:

.....

.....

- 3.2 Who collects these recyclable materials for you? (*tick one or more and describe the type of wastes to which they apply*)
- | | <i>Tick</i> | <i>Waste Types</i> |
|--|-------------|--------------------|
| (a) Individuals | [] | |
| (b) You and/or some of your workers | [] | |
| (c) LA/private contractor garbage collection labourers | [] | |
| (d) Community groups/non-governmental organizations | [] | |
| (e) Middlemen | [] | |
| (f) Other – describe: | [] | |

- 3.3 What are the main sources these recyclable materials come from? (*fill in the table with the materials you recycle, the main sources and the approximate percentages from these sources if you know them*)

Materials	Main sources			
	First	Second	Third	Others
<i>e.g. Cardboard</i>	<i>C (75%)</i>	<i>M (15%)</i>	<i>Ht (5%)</i>	<i>S, GO (5%)</i>

Use the following codes:

H	Households	Ht	Hotels	Hp	Hospitals
C	Commercial enterprises (e.g. shops, banks, etc.)	GO	Government offices	I	Industries
M	Markets	S	Schools	O	Other

Please describe what "other" means below:

.....

- 3.4 Where do these recyclable materials come from and what is the approximate percentage of materials collected from each area?
- | | <i>Tick</i> | <i>%</i> |
|---|-------------|----------|
| (a) Within Urban/Municipal Council Area | [] | [] |
| (b) Within District | [] | [] |
| (c) Within Province | [] | [] |
| (d) Other Areas – describe: | [] | [] |

- 3.5 Fill in the table below with the following information:
- On average, how many units (kg, items, etc.) of these recyclable materials do you collect per month?
 - How much do you pay for such materials per unit (Rs/kg, Rs/item, etc.)?
 - Is your demand for these materials stable?
 - Is the supply greater than or less than your demand?
- Please add any relevant comments on demand/supply issues for these materials below the table.

Material	Quantity	Price paid	Total payment (Rs/mth)	Demand stable	Supply vs. demand
<i>e.g. Clean, sorted plastics</i>	<i>80kg/mth</i>	<i>5Rs/kg</i>	<i>400 Rs</i>	<i>Yes</i>	<i>Greater</i>
Total payment					

Comments:.....
.....

Worker Details

In the table below, indicate the number of full-time and part-time workers, including yourself, and in each case, the average number of hours worked per week and days worked per month **on the recycling activities** carried out by your business.

Table 2 : WorkerDetails

Workers	No	Hrs worked per wk on recycling activities	Days worked per month on recycling activities
Manager/owner			
Full-time worker			
Part-time worker			

Recycling Activities Processing/Sales Details (fill in Table 3 with answers)

- 5.1 What do you do with these materials? (*tick one or more and describe the types of waste to which they apply*)
- | | Tick | Waste Types |
|--|------|-------------|
| (a) Transport directly to factories | [] | |
| (b) Pre-process (e.g. sort, wash, dry) and transport to factories | [] | |
| (c) Process (e.g. grind, pelletise, etc.) and transport to factories | [] | |
| (d) Use as raw materials for making other products | [] | |
| (e) Other – describe: | [] | |

5.2 If you ticked (d) in Q5.1, what products do you make from these materials?
.....
.....

5.3 Who do you sell these materials and/or the products you make from them to? Where relevant (e.g. commercial, industrial), specify the name, location and how far away are these places are located.

Customers	Materials sold	Name	Location	Distance (km)
Individuals				
Commercial enterprises (e.g. shops, markets)				
Tourists				

Factories for further processing				
Other				

Please describe what "other" means:

.....

Fill in the table below with the following information:

- (a) How many units (kg, items) of these materials and/or products do you sell per month?
- (b) How much do you sell these materials and/or the products you make from them for?
- (c) Is the demand for any products you make from these materials small, medium or large?

Material	Quantity	Sales Price	Income (Rs/mth)	Demand
<i>e.g. Plastic pellets</i>	<i>50kg/mth</i>	<i>40Rs/kg</i>	<i>2,000</i>	<i>Medium</i>
Total income:				

Comments:.....

.....

What is your average expenditure and income per month from these recycling activities:

Average operating expenses = Rs/mth
 Average income = Rs/mth
 Net income = Rs/mth

What are the main costs incurred by your business in these recycling activities?; and what is the approximate percentage total costs in each category? (*tick all that apply and estimate the approximate percentages of the five main types. If you do not know this, just rank the five main types, 1 = highest, 2 = 2nd highest, etc.*) Tick % or rank

- (a) Buying the recyclable materials [] []
- (b) Storage prior to transportation [] []
- (c) Transportation [] []
- (d) Labour [] []
- (e) Other raw materials (e.g. chemicals, additives) [] []
- (f) Utilities (electricity, water, telephone, etc.) [] []
- (g) Land/building rental [] []
- (h) Machinery maintenance [] []
- (i) Other – describe: [] []

Other Information

How much waste do you produce from your recycling activities per month?

Answer: kg/mth

What do you do with the waste from your recycling activities? (*tick one or more*)

- (a) All waste is recycled []
- (b) Collection by LA/private contractor []
- (c) Bury/burn on property []
- (d) Other - describe: []

What are the main issues/problems facing your recycling activities? (tick all that apply and rank up to the five most serious problems, 1 = worst, 2 = 2nd worst, etc.)

	<i>Tick</i>	<i>Rank</i>
(a) Shortage of recyclable materials	[]	[]
(b) Contamination/poor quality of recyclable materials	[]	[]
(c) High land/building rental costs	[]	[]
(d) Excessive transportation costs	[]	[]
(e) Unstable demand for recyclable materials and/or products	[]	[]
(f) Utilities problems (e.g. electricity cuts, no water, etc.)	[]	[]
(g) Loss of market (e.g. collapse of tourism)	[]	[]
(h) Difficulties in obtaining credit	[]	[]
(i) Other - describe:	[]	[]

Comment on what could be done to help solve these problems/issues?

.....

Any other comments/useful information?

.....

Notes for interviewer:

1. Check that quantities collected for recycling tally with quantities sold on to others, where relevant.
2. Check that costs and income tally with quantities and indicated sales prices.

3.2 Collectors								3.3 Main sources																												
ID No	Oth	PI	Ba	Pa	Gl	Me	Oth	Tot	Plastic (%)						Bags (%)				Paper/cardboard (%)						Broken Glass (%)						GI bottles (%)					
Ba									H	Hp	C	I	Go	O	H	Ht	C	O	H	C	Go	S	I	O	H	Ht	Go	C	I	H	Ht	Go	C	I	O	
MM1	Y					A,F	A	A,F						20						80	0	20	0	0	0	70	0	20	0	10	70	0	20	0	10	0
MM2	Y	A		A	A	A	A	A	80	0	0	0	0	20						80	0	20	0	0	0	70	0	20	0	10	70	0	20	0	10	0
MM3	Y			E	E	E	E	E	80	0	0	0	0	20						80	20	0	0	0	0	70	10	0	20	0	70	10	0	20	0	0
MM4	Y	A,E	A,E	A,E	A,E	A,E	A,E	A,E	80	0	0	20	0	0	10	0	90	0	100	0	0	0	0	0	80	20	0	0	0	80	20	0	0	0	0	0
MM5				A,E	A	A	A	A,E	5	0	60	0	30	5					5	0	60	0	30	5	70	30	0	0	0	70	30	0	0	0	0	
MM7	Y			A	A	A	A	A	50	0	0	0	0	50					50	0	0	0	50	0	70	30	0	0	0	70	30	0	0	0	0	
Total	5							Avg	80.0	0.0	0.0	13.3	0.0	10.0	10.0	0.0	90.0	0.0	9.8	0.0	56.8	0.0	28.4	5.0	74.2	16.3	0.6	3.3	0.4	77.4	17.6	2.9	0.6	1.6	0.0	

	Count	Wt avg
A	2	1
B	0	0
C	0	0
D	0	0
E	1	1
F	0	0

MM1 - F = tender items

Pa/c'board - MM5 - other = schools, commercial, markets
MM7 - other = uactions

Qtys of different materials collected by different middlemen used in calculating weighted average sources (%) in Q3.3

	PI	Bg	P/C	Glass			Me	Ba
				Br	Bo	Tot		
MM1	0	0	0	0	0	0	112500	5000
MM2	10	0	80	100	1000	1100	1100	200
MM3	0	0	25	1000	200	1200	1542	15
MM4	20	1500	600	1000	5000	6000	29550	0
MM5	0	0	13500	0	0	0	0	0
MM7	0	0	80	300	600	900	1117	75
Total	30	1500	14285	2400	6800	9200	145809	5290

Must adjust this table after entering data to eliminate any values for which there is Adjusted cells shaded in orange

3.2 Collectors								3.3 Main sources																											
ID No	Oth	PI	Po	Ba	Gl	Me	Oth	Tot	Plastic/polythene/bags (%)						Paper/cardboard						Broken Glass (%)						GI bottles (%)								
Ba									H	Hp	C	I	Go	O	H	Ht	Hp	I	Go	O	H	Ht	C	O	H	Ht	Go	C	I	H	Ht	Go	C	I	O
MM6						A,E		A,E																											
MM8		A,B,E	A,B,C,E	A,B,E				A,B,C,E	0	5	5	75	15	0																					
Total	0							Avg	0.0	5.0	5.0	75.0	15.0	0.0																					

	Count	Wt avg
A	1	1
B	1	1
C	0	0
D	0	0
E	1	1
F	0	0

Qtys of different materials collected by different middlemen used in calculating weighted average sources (%) in Q3.3

	PI+Po	Me
MM6	20000	0
MM8	0	12000
Total	20000	12000

Must adjust this table after entering data to eliminate any values for which there is NA in Q3.3 - do manually Adjusted cells shaded in orange

ID No	Metals (%)						Batteries (%)				Prop (%)	3.4 Coll'n area (%)				4. Worker details						5.1 Processing						5.2 Products					
												Manager/owner		Full-time workers		Part-time workers		Total	Equiv	PI		Ba	Pa	Gl	Me	Oth							
	H	Ht	C	GO	I	O	H	I	C	O		A	B	C	D	No	Hr/wk	d/mth	No	Hr/wk	d/mth	No	Hr/wk	d/mth	H/mth	FT							
MM1	9.4	0.1	0	0	89.2	1.3	0	100	0	0	17.3	5%	5%	90%	1	63	30	1	48	26	1	28	23	540	2.80						A,R	A,R	IR
MM2	50	0	0	0	40	10	90	0	0	10	12.23	95%	5%		2	126	30	0			2	28	28	652	3.13	R,WS			R,WS	R,WS	R,WS	IR	
MM3	50	0	0	10	40	0	60	40	0	0	1.115	70%	30%		1	63	30	0											R	R	R	IR	
MM4	30	0	0	10	60	0					64.93	50%	30%	10%	10%	1	56	30	3	168	30	0					R,WS	R,WS	R,WS	R,WS	R,WS	IR	
MM5											1.988	30%	60%	10%		3	120	21	1	40	21	3	120	21	840	4.04				A		IR	
MM7	60	0	0	0	0	40	40	0	0	60	2.437	80%	20%			2	120	25	0										A,R	A,R	A,R	IR	
Total	40	0	0	4	46	10	48	35	0	18	Avg	48.3	23.0	6.5	22.3	10									3661	17.74							
	14.7	0.1	0.0	2.1	81.7	1.4	4.1	84.8	0.0	1.2																							
Sum	100																																

Tot = 100.0 % Assume equiv FT worker = 208 h/mth in private sector (8h/d x 26d/mth)

R = retail
WS = w/sale
A
B
C
D
E
NA
IR

PI
Ba
Pa
Gl
Me
Oth

In
CE
T
F
Oth
IR
NA
Sum

MM4 - no batteries data
Metals - other = workshops batt - Other = garages

"Prop" column lists proportion of materials collected from different sources, as calculated in purchases sheet - used for calculating weighted averages in Q3.4

3-35

ID No	Metals (%)						Batteries (%)				Prop (%)	3.4 Coll'n area (%)				4. Worker details						5.1 Processing						5.2 Products						
												Manager/owner		Full-time workers		Part-time workers		Total	Equiv	PI		Po	Ba	Gl	Me	Oth								
	H	Ht	C	GO	I	O	H	I	C	O		A	B	C	D	No	Hr/wk	d/mth	No	Hr/wk	d/mth	No	Hr/wk	d/mth	H/mth	FT								
MM6	5	0	95	0	0	0					37.5	40%	0%	40%	20%	1	60	26	15	675	26	0			2730	13.13							A,D	NA
MM8											62.5	5%	10%	80%	5%	2	90	24	7	336	24	8	384	24	2777	13.35	C,D,E	C,D,E	C,D,E					inject'r moldin
Total	5	0	95	0	0	0					Avg	18.1	6.3	65.0	10.6	3										5507	26.48							
Sum	100																																	

Tot = 100 Assume equiv FT worker = 208 h/mth in private sector (8h/d x 26d/mth)

R = retail
WS = w/sale
A
B
C
D
E
NA
IR

PI
Po
Ba
Gl
Me
Oth

In
CE
T
F
Oth
IR
NA
Sum

"Prop" column lists proportion of materials collected from different sources, as calculated in purchases sheet - used for calculating weighted averages in Q3.4

5.3							5.5 Profit Exp and Income check						5.6 Main Costs										
ID No	PI	Ba	Pa	GI	Me	Oth	Name, location, distance (km)	Expend-iture	Income	Net income	Recycl Payment	Recycl Sales	Net income	A	B	C	D	E	F	G	H	I	
MM1					In,F	In,F	Pilimthalaawa, Kiribathgoda	2250000	3250000	500000	2202500	2535000	332500	1	3				2	4			
MM2	In,F		In,F	In,F	In,F	In,F	DK	15000	20000	5000	20010	24490	4480	1		2	3						
MM3			In,CE	In,CE	In,CE	In,CE	DK	15000	20000	5000	15020	18540	2620	1	2							3	
MM4	In,CE	In,CE	In,CE	In,CE	In,CE	In,CE	DK	400000	NA	NA	539200	724295	185095	1	5							3	4
MM5			F				Embilipitiya, Walachchena	200000	IR	IR	85875	IR	IR	1			2					3	4
MM7			In,F	In,F	In,F	In,F	DK	15000	18000	3000	12635	19466	6831	1									2
Total	Ct						Total	2895000	NA	NA	2886240	3321891	531528										
	2	1	4	4	5	5	MM1: Exp = 2-2.5M; income = 3-3.5M, net income = 0.5M					From recyclables purchases and sales data											
	1	1	1	1	1	1	From comparison of recyclables and purchases data, suspect data identified (shaded in orange)					Rank											
	0	0	0	0	0	0						Rank											
	1	0	3	2	3	3						Rank											
	0	0	0	0	0	0						Rank											
	0	0	0	0	0	0						Rank											
	0	0	0	0	0	0						Rank											
	4	2	8	7	9	9						Rank											
	Use "In" for individuals																						

5.3							5.5 Profit Exp and Income check						5.6 Main Costs									
ID No	Prod-ucts	Pellets	Prod-ucts	Me	Oth	Name, location, distance (km)	Expend-iture	Income	Net income	Recycl Payment	Recycl Sales	Net income	A	B	C	D	E	F	G	H	I	
MM6				In,CE		See note below	375000	450000	75000	146400	302450	850050	1		4	3			2		5	
MM8		In,F	C			Pugoda, Thihariya, Colombo, Kandy Kurunegala, Minuwangoda, Mawanella	773000	888950	115950	440000	520000	80000	1		5	2			3	4		
Total	Ct						Total	1148000	NA	NA	586400	1322450	730050									
	0	0	1	0	1	0	MM6 customers for steel goods:					From recyclables purchases and sales data										
	0	0	0	0	1	0	Commercial: Kanchana (Homagama),					Rank										
	0	0	0	0	0	0	Samarakoon (Minuwangoda),					Rank										
	0	0	1	0	0	0	Keelthi (Galle)					Rank										
	0	0	0	0	0	0	Rathna Motors, New Rathna					Rank										
	0	0	0	0	0	0	Motors, Senevirathna Motors,					Rank										
	0	0	0	0	0	0	Panchikiwatta					Rank										
	0	0	2	0	2	0						Rank										
	Use "In" for individuals																					
							MM6: expenditure = 350,000-400,000 Rs/mth; income = 400,000-500,000 Rs/mth															
							MM8: expenditure calculated, with income and net income based on 15% profit, as stated during survey															

ID No	Qty (kg/mth)	Acti	6.3								6.4 & 6.5
			Main problems								
		A	B	C	D	E	F	G	H	Comments on how to solve these problems + other	
MM1	15	C	NO							No	
MM2	100	D	3		4		1		2	Give low interest loan; recycling awareness progr.	
MM3	30	B	1		2		3		4	Give low interest loan	
MM4	30	B,C	1		3			2		Help to sell real price	
MM5	90	C	1							Recycling awareness programme	
MM7	0	IR					1			No	

Total	Ran	A	B	C	D	E	F	G	H
1	2.5	3	0	0	0	0	2	0	0
2	2	0	0	1	0	0	0	1	1
3	1.5	1	0	1	0	0	1	0	0
4	1	0	0	0	1	0	0	0	1
5	0.5	0	0	0	0	0	0	0	0
	Sum	4	0	2	1	0	3	1	2
	Wt %	9.0	0.0	3.5	1.0	0.0	6.5	2.0	3.0

ID No	Qty (kg/mth)	Acti	6.3								6.4 & 6.5
			Main problems								
		A	B	C	D	E	F	G	H	Comments on how to solve these problems + other	
MM6	50	B				3		2		1	Give low interest loan or aid; also see below
MM8	500	B	4		3			2		1	Govt assistance (e.g. rent/lease of govt or other land for sorting/cleaning; credit facilities)

Total	Ran	A	B	C	D	E	F	G	H
1	2.5	0	0	0	0	0	0	0	2
2	2	0	0	0	0	0	2	0	0
3	1.5	0	0	1	1	0	0	0	0
4	1	1	0	0	0	0	0	0	0
5	0.5	0	0	0	0	0	0	0	0
	Sum	1	0	1	1	0	2	0	2
	Wt %	1.0	0.0	1.5	1.5	0.0	4.0	0.0	5.0

3.4.3 Result 2

Sectid	1	3.1		3.5		Plastics				Polythene				Bags				Newspaper															
		ID No	Business name	Code	Qty	Unit	Price	Unit	Total	Dem	SvD	Code	Qty	Unit	Price	Unit	Total	Dem	SvD	Code	Qty	Unit	Price	Unit	Total	Dem	SvD						
MM1	K.G.Jothipala	IR		kg				0			IR		kg	/kg		0			IR		bags	ea		0									
MM2	W.A.Somarathna	MU	10	can	20	ea	200		N	>	IR		kg	/kg		0			IR		bags	ea		0	30	kg	12	/kg	360	Y	<		
MM3	Mahendran	IR		kg			0				IR		kg	/kg		0			IR		bags	ea		0	25	kg	13	/kg	325	N	>		
MM4	Raja Stores	MU	20	can	25	ea	500		N	>	IR		kg	/kg		0			FB,PFB,SB	1500	bags	3	ea	4500	N	<	500	kg	13	/kg	6500	Y	<
MM5	National Paper Co	IR		kg			0				IR		kg	/kg		0			IR		bags	ea		0	500	kg	2.25	/kg	1125	Y	<		
MM7	Ananda Stores	IR		kg			0				IR		kg	/kg		0			IR		bags	ea		0	50	kg	13	/kg	650	Y	<		
			30	cont/barrel			700					0	kg	/kg		0	Rs			1500	bags	ea	4500	Rs		1105	kg		/kg	8963	Rs		

Notes:

- Blue shaded cell indicates no quantity or cost information given (NA inserted in units column rather than qty column, as the latter upsets the spreadsheet calculations)
- Green shaded cell indicates data that has been modified so that sales and purchases figures are consistent.
- NA = no answer

Sectid	1	3.1		3.5		Plastics, polythene and bags				Metals - ferrous				Kg	Payments (Rs)	Act-ual	Prop'n of total (%)				
		ID No	Business name	Code	Qty	Unit	Price	Unit	Total	Dem	SvD	Qty	Unit					Price	Unit	Total	Dem
MM6	Super Steel Ind.	IR		kg			0				12000	kg	12.2	/kg	146400	Y	G	12000	146400	=	37.5
MM8	Super Plastic Ind.	MU	12000	kg	22	Rs	264000	Y	<									12000	264000	=	37.5
		Clean	8000	kg	22	Rs	176000	Y	<									8000	176000	=	25.0
							440000				12000	kg			146400	Rs		32000	588400		100.0

Notes:

- "Actual" column advises whether actual payments will be higher based on whether or not complete information was supplied.
- Proportion column calculates the proportion of total materials collected by different enterprises as (no of containers/total)

Section																																				
ID No	Exercise books							White-Paper							Cement bags							Cardboard/boxes							Broken glass							
	Qty	Unit	Price	Unit	Total	Dem	SvD	Qty	Unit	Price	Unit	Total	Dem	SvD	Qty	Unit	Price	Unit	Total	Dem	SvD	Qty	Unit	Price	Unit	Total	Dem	SvD	Qty	Unit	Price	Unit	Total	Dem	SvD	
MM1	50	kg	3	/kg	150	N	>		kg		/kg	0				kg		/kg	0				kg		/kg	0				kg		/kg	0			
MM2		kg		/kg	0				kg		/kg	0				kg		/kg	0				kg		/kg	0			100	kg	1	/kg	100	N	>	
MM3		kg		/kg	0				kg		/kg	0				kg		/kg	0				1000	kg	1.5	/kg	1500	Y	>							
MM4	100	kg	2	/kg	200	Y	<		kg		/kg	0				kg		/kg	0				1000	kg	1.5	/kg	1500	Y	<							
MM5	1500	kg	2.5	/kg	3750	Y	<	3000	kg	19	/kg	57000	Y	<	500	kg	4	/kg	2000	Y	<	8000	kg	4	/kg	32000	Y	<								
MM7	30	kg	3	/kg	90	N	>		kg		/kg	0				kg		/kg	0				300	kg	1.5	/kg	450	N	>							
	1680	kg		/kg	4190	Rs		3000	kg		/kg	57000	Rs		500	kg		/kg	2000	Rs		8000	kg		/kg	32000	Rs		2400	kg		/kg	3600	Rs		

MM5: 500kg exercise books @ 3Rs/kg &
1000kg text books @ 2.25Rs/kg

Section
ID No
MM6
MM8

Section																																												
Arrack/beer/other bottles									Metals - ferrous									Metals - copper/brass									Metals - Aluminium									Metals - Beer Cans								
ID No	Code	Qty	Unit	Pric	Unit	Total	Dem	SvD	Qty	Unit	Price	Unit	Total	Dem	SvD	Qty	Unit	Price	Unit	Total	Dem	SvD	Qty	Unit	Price	Unit	Total	Dem	SvD	Qty	Unit	Price	Unit	Total	Dem	SvD								
MM1	IR					0			100000	kg	8	/kg	800000	Y	<	10000	kg	120	/kg	1200000	Y	<	2000	kg	70	/kg	140000	Y	<	500	kg	25	/kg	12500	Y	<								
MM2	AR,BB,BJ	1000	Bott	5	ea	5000	N	>	1000	kg	6	/kg	6000	Y	<	50	kg	80	/kg	4000	Y	<	40	kg	60	/kg	2400	Y	<	10	kg	20	/kg	200	Y	<								
MM3	AR,BB	200	Bott	4	ea	800	N	>	1500	kg	7	/kg	10500	Y	<	12	kg	80	/kg	960	Y	<	30	kg	60	/kg	1800	Y	<		kg		/kg	0										
MM4	AR,BB	5000	Bott	5	ea	25000	Y	>	25000	kg	6	/kg	150000	Y	<	3000	kg	80	/kg	240000	Y	<	1500	kg	60	/kg	90000	Y	<	50	kg	20	/kg	1000	Y	>								
MM5	IR					0				kg		/kg	0				kg			0				kg			/kg	0																
MM7	AR,BB	600	Bott	5	ea	3000	Y	<	1000	kg	5	/kg	5000	Y	<	40	kg	70	/kg	2800	Y	<	70	kg	50	/kg	3500	Y	<	7	kg	10	/kg	70	Y	<								
		6800	bottles		ea	30800	Rs		128500	kg			971500	Rs		13102	kg			1447750	Rs		3640	kg			297700	Rs		587	kg			13770	Rs									

Section
ID No
MM6
MM8

Section							Total quantities				Actual	Prop'n of total (%)		
ID No	Qty	Unit	Price	Unit	Total	Dem	SvD	Cont-ainers	Bottles	Bags			Kg	Payments (Rs)
MM1	5000	kg	10	/kg	50000	Y	<	0	0	0	117500	2202500	=	17.3
MM2	200	kg	8	/kg	1600	Y	<	10	1000	0	1480	20010	=	12.2
MM3	15	kg	9	/kg	135	Y	<	0	200	0	2582	15020	=	1.1
MM4	2000	kg	10	/kg	20000	Y	<	20	5000	1500	33150	539200	=	54.9
MM5		kg		/kg	0			0	0	0	13500	95375	=	2.6
MM7	75	kg	7	/kg	525	Y	<	0	600	0	1572	12635	=	2.4
	7280	kg			72280			30	6800	1500	199784	2866240		100.0

1. "Actual" column advises whether actual payments will be higher based on whether or not complete information was supplied.
2. Proportion column calculates the proportion of total materials collected by different enterprises as (no of containers/total containers + no of bottles/total bottles + no of bags/total bags + kg/total kg)/4 * 100% - used in general spreadsheet

Section
ID No
MM6
MM8

3.4.4 Result 3

Middlemen

		1		3.1		5.4																											
ID No	Business name	Plastics						Various bags						Newspaper				Paper - exercise books				Cardboard											
		Code	Qty	Unit	Price	Unit	Total	Dem	Qty	Unit	Price	Unit	Total	Dem	Qty	Unit	Price	Unit	Total	Dem	Qty	Unit	Price	Unit	Total	Dem							
MMG1	K.G.Jothipala	IR					0																										
MMG2	W.A.Somarathna	MU	10	Can	35		<							30	kg	18	/kg	540	>		50	kg	4	/kg	200	<							
MMG3	Mahendran	IR												25	kg	16	/kg	400	ME														
MMG4	Raja Stores	MU	20		35		<	1500	bags	5.33	ea	7995	ME	500	kg	20	/kg	10000	>		100	kg	6	/kg	600	<							
MMG7	Ananda Stores	IR												50	kg	15	/kg	750	ME		30	kg	5	/kg	150	<							
Total				30	Cont			1050	Rs	1500	bags		ea	7995	Rs	605	kg		/kg	11690	Rs	180	kg		/kg	960	Rs	0	kg		/kg	0	Rs

Notes:

1. Blue shaded cell indicates no quantity or cost information given (NA inserted in units column rather than qty column, as the latter upsets the spreadsheet calculations)
2. Green shaded cell indicates data that has been modified so that sales and purchases figures are consistent.
3. NA = no answer

MMG5 is National Paper Co's collection point so sales/income data is not relevant.

Factories

		1		3.1		5.4																										
ID No	Business name	Plastics						Various bags						Newspaper				Paper - exercise books				Cardboard										
		Code	Qty	Unit	Price	Unit	Total	Dem	Qty	Unit	Price	Unit	Total	Dem	Qty	Unit	Price	Unit	Total	Dem	Qty	Unit	Price	Unit	Total	Dem						
MMG6	Super Steel Ind.	IR					0																									
MMG8	Super Plastic Ind.	pellets products	12500	Kg	40	Rs	500000	M																								
			500	Kg	40	Rs	20000																									
Total			13000	kg			520000	Rs	0	bags		ea	0	Rs	0	kg		/kg	0	Rs	0	kg		/kg	0	Rs	0	kg		/kg	0	Rs

Notes:

1. Blue shaded cell indicates no quantity or cost information given (NA inserted in units column rather than qty column, as the latter upsets the spreadsheet calculations)
2. Green shaded cell indicates data that has been modified so that sales and purchases figures are consistent.
3. NA = no answer

MMG8 Products:

Gully trap covers	1000	65	ea
Broom parts	250	4	ea
Antenna	NA	2000-3000	ea

ID No	Broken glass						Glass - Arrack/beer/other bottles						Metals - ferrous						Metals - copper/brass						Metals - Beer Cans						
	Qty	Unit	Price	Unit	Total	Dem	Code	Qty	Unit	Price	Unit	Total	Dem	Qty	Unit	Price	Unit	Total	Dem	Qty	Unit	Price	Unit	Total	Dem	Qty	Unit	Price	Unit	Total	Dem
MMG1				/kg	0		IR		Bott		ea	0		100000	kg	10	/kg	1000000	>	10000	kg	130	/kg	1300000	>	500	kg	30	/kg	15000	ME
MMG2	100	kg	1.5	/kg	150	<	AR,BB,BJ	1000	Bott	6	ea	6000	ME	1000	kg	7.5	/kg	7500	ME	50	kg	95	/kg	4750	>	10	kg	30	/kg	300	ME
MMG3	1000	kg	2	/kg	2000	<	AR,BB	200	Bott	5	ea	1000	>	1500	kg	8	/kg	12000	>	12	kg	85	/kg	1020	>				/kg	0	
MMG4	1000	kg	3.5	/kg	3500	<	AR,BB	5000	Bott	8	ea	40000	ME	25000	kg	9	/kg	225000	>	3000	kg	100	/kg	300000	>	50	kg	40	/kg	2000	<
MMG7	300	kg	2	/kg	600	<	AR,BB	600	Bott	6	ea	3600	>	1000	kg	6	/kg	6000	ME	40	kg	85	/kg	3400	>	7	kg	13	/kg	91	ME
	2400	kg		/kg	6250	Rs		6800	Bott		ea	50600	Rs	128500	kg		/kg	1250500	Rs	13100	kg		/kg	1609170	Rs	567	kg		/kg	17391	Rs

ID No	Broken glass						Glass - Arrack/beer/other bottles						Metals - ferrous						Metals - copper/brass						Metals - Beer Cans						
	Qty	Unit	Price	Unit	Total	Dem	Code	Qty	Unit	Price	Unit	Total	Dem	Qty	Unit	Price	Unit	Total	Dem	Qty	Unit	Price	Unit	Total	Dem	Qty	Unit	Price	Unit	Total	Dem
MMG6				/kg	0		IR		Bott		ea	0		See below			/kg	802450	ME				/kg	0					/kg	0	
MMG8				/kg	0				Bott		ea	0					/kg	0					/kg	0					/kg	0	
	0	kg		/kg	0	Rs		0	Bott		ea	0	Rs	0	kg		/kg	802450	Rs	0	kg		/kg	0	Rs	0	kg		/kg	0	Rs

MMG6 Has many items which they sell at different prices

Qty		Price	Income
1800	kg iron	9 Rs/kg	16200
100	vehicle hubs	950 Rs ea	95000
100	vehicle shells	2250 Rs ea	225000
40	factor sheets	2500 Rs ea	100000
30	factor hinges	9000 Rs ea	270000
30	Vedi board	1500 Rs ea	45000
25	battery covers	850 Rs ea	21250
50	handbrakes	600 Rs ea	30000
			802450

ID No	Metals - Aluminium						Batteries						Total quantities				Actual	
	Qty	Unit	Price/Unit	Total	Dem	Qty	Unit	Price	Unit	Total	Dem	Containers	Bottles	Bags	Kg	Sales (Rs)		
MMG1	2000	kg	80	/kg	160000	>	5000	kg	12	/kg	60000	>	0	0	0	117500	2535000	=
MMG2	40	kg	70	/kg	2800	ME	200	kg	9.5	/kg	1900	ME	10	1000	0	2480	24490	=
MMG3	30	kg	70	/kg	2100	>	15	kg	8	/kg	120	>	0	200	0	2782	18540	=
MMG4	1500	kg	75	/kg	112500	>	2000	kg	11	/kg	22000	>	20	5000	1500	38150	724295	=
MMG7	70	kg	60	/kg	4200	>	75	kg	9	/kg	675	ME	0	600	0	2172	19466	=
	3640	kg		/kg	261600	Rs	7290	kg		/kg	64695	Rs		6800	1500	163084	3321891	

ID No	Metals - Aluminium						Batteries						Total quantities				Actual	
	Qty	Unit	Price/Unit	Total	Dem	Qty	Unit	Price	Unit	Total	Dem	Containers	Bottles	Bags	Kg	Sales (Rs)		
MMG6				/kg	0					/kg	0		0	0	0	NA	802450	=
MMG8				/kg	0					/kg	0		0	0	0	12500	500000	=
	0	kg		/kg	0	Rs	0	kg		/kg	0	Rs	0	0	0	NA	1322450	

3.4.5 Data summary for graphs

Q3.3

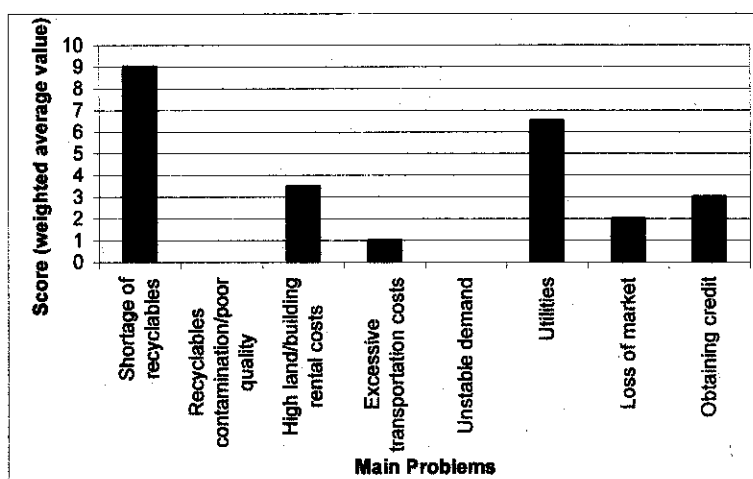
	Main sources (%)						
	Plastic	Bags	Pa/card	Broken gla	Glass bottl	Metals	Batteries
Households	80.0	10.0	9.8	74.2	77.4	14.7	4.1
Hotels	0.0	0.0	0.0	16.3	17.6	0.1	0.0
Hospitals	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial	0.0	90.0	0.0	8.3	0.6	0.0	0.0
Markets	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schools	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Government offices	0.0	0.0	56.8	0.8	2.9	2.1	0.0
Industries	13.3	0.0	28.4	0.4	1.5	81.7	94.6
Other	6.7	0.0	5.0	0.0	0.0	1.4	1.2
	100	100.0	100.0	100.0	100.0	100.0	100.0

Q5.6

	Rank	1	2	3	4	5	Wt avg
A	Purchases	6	0	0	0	0	15.0
B	Storage	0	1	1	0	1	4.0
C	Transportation	0	1	0	0	0	2.0
D	Labour	0	2	1	0	0	5.5
E	Other raw materials	0	1	0	0	0	2.0
F	Utilities	0	0	2	1	0	4.0
G	Land/building rental	0	1	1	2	0	5.5
H	Machinery maintenance	0	0	0	0	0	0.0
I	Other	0	0	0	0	0	0.0
	Sum	6	6	5	3	1	38.0

Q6.3

	Rank	1	2	3	4	5	Wt avg
A	Shortage of recyclables	3	0	1	0	0	9.0
B	Recyclables contamination/p	0	0	0	0	0	0.0
C	High land/building rental cos	0	1	1	0	0	3.5
D	Excessive transportation cos	0	0	0	1	0	1.0
E	Unstable demand	0	0	0	0	0	0.0
F	Utilities	2	0	1	0	0	6.5
G	Loss of market	0	1	0	0	0	2.0
H	Obtaining credit	0	1	0	1	0	3.0
	Sum	5	3	3	2	0	25.0



		Percentages of total qty of recycables									Tot	Qty in GMA	Notes	
		H	Ht	Hp	C	M	S	GO	I	O				
	Pl	80.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3	6.7	100			
	Bg	10.0	0.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	100			
	P/C	9.8	0.0	0.0	0.0	0.0	0.0	56.8	28.4	5.0	100			
	Br	74.2	16.3	0.0	8.3	0.0	0.0	0.8	0.4	0.0	100			
	Bot	77.4	17.6	0.0	0.6	0.0	0.0	2.9	1.5	0.0	100			
	Me	14.7	0.1	0.0	0.0	0.0	0.0	2.1	81.7	1.4	100			
	Ba	4.1	0.0	0.0	0.0	0.0	0.0	0.0	94.6	1.2	100			
Tot (kg)		Actual quantity from different sources												
0	Pl	0	0	0	0	0	0	0	0	0	0	0	1	
150	Bg	15	0	0	135	0	0	0	0	0	150	2	2	
14285	P/C	1399	0	0	5	0	0	8116	4050	715	14285	227		
2400	Br	1780	390	0	200	0	0	20	10	0	2400	38		
4488	Bot	3472	792	0	26	0	0	132	66	0	4488	71	3	
145809	Me	21431	79	0	0	0	0	3109	119137	2053	145809	2314		
7290	Ba	302	0	0	0	0	0	0	6899	90	7290	116		
174422	Tot	28399	1261	0	366	0	0	11377	130161	2858	174422	2768		
Adjust Tot1		28399	1261	0	366	0	0	11377	130161	2858	174422		4	
Location factor		77	65	100	60	100	100	62	40	80	48			
Adjust Tot2		21756	819	0	220	0	0	7054	52065	2286	84200		5	
Qty	kg/d	715	27	0	7	0	0	232	1712	75	2768			
Notes:	%	25.8	1.0	0.0	0.3	0.0	0.0	8.4	61.8	2.7	100.0			

1. Pl quantity specified here omits containers/chairs which are reused rather than recycled

2. One bag weighs 0.1 kg

3. One bottle weighs 0.66 kg (avg weight of 10 beer and arrack bottles) - assume same source distribution for bottles and broken glass.

4. Adj1 - adjust total to a/c for a total of 6 middlemen in Gampaha with all 6 being surveyed (i.e. no adjustment)

5. Adj2 - adjust Adj1 to a/c for 48 % of materials collected in CUA (assume applies to all categories)

a. Assume 100 % for Hp, M and S- no impact as qts from these sources are zero.

b. Assume 60 % for C, based on MM3 and MM4 data (main MM collecting from comm. places)

c. Assume 65 % for Ht, based on MM3, MM4 and MM7 data (main MM collecting from Ht)

d. Assume 62 % for GO - mainly pa/ca - based on MM2, MM3 and MM4 data (main collectors from GO)

e. Assume 40 % for I - mainly based on collectors of metals (dominant item in this category)

g. Assume 80 % for O - mainly garages/workshops

h. Get household total by difference= 77 % or 21756 kg/mth

Finalise I & HH %

3.5 Other Information in Gampaha

Community Focus Group Discussion

Name of the Municipality:	Gampaha Municipal Council
Area name:	Suhada mawatha.
Date & Time:	2002/09/13, 14:30 – 16:30
Precipitants:	<ol style="list-style-type: none">1. Ms. M. Oishi (JICA study team)2. Ms. Subhashini Seneviratne (JICA study team)3. Mr. PHI- Gunawansa4. Mrs.J.M.C. Menike- Environmental Officer,5. Mrs. H.C.S.R.Gunaratne6. 11 female and 4 male residents of Suhada mawatha, Gampaha.

Opinions about present situation of garbage collection

1. Present collection system

The collection service in this area is irregular. Sometimes collection labourers come 2 times per week and sometimes they don't come for the whole week. Discharge methods also differ from households to households. Some of households use collection points and some others keep garbage in their premises until the collection vehicles come.

2. Identified main problems

The following problems were identified through discussion.

- 1) Less frequency of collection service.
- 2) The number of collection points is not sufficient.
- 3) Bad condition of the drainage system.
- 4) Not enough space to keep their garbage especially left over food in their houses.

3. Proposed solutions / suggestions

- 1) Increasing the number of collection workers
- 2) Cleaning the drainage system at least twice a week.(This is not practical, but the residents have demanded so.)
- 3) Construction of more concrete collection bins.
- 4) People can keep waste at their premises a few days if buckets with lids are introduced.
- 5) People can keep garbage within their premises until collection vehicles come once collection schedule become punctual.

4. Other problems

There is a common toilet, which has a broken pit, it makes very bad odour and mosquito problems in the area.

Organizational Information Sheet

Interview date : 2002/11/11

Name of the organization:	Environment foundation – Gampaha
Name of the chairperson:	Mr. S.A.M.A.R.D. Senaratne
Address and contact number:	261, Colombo road, Gampaha. Tel. 031-24154
Year of establishment:	1983

1. General information

- No. of personnel : 90 members
- Fund resource: Central environment authority and personnel

2. Main activities:

- Conducting awareness program on air pollution, garbage disposal and other environment impacts such as consequences of quarry and mosquito breeding etc.
- Providing all island consulting services with regard to the environment programs.

Other activities:

- Organizing children program such as art competition.

3. Cooperation with other organizations

Ministry of environment, CEA, Sri Lanka Environmental Journalist Forum, and environmental Foundation Limited, schools of Gampaha district and MC of Colombo and Gampaha.

4. Future cooperation with the pilot project of the study team

After studying the procedure and activities of JICA solid waste management study, they will involve with the project activities.

Activities of Divisional Environmental Officers

Interview date: 2002/08/23

Name of the Municipality:	Gampaha Municipal Council
Name of the officer:	Mrs.H.M.C.J. Menike,
Year of appointment:	2001
Address and contact number:	Gampaha Municipal Council 033- 22275

1. Organizational information (which department do you belong to in municipalities)

- To the deputy director of Environmental Education and Awareness in Central Environment Authority
- Directly to the municipal commissioner in the municipality

2. Main activities

- Conducting school education program, namely the Environment Pioneer Brigade Programme and Eco Club in cooperation with schools.
- Issuing the environment protection license.

2.1 School Program

The Environment Pioneer Brigade has been established in 7 out of 8 schools located within the former Gampaha Urban Council Area. In primary schools, the Eco Club has been established.

All participating schools are as follows.

Name of the school	No of Groups	Medals obtained
1. Bandaranayake national school	4	3
2. Yashodhara girls' college	3	3
3. Thakshila maha vidyalaya	2	1
4. St. Peters college	1	0
5. Rathnawali Girls' school	2	2
6. Gothami junior school	1	1
7. Siddhartha Vidyalaya	1	1
8. Siri kurusa girls' college	1	0

A district environmental commissioner is in a school located outside of Gampaha Municipal Area. A district assistant environmental commissioner, Mrs. Sunethra Kalyani is in Gampaha Bandaranayake College.

2.2 Environmental Committee

An environment committee has been established in GMC since May 2002. Usually they gather once a month and discuss the existing problems with regard to health and environment. Mainly a Municipal Secretary, MOH, PHI, CDO, DEO and council members participate in the meetings. A member of council bears a post of the president in the committee.

2.3 Other activities

She conducts health and environmental awareness programs for women organizations, Samurdhi groups and other community-based organizations. She conducts volunteer works called Sramadana, meaning work contribution, of cleaning and arranges program on the specific days such as a tree planting day, a world environment day and so on.

Chapter 4

Gampaha Pilot Projects

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Chapter 4 GMC Pilot Projects – Progress Diary

4.1 GMC Initial Meeting – 3 February 2003

Present: GMC: Mayor, Commissioner, SPHI; JICA – Dr Sean, Ms Nayana

4.1.1 Meeting with Labourers

Meeting was first held with labourers to inform them of the nature of the pilot projects and to ask for their opinions/comments – very useful. They were invited to identify important issues they consider should be addressed by bylaws and give these to GMC or JICA.

4.1.2 Bell collection

- General approach discussed in detail: people not at home should be told to take their garbage to communal bin (but very few communal bins in GMA – who to provide?). In other areas not provided with bell collection, GMC will try to send vehicle regularly – ask people to hand over garbage directly to vehicle; not discharge at roadside.
- On-site disposal – continue existing system where appropriate – helps GMC.
- Speaker/amplifier – installation and security. GMC informed that these units will be handed over to them on Feb 13th. Amplifier is powered by tractor battery + 2 small batteries, which will require replacing once/yr.
- Introduce in Gampaha and Yakkala areas – meeting will be held with supervisors on 13th Feb at 2.30pm in Yakkala followed by meeting at 3:30pm in Gampaha.
- Training of labourers on bell collection on 19th Feb at 7.30 a.m.
- Publicity- From 13th to 19th of February – tractors with loudspeakers to be used (suggested tractors play garbage music).
- Leaflets: Waste discharge rule for leaflet – discussed in detail. Leaflets – to be introduced as part of awareness programme – not necessarily at the same time as the start of the bell collection system.
- Dealing with non-compliance: problems to be discussed after one week of introduction & remedial actions identified.

Actions:

- Resolve communal bin issue.
- Check service to be offered to non-bell collection areas.
- GMC to install speaker/amplifier (S/A) units on delivery.
- GMC to inform Yakkala PHI about meeting.
- Supervisors to make preliminary selection of roads/areas for bell collection before 13th.
- SPHI to inform labourers about training.
- SPHI to arrange publicity schedule.

- JICA to prepare draft of leaflet for giving to GMC on Feb 6th for comment.
- One week review meeting to be arranged.

4.1.3 Control board

- GMC said they need two control boards – one for Yakkala; one for Gampaha.
- Some discrepancies in roads shown on survey map and other maps.
- Things to include in the map: Zone boundaries, large waste generators, middleman shops, collection routes, drain cleaning, problems
- Rest of the board to be used for writing problems for the month, vehicles out of action, absenteeism, etc.

Actions:

- Mayor to resolve and handover map to JICA for copying on 13th.
- Use of control board to be finalized later.

4.1.4 Monthly report

In addition to provision of control board, JICA has agreed to help GMC with preparation of “monthly report” as part of the ongoing pilot projects. To be discussed at later meeting.

4.2 GMC March-May Status Report

This report covers the period from the beginning of March until the end of May. It was compiled following a meeting with GMC on 21 May, translated into Sinhala and distributed to GMC.

4.2.1 Management Capacity Improvement

4.2.1.1 Progress

- JICA handed over copy of final model bylaws to GMC on 21 May.
- Photos taken for supervisor/driver ID cards.
- No significant improvement in general.

4.2.1.2 Existing Problems

- No PHI currently working in Gampaha area, while Yakkala PHI is often absent (payment issue?).
- Control board is not in use. Possibly some mistakes in control board map.
- Monthly report is not being filled in.

4.2.1.3 Required Actions

- Waiting for new PHI to start (1 Jul) and for Yakkala PHI payment issue to be resolved.
- Mount the control board, amend the map as required and start using it.
- Start filling in the SWM monthly report.
- Adapt model bylaws for own use.
- Complete issue of supervisor/driver ID card.

- GMC should record, type and circulate minutes from GMC/JICA meetings, noting action points including responsible person and deadline.

4.2.2 Waste Collection Improvement Publicity

4.2.2.1 Progress

- Only one day of loudspeaker publicity done using taped message.
- Leaflets distributed in some places in Gampaha.
- Chief Clerk in Yakkala has recently distributed around 6 bundles (approx. 2,000 leaflets).

4.2.2.2 Issues

- Loudspeaker publicity was insufficient.
- Leaflet distribution was very poorly organised.

4.2.2.3 Required Actions

GMC should provide additional publicity using own resources. JICA recommends involving the CDO and DEO in ongoing education, particularly for any community meetings.

4.2.3 Bell collection

4.2.3.1 Progress

- Amplifier/speaker units were installed on 8 vehicles.
- Bell collection now being done in all areas of Gampaha and some parts of Yakkala.
- Initial bell collection feedback:
 - Good public support – people like the new system.
 - Supported by supervisors and labourers.
 - Reasonable cooperation – 40-50% in Gampaha, 10-80% in Yakkala.
 - Waste collection amount – 0 to 25% increase.
 - Collection time reduced in some places (e.g. 25-75% in Yakkala).
- GMC now has 14 tractors including two new ones.

4.2.3.2 Issues

- Speaker/amplifier system installation poorly done in general.
- Speaker/amplifier installation not complete on 2WTs in Gampaha.
- No battery recharging system for 2WTs.
- Very difficult to keep to the collection schedule due to vehicle breakdowns and lack of drivers.
- Confusion over enforcement of garden waste collection rule.
- Many large piles of accumulated waste in Gampaha requiring removal.
- Very poor bell collection response in Yakkala/Mirriswatta towns.

4.2.3.3 Required Actions

- Check speaker/amplifier installation on all vehicles.

- Complete installation on 2WTs.
- Set up battery recharging system.
- GMC would like to fit 4 additional amplifier/speaker systems to additional tractors. JICA to advise if it can provide additional units.
- Employ additional drivers (GMC said 4 new drivers would be appointed on contract basis within one month).
- Keep to the waste collection schedule.
- Resolve confusion over garden waste collection.
- Improve internal communication between Gampaha and Yakkala offices.
- Educate Yakkala/Mirriswatta shops about bell collection.
- Consider how to remove large piles of accumulated waste.

4.2.4 Stationary Trailers/Transfer Stations

4.2.4.1 Progress

One stationary trailer in use in Yakkala. Otherwise, no significant progress

4.2.4.2 Issues

- Transfer station is not being used. GMC want JICA to install thin concrete or rubble flow at trailer parking area (64,000Rs) to avoid muddy conditions.
- One stationary trailer is not being used. Effectiveness of use of other trailer may be an issue.

4.2.4.3 Required Actions

- Use new trailers as stationary trailers in appropriate places.
- GMC to complete transfer station access road.
- JICA/GMC to resolve trailer parking area issue at transfer station.

4.2.5 School Recycling in GMA

4.2.5.1 Progress

- Three out of six schools, Chandrajothi M.V., Keppitipola M.V. and Bandaranayake M.V., have already sold recyclables to middlemen. The other three schools (Yashodaradevi B.M.V., Gothami M.V. and Sribodi K.V.) have not accumulated enough to sell to the middlemen yet.
- Success or activeness of the program varies with 1) the activeness of teachers in-charge and 2) the volumes they can collect.
- Most popular item is paper. The second is bottles (unstandardized bottles in most cases).
- Composting is not so successful at all six schools. Inorganic wastes were mixed in the barrels in most cases. Although only organic wastes were used in Bandaranayake M.V, students and teachers have complained about the smell and worms. The main difficulties lie in supervising the large number of people and poor barrel design.

4.2.5.2 Issues

- Three schools have not sold any recyclables even once.
- It takes time for schools with small children to collect recyclables up to a “profitable” amount. (i.e. when middlemen are willing to send vehicles to collect recyclables at the school).
- In some schools, teachers are not active.
- Plastics have also been collected but teachers find it is difficult to store these in a clean manner up to a profitable amount.
- Compost barrel use is more suitable on a smaller scale, rather than the entire school, due to difficulties in controlling what students put into the barrel and the barrel being filled up too fast.

4.2.5.3 Required Actions

- Information sharing among participating schools in order to motivate teachers at inactive schools through Environmental Officer's visit.
- Further active involvement of Environmental Officer, such as regular monitoring visits.
- Organize the information sharing meetings/workshop in the near future.
- Consider ways to improve school composting.

4.3 JICA/GMC Progress Meeting – 11 Jun 2003

- **Present: GMC:** Commissioner (MC), Superintendent of Works (SW), Mayor's private secretary, Health committee chairman (HCC), Yakkala Officer-in-charge (OIC), DEO, CDO, clerk (for taking minutes); **JICA:** Mr Sato, Mr Anurudda, Ms. Oishi, Ms. Subashini, Dr. Sean, Ms. Nayana. Mayor absent. Action items are shown in bold.

4.3.1 Management Capacity Improvement

- Two copies (english) of March-May status report and draft Action plan handed over to GMC at meeting. GMC was informed that sinhala versions of these documents would be posted to them next week. **GMC to inform JICA how it wants to work together to finalise the action plan.**
- ID cards should be issued soon. Some labourers absent on day photos were taken – **GMC to follow up.**
- SPHI is continuing to work until 1 Jul (his retirement letter has not yet come). JICA recommended transition handover period when new PHI starts.
- Yakkala PHI absenteeism – main problem = PHI under MOH; **MC to write to him informing him that he is required to spend some time at the Yakkala office.**
- JICA noted that control board is gathering dust outside and one corner of it has been damaged. SW to prepare room and hang control board map. GMC to check map. **SPHI responsible for using control board (monument to him for his retirement!).**
- **SPHI also given responsibility for filling in monthly report.**

4.3.2 Waste Collection Improvement Publicity

- GMC received 6,000 leaflets. No one knew how many of these had been distributed but the Stores Officer was summoned to the meeting and said he still has 4,000 in stock! HCC said leaflets should have been handed over to the Environment committee, who would then arrange distribution. **MC is to arrange publicity and leaflet distribution in Yakkala using the Gampaha supervisors on Sat/Sun, paying them for overtime.**
- GMC want to send someone with us when we do our surveys (i.e. possibly in addition to supervisors). **MC asked us to fax them in advance with details of when we are coming to Gampaha and our programme and he can then make the necessary arrangements.**
- GMC thought Mr Doi said we would supply battery charger. I said no.
- Two new drivers started today.
- GMC seemed to have forgotten they were only going to start bell collection in a limited no of roads in the first stage. **JICA showed them list of roads and will fax copy of this to them next week.**
- Transfer station – heated discussions. *Main GMC issues = insufficient height + parking area not paved.* Visit to transfer station found a crack in one corner of concrete and too much backfilling has been done (apparently by GMC as Sato had previously checked both the foundation's depth and ground to top of concrete height on completion of construction, both of which were consistent with his drawings: height from ground level to top of concrete should be 1.3m; foundations = 0.3m). Actual height ranged from 0.84-1.04m (see sketch). Following decisions made:
 - **Mr Sato to inform contractor to repair crack.**
 - **GMC to excavate soil to 1.3m depth, as per original drawing.**
 - Paving of parking area – no decision.
 - **JICA asked GMC to use for 1 month, after which they should prepare a list of any problems and give to JICA for consideration.**

4.4 JICA/GMC Progress Meeting – 23 Jul 2003

Present: GMC: Mayor, Commissioner, Mr Ravindra, SPHI (new), OIC (Yakkala), DEO, TO, CDO, Yakkala PHI, Bandiyamulla MOH PHI, one other Council member;

JICA: Dr Lei, Mr Sato (from 4:30pm), Dr Sean, Nayana, Subashini, Anurudda.

Meeting began at around 3:15pm. The meeting was spent going through the Action items of the Mar-May status report. Required actions are highlighted in **bold**.

4.4.1 Management Capacity Improvement

- New PHI has started work in Gampaha in July 2003.

- **Yakkala PHI:** The Bandiyamulla MOH Office (Central government) gives PHIs a travel allowance of 750Rs/mth, which the Yakkala PHI has said is inadequate to cover his additional duties for GMC at the Yakkala office. He has requested a monthly travel allowance of 2,500Rs/mth from GMC. **GMC are going to discuss the Yakkala PHI travel allowance issue at the next Environment Committee meeting on 25 July 2003 and hope to be able to provide him with an increased allowance. They will then present their recommendation for approval to the Financial Committee on 30 July 2003 and subsequently to the next general meeting to be held in early August.**
- Control board is still not in use. GMC have been waiting for the new SPHI to come before fixing this and using. **They will fix and begin using within the next two weeks.** Note: UDA are preparing a map specifying all roads within the Gampaha municipal limits, which will then be gazetted. The control board map will then be checked to see that it includes relevant roads and the boundaries are correct.
- Monthly report: The new SPHI has not seen the monthly report given to GMC for filling in. **JICA will give him a new copy of the monthly report next Wed (30 Jul) and go through how to use it.**
- Model bylaws: **The Commissioner is going to make copies for distribution to Council members to study, with the bylaws being discussed at the August Council meeting.**
- ID cards are being progressively issued to all staff, beginning with permanent staff. The Commissioner showed us his ID card, which is very professionally done.
- Supervisor training: GMC would like to continue with PHI/supervisor training. The next session is scheduled for Wed, 30 Jul from 3-7pm. Mr Ravindra would also like to attend.

4.4.2 Waste Collection Improvement Publicity

- Leaflets/publicity: 4,000 leaflets are still in the GMC Stores. **GMC is to give 2,000 of these to the Yakkala OIC for distribution in Yakkala through tractor drivers. The other 2,000 leaflets will be distributed in Gampaha, with the new SPHI being responsible for this.**
- The CDO/DEO have not yet become involved in ongoing education. A new Development Assistant has started work in Gampaha.

4.4.3 Bell collection

- JICA explained how during a recent bell collection survey, the speaker/amplifier system was only operational on the 4WT in Gampaha (not working on 2WTs). Yakkala was okay.
- GMC explained that the speaker/amplifier installation has now been completed on 2WTs in Gampaha and they have recently purchased a battery recharger and spare battery. **Hence, GMC will try to get the speaker/amplifier system working for the 2WTs.**
- GMC would like to fit 4 additional amplifier/speaker systems to additional tractors. **JICA to advise if it can provide additional units.**

- Three new drivers have started work.
- A three wheeler is going to be given to the Yakkala office for general inspection work. **GMC will provide a three wheeler driver who can also drive tractors. He should then be able to cover if a tractor driver is absent.**
- The Mayor said the main problem is how to deal with large accumulated piles of garden/construction waste. **This issue needs addressing.**
- Improved internal communication between Gampaha and Yakkala offices: GMC said the Health and Environment committees are the main official forums for Gampaha/Yakkala communication. The Yakkala OIC attends these meetings. Hence, SWM issues in Gampaha and Yakkala should be discussed at these meetings.
- GMC feel that the bylaws must be implemented before they can improve the garbage discharge habits of shop traders in Yakkala/Mirriswatta.
- Bell collection checklist: The SPHI was given a copy of this during the recent bell collection survey. **He has filled it in and will give to JICA next Wed (30 Jul).**

4.4.4 Stationary Trailers/Transfer Stations

- Stationary Trailers: One stationary trailer is in use in Yakkala. GMC complained that the stationary trailers are too small. They now have to do two trips to the landfill rather than one (e.g. hospital waste). GMC requested JICA to modify the stationary trailers at JICA's expense to improve their capacity. This issue was discussed in detail with GMC staff and a representative from Nirosh Industries, resulting in a preferred modification option being decided on (20,000Rs/trailer). **JICA will advise its decision on 25 Jul 2003.**
- Transfer station: one side has had some metal aggregate placed on the floor to improve drainage and some small improvements have been made to the access road. Since then, GMC has been using the transfer station for 2-3 days.

4.4.5 Education

- Banners: These have not been used yet. **JICA requested GMC to display/use these in appropriate places.**
- School recycling: **Mr Ravindra and DEO are to visit some schools to check progress.**

4.4.6 Other

- NERD Centre have approached Gampaha to take their market waste for biogas production at Mutharajawela.
- Formerly, they had also signed an agreement with Bioplan to take all GMC's waste. However, this project has not been implemented yet.
- GMC have recently moved to a new landfill site. However, the owner of this land wants them to stop using it. They acknowledged that their key SWM issue is the landfill issue.

- Action plan: JICA reminded GMC that they gave them 2 english and 4 sinhala copies of the draft Action plan in June 2003, with GMC being asked to inform JICA how it wanted to work together to amend and finalise the Action Plan. Most people at today's meeting had not seen this draft Action plan. The Mayor suggested forming a working committee to produce a revised draft, which would then be discussed at a stakeholders workshop and finalised. JICA informed GMC that it would like the Action plan to be finalised by the end of August if possible. **Mr Ravindra and the SPHI are to locate copies of the draft Action plan, discuss how they want to progress/finalise it, and then inform JICA of their decision.**

JICA comment: Some significant improvements have occurred since the last GMC/JICA meeting. Meeting finished around 6:15pm.

4.5 JICA/GMC Progress Meeting – 20 Aug 2003

Present: GMC: Mayor (part), Deputy Mayor, Commissioner, Mr Ravindra, SPHI, Secretary, OIC (Yakkala), SW, DEO, TO, CDO, CC (Accounts), Bandiyamulla MOH and several other officers;
JICA: Ms Oishi, Dr Sean, Nayana.

Meeting began at around 10:30am. The meeting was spent going through the Action items of the July monthly report and part of the draft action plan. Required actions are highlighted in **bold**.

4.5.1 Management Capacity Improvement

- Yakkala PHI: At Jul meeting, GMC said they were going to resolve the Yakkala PHI travel allowance issue by early August. **Check status at the next meeting.**
- Control board is still not in use. **GMC to start using.**
- Monthly report: **SPHI will start filling monthly report from tomorrow.**
- Model bylaws: These have been discussed at the Health committee and are going to be discussed at the next Council meeting. Copies have been given to MC members. Bandiyamulla MOH took a copy of the bylaws at this meeting. **GMC to continue this process. Copies also to be circulated internally to other relevant staff.**
- Action plan: committee formed for preparation of SWM Action plan, using draft JICA plan as starting point. Some items were discussed today with JICA. JICA agreed to GMC's request to allow them more time to discuss the draft action plan first internally before meeting again with JICA to discuss this. **GMC to discuss draft Action plan and prepare for next meeting with JICA on 3 September.**
- "Inspection tour" of bell collection arranged with interested GMC staff for 3 September from early morning. **GMC to inform JICA of likely number of participants.**
- **GMC to arrange date for second seminar**, to present the results of the SWM pilot projects and final draft Action plan to stakeholders for discussion.

- GMC was informed about national seminar (Oct 31), where they will give a short presentation on their SWM pilot projects (school recycling, bell collection, transfer station).

4.5.2 Waste Collection Improvement Publicity

At Jul meeting, GMC was to give 2,000 leaflets to the OIC Yakkala for distribution in Yakkala through tractor drivers. The other 2,000 leaflets were to be distributed in Gampaha, with the SPHI being responsible for this. **Check status.**

4.5.3 Bell collection

- GMC are doing bell collection most of the time, keeping approximately to the schedule, and are playing music in all parts of Gampaha and selected areas of Yakkala. This progress has been assisted by Mr Ravindra taking an active role in SWM (e.g. getting tractors repaired quickly). Some people are still discharging their waste after the tractor has passed.
- 1 Tractor and 3 wheeler have been released to Yakkala. **GMC to assign new driver to Yakkala within the next 2 weeks for these vehicles, with garbage collection being assigned first priority over 3 wheeler use.**
- Currently, Yakkala tractors have to come to GMC to get fuel. **GMC agreed to allow Yakkala tractors to go to private petrol shed to get diesel.**
- **GMC to instruct all drivers to fill up with diesel in the evening rather than morning.**
- 2 speakers have broken due to vibration, while 1 amplifier is also broken. **GMC to fix speakers themselves and to give JICA broken amplifier to fix.**
- GMC would like to fit 4 additional amplifier/speaker systems to additional tractors. **JICA to advise if it can provide additional units.**
- Bell collection checklist: **JICA to collect completed checklist next time.**

4.5.4 Stationary Trailers/Transfer Stations

- Transfer station: This is now being used.
- Stationary Trailers: Two stationary trailers are currently being modified to increase their capacity and ease of loading. Both should be finished by the end of this week. **GMC to start using stationary trailers again.**

4.5.5 Education

- Banners: These have been displayed in one school. **GMC to use banners more often.**
- School recycling: Schools have held a collection week, with at least one school already selling some recyclables. **Commissioner to arrange three wheeler for use by DEO once/wk to enable her to visit schools involved in this project more easily.**

4.5.6 Other

GMC have recently moved to a temporary landfill site on private land at Gatembe, but have started to receive complaints about dumping there. Their disposal costs have also increased, as they are now paying 90,000Rs/mth for the hire of a JCB to work at the landfill.

Meeting finished around 12:30pm (including action plan discussion).

4.6 JICA/GMC Action Plan Meeting – 3 Sep 2003

Present: GMC: Mayor (part), Commissioner, Mr Ravindra (HCC), SPHI, Secretary, OIC (Yakkala), DEO, CDO, Senior Overseer and several other officers; **JICA:** Ms Oishi, Dr Sean, Nayana.

Following GMC's internal meeting on 29 August, this meeting was spent going through the draft Action plan, item by item, following which it was revised to produce a draft final action plan.