SUPPLEMENTARY MATERIAL

Table SM1. Distances between Central Units and Collection Points in the State of São Paulo (km)

Central Units / Collection Points	Araraquara	Bebedouro	Bilac	Casa Branca	Catanduva	Guariba	Ituverava	Paraguaçu Paulista	Piedade	Piracicaba	São José do Rio Preto	São Manuel	Taquarituba	Taubaté
Adamantina	364	339	437	502	280	362	418	133	533	434	229	325	357	715
Aguaí	164	236	236	43	275	185	256	427	227	157	329	224	341	288
Araras	126	227	399	96	237	175	246	389	187	85	291	154	272	272
Atibaia	249	355	522	191	360	311	385	520	177	162	414	252	380	134
Barra Bonita	95	199	272	217	178	155	279	261	253	113	233	36	149	421
Barretos	154	51	247	256	102	108	106	370	424	313	92	276	389	528
Batatais	129	121	371	140	178	103	90	387	372	261	223	254	367	453
Bauru	126	213	195	264	159	187	311	185	298	184	212	75	187	452
Biritiba Mirim	373	456	597	308	461	413	486	542	188	257	515	333	391	111
Cerquilho	194	301	406	212	306	251	362	351	117	76	360	121	211	277
Divinolândia	198	242	486	57	303	214	247	497	297	202	347	294	411	282
Franca	175	145	377	187	205	150	76	432	417	284	222	299	412	502
Holambra	170	276	443	107	281	232	306	433	163	99	335	197	338	221
Ibiúna	279	386	496	266	390	342	434	431	31	142	444	232	263	210
Itaberá	287	392	423	414	371	348	472	273	218	273	424	168	47	451
Itapetininga	261	368	412	279	360	324	429	314	92	121	412	148	146	297
Itapeva	322	427	459	397	406	383	507	308	183	238	459	202	82	416
Itápolis	82	110	217	221	68	87	220	233	359	219	120	148	261	461
Limeira	131	237	404	125	242	193	275	394	164	38	294	151	269	249
Mirandópolis	284	391	523	242	395	347	421	212	102	165	230	259	317	721

Central Units / Collection Points	Araraquara	Bebedouro	Bilac	Casa Branca	Catanduva	Guariba	Ituverava	Paraguaçu Paulista	Piedade	Piracicaba	São José do Rio Preto	São Manuel	Taquarituba	Taubaté
Mogi Mirim	178	273	452	79	289	222	292	442	186	93	342	207	325	247
Monte Alto	85	59	271	190	66	42	171	287	355	222	120	208	321	460
Novo Horizonte	128	116	185	273	51	131	232	218	403	265	86	179	292	507
Olimpia	165	56	208	267	55	119	149	315	435	302	54	266	379	538
Palmeira D ´Oeste	345	294	142	485	232	340	374	299	610	482	176	385	496	719
Pedrinhas Paulista	351	372	210	468	307	349	482	78	418	394	306	276	241	608
Pilar do Sul	292	399	486	280	404	355	448	375	43	156	456	222	207	277
Pirangi	109	31	245	218	40	70	147	311	379	246	94	232	354	484
Pirassununga	118	186	392	50	229	135	206	382	227	101	282	178	295	315
Porto Feliz	206	313	425	211	317	269	361	370	82	77	370	144	230	246
Registro	401	508	618	388	512	464	577	451	126	262	565	291	284	336
Santa Cruz das Palmeiras	126	193	414	22	237	141	212	412	261	135	289	209	326	337
Santa Cruz do Rio Pardo	214	306	271	352	252	275	399	130	292	256	300	137	115	471
São João da Boa Vista	187	252	460	44	296	201	262	450	249	155	351	247	364	309
São José do Rio Pardo	173	210	461	32	271	185	215	473	286	182	315	275	392	346
São Miguel Arcanjo	303	410	455	311	414	366	471	352	77	163	467	191	189	311
Valinhos	198	305	472	145	309	261	335	458	124	85	362	204	308	190

Table SM2. Distance between Central Units and end of life facilities (km)

Central Units	Recycling Points (km)				Incineration Points (km)		
	Taubaté	Louveira	Varzea Paulista	Guarulhos	Suzano	Taboão da Serra	Uberaba
Araraquara	375	209	233	289	322	287	259
Bebedouro	482	316	340	397	429	394	187
Bilac	650	484	508	536	569	522	378
Casa Branca	315	160	181	239	272	236	292
Catanduva	486	320	343	400	433	398	248
Guariba	437	271	295	352	384	349	228
Ituverava	510	344	368	425	458	422	73
Paraguaçu Paulista	590	462	465	480	510	467	510
Piedade	257	130	132	147	177	94	500
Piracicaba	261	96	114	171	201	168	374
São José do Rio Preto	538	373	397	453	484	451	224
São Manuel	381	212	256	271	301	258	382
Taquarituba	452	324	327	341	372	327	496
Taubaté	0	185	174	130	113	169	582

Table SM3. Results of Scenario 1 to transportation from Central Units to Incinerator plants using the impact assessment methodology described in section 2.3

Impact Categorie	Units	Araraquara	Bebedouro	Bilac	Casa Branca	Catanduva	Guariba	Ituverava	Paraguaçu Paulista	Piedade	Piracicaba	São José do Rio Preto	São Manuel	Taquarituba	Taubaté
CC	kg CO_{2eq}	6.03E-04	4.04E-04	1.20E-03	3.52E-04	3.58E-04	4.43E-04	4.47E-04	1.22E-03	1.57E-04	3.06E-04	2.58E-04	4.95E-04	6.19E-04	8.89E-05
OD	kg CFC-11_{eq}	1.12E-10	7.48E-11	2.22E-10	6.53E-11	6.63E-11	8.21E-11	8.27E-11	2.27E-10	2.90E-11	5.67E-11	4.78E-11	9.16E-11	1.15E-10	1.65E-11
TA	kg SO_{2eq}	2.85E-06	1.91E-06	5.66E-06	1.66E-06	1.69E-06	2.09E-06	2.11E-06	5.77E-06	7.39E-07	1.44E-06	1.22E-06	2.33E-06	2.92E-06	4.20E-07
FE	kg P_{eq}	7.62E-09	5.11E-09	1.52E-08	4.45E-09	4.52E-09	5.60E-09	5.65E-09	1.55E-08	1.98E-09	3.87E-09	3.26E-09	6.25E-09	7.83E-09	1.12E-09
ME	kg N_{eq}	3.98E-07	2.67E-07	7.91E-07	2.32E-07	2.36E-07	2.92E-07	2.95E-07	8.08E-07	1.03E-07	2.02E-07	1.70E-07	3.26E-07	4.09E-07	5.87E-08
HT	kg 1,4-DB_{eq}	3.58E-05	2.40E-05	7.12E-05	2.09E-05	2.12E-05	2.63E-05	2.65E-05	7.26E-05	9.29E-06	1.82E-05	1.53E-05	2.94E-05	3.67E-05	5.28E-06
POF	kg NMVOC	4.57E-06	3.06E-06	9.08E-06	2.67E-06	2.71E-06	3.36E-06	3.38E-06	9.27E-06	1.19E-06	2.32E-06	1.95E-06	3.75E-06	4.69E-06	6.74E-07
PMF	kg $PM10_{eq}$	1.23E-06	8.26E-07	2.45E-06	7.20E-07	7.31E-07	9.06E-07	9.13E-07	2.50E-06	3.20E-07	6.26E-07	5.28E-07	1.01E-06	1.27E-06	1.82E-07
TET	kg 1,4-DB_{eq}	3.16E-08	2.11E-08	6.28E-08	1.84E-08	1.87E-08	2.32E-08	2.34E-08	6.41E-08	8.19E-09	1.60E-08	1.35E-08	2.59E-08	3.24E-08	4.66E-09
FET	kg 1,4-DB_{eq}	4.95E-04	3.31E-04	9.84E-04	2.89E-04	2.93E-04	3.63E-04	3.66E-04	1.00E-03	1.28E-04	2.51E-04	2.12E-04	4.06E-04	5.08E-04	7.30E-05
MET	kg 1,4-DB_{eq}	4.78E-07	3.20E-07	9.51E-07	2.79E-07	2.84E-07	3.51E-07	3.54E-07	9.70E-07	1.24E-07	2.43E-07	2.05E-07	3.92E-07	4.91E-07	7.05E-08
WD	m^3	9.64E-07	6.46E-07	1.92E-06	5.63E-07	5.72E-07	7.08E-07	7.14E-07	1.96E-06	2.50E-07	4.89E-07	4.12E-07	7.91E-07	9.90E-07	1.42E-07
FD	kg Oil_{eq}	2.09E-04	1.40E-04	4.15E-04	1.22E-04	1.24E-04	1.53E-04	1.54E-04	4.23E-04	5.41E-05	1.06E-04	8.92E-05	1.71E-04	2.14E-04	3.08E-05

Table SM4. Results of Scenario 1 to transportation from Central Units to Recycler plants using the impact assessment methodology described in section 2.3

Impact Categorie	Units	Araraquara	Bebedouro	Bilac	Casa Branca	Catanduva	Guariba	Ituverava	Paraguaçu Paulista	Piedade	Piracicaba	São José do Rio Preto	São Manuel	Taquarituba	Taubaté
CC	kg CO_{2eq}	5.56E-03	4.43E-03	1.28E-02	2.85E-03	3.71E-03	4.51E-03	5.56E-03	1.19E-02	9.77E-04	1.91E-03	2.82E-03	4.25E-03	5.40E-03	3.61E-04
OD	kg CFC-11_{eq}	1.03E-09	8.21E-10	2.38E-09	5.27E-10	6.87E-10	8.36E-10	1.03E-09	2.20E-09	1.81E-10	3.53E-10	5.23E-10	7.87E-10	1.00E-09	6.69E-11
TA	kg SO_{2eq}	2.62E-05	2.09E-05	6.06E-05	1.34E-05	1.75E-05	2.13E-05	2.62E-05	5.60E-05	4.61E-06	9.00E-06	1.33E-05	2.00E-05	2.55E-05	1.70E-06
FE	kg P_{eq}	7.02E-08	5.60E-08	1.62E-07	3.60E-08	4.68E-08	5.70E-08	7.03E-08	1.50E-07	1.23E-08	2.41E-08	3.57E-08	5.37E-08	6.83E-08	4.57E-09
ME	kg N_{eq}	3.67E-06	2.92E-06	8.47E-06	1.88E-06	2.45E-06	2.98E-06	3.67E-06	7.83E-06	6.45E-07	1.26E-06	1.86E-06	2.80E-06	3.56E-06	2.38E-07
HT	kg 1,4-DB_{eq}	3.30E-04	2.63E-04	7.62E-04	1.69E-04	2.20E-04	2.68E-04	3.30E-04	7.04E-04	5.80E-05	1.13E-04	1.68E-04	2.52E-04	3.20E-04	2.14E-05
POF	kg NMVOC	4.21E-05	3.36E-05	9.73E-05	2.16E-05	2.81E-05	3.42E-05	4.21E-05	8.99E-05	7.40E-06	1.44E-05	2.14E-05	3.22E-05	4.09E-05	2.74E-06
PMF	kg $PM10_{eq}$	1.14E-05	9.06E-06	2.63E-05	5.82E-06	7.58E-06	9.22E-06	1.14E-05	2.43E-05	2.00E-06	3.90E-06	5.77E-06	8.68E-06	1.10E-05	7.39E-07
TET	kg 1,4-DB_{eq}	2.91E-07	2.32E-07	6.72E-07	1.49E-07	1.94E-07	2.36E-07	2.91E-07	6.21E-07	5.11E-08	9.98E-08	1.48E-07	2.22E-07	2.83E-07	1.89E-08
FET	kg 1,4-DB_{eq}	4.56E-03	3.64E-03	1.05E-02	2.34E-03	3.04E-03	3.70E-03	4.56E-03	9.74E-03	8.01E-04	1.56E-03	2.32E-03	3.48E-03	4.43E-03	2.96E-04
MET	kg 1,4-DB_{eq}	5.32E-05	4.41E-06	3.51E-06	1.02E-05	2.26E-06	2.94E-06	3.58E-06	4.41E-06	9.41E-06	7.74E-07	1.51E-06	2.24E-06	3.37E-06	4.28E-06
WD	m^3	8.88E-06	7.09E-06	2.05E-05	4.55E-06	5.93E-06	7.21E-06	8.90E-06	1.90E-05	1.56E-06	3.05E-06	4.51E-06	6.79E-06	8.63E-06	5.77E-07
FD	kg Oil_{eq}	4.56E-03	3.64E-03	1.05E-02	2.34E-03	3.04E-03	3.70E-03	4.56E-03	9.74E-03	8.01E-04	1.56E-03	2.32E-03	3.48E-03	4.43E-03	2.96E-04

Table SM5. Results of Scenario 3 to transportation from Central Units to Incinerator plants using the impact assessment methodology described in section 2.3

Impact Categorie	Units	Araraquara	Bebedouro	Bilac	Casa Branca	Catanduva	Guariba	Ituverava	Paraguaçu Paulista	Piedade	Piracicaba	São José do Rio Preto	São Manuel	Taquarituba	Taubaté
CC	kg CO_{2eq}	5.58E-03	3.73E-03	1.11E-02	3.26E-03	3.30E-03	4.09E-03	4.12E-03	1.13E-02	1.45E-03	2.82E-03	2.38E-03	4.57E-03	5.72E-03	8.18E-04
OD	kg CFC-11_{eq}	1.03E-09	6.91E-10	2.05E-09	6.04E-10	6.12E-10	7.58E-10	7.63E-10	2.10E-09	2.68E-10	5.23E-10	4.41E-10	8.46E-10	1.06E-09	1.52E-10
TA	kg SO_{2eq}	2.63E-05	1.76E-05	5.23E-05	1.54E-05	1.56E-05	1.93E-05	1.94E-05	5.34E-05	6.83E-06	1.33E-05	1.12E-05	2.15E-05	2.70E-05	3.86E-06
FE	kg P_{eq}	7.05E-08	4.72E-08	1.40E-07	4.12E-08	4.17E-08	5.17E-08	5.21E-08	1.43E-07	1.83E-08	3.57E-08	3.01E-08	5.77E-08	7.23E-08	1.03E-08
ME	kg N_{eq}	3.68E-06	2.46E-06	7.32E-06	2.15E-06	2.18E-06	2.70E-06	2.72E-06	7.46E-06	9.55E-07	1.86E-06	1.57E-06	3.01E-06	3.77E-06	5.40E-07
HT	kg 1,4-DB_{eq}	3.31E-04	2.21E-04	6.58E-04	1.93E-04	1.96E-04	2.43E-04	2.45E-04	6.71E-04	8.59E-05	1.68E-04	1.41E-04	2.71E-04	3.39E-04	4.85E-05
POF	kg NMVOC	4.23E-05	2.83E-05	8.40E-05	2.47E-05	2.50E-05	3.10E-05	3.12E-05	8.57E-05	1.10E-05	2.14E-05	1.80E-05	3.46E-05	4.33E-05	6.19E-06
PMF	kg $PM10_{eq}$	1.14E-05	7.63E-06	2.27E-05	6.66E-06	6.75E-06	8.37E-06	8.42E-06	2.31E-05	2.96E-06	5.77E-06	4.86E-06	9.34E-06	1.17E-05	1.67E-06
TET	kg 1,4-DB_{eq}	2.92E-07	1.95E-07	5.80E-07	1.71E-07	1.73E-07	2.14E-07	2.16E-07	5.92E-07	7.57E-08	1.48E-07	1.24E-07	2.39E-07	2.99E-07	4.28E-08
FET	kg 1,4-DB_{eq}	4.58E-03	3.06E-03	9.09E-03	2.67E-03	2.71E-03	3.36E-03	3.38E-03	9.28E-03	1.19E-03	2.32E-03	1.95E-03	3.75E-03	4.69E-03	6.71E-04
MET	kg 1,4-DB_{eq}	4.42E-06	2.96E-06	8.79E-06	2.58E-06	2.62E-06	3.25E-06	3.27E-06	8.97E-06	1.15E-06	2.24E-06	1.89E-06	3.62E-06	4.53E-06	6.48E-07
WD	m^3	8.92E-06	5.97E-06	1.77E-05	5.21E-06	5.28E-06	6.54E-06	6.59E-06	1.81E-05	2.31E-06	4.52E-06	3.80E-06	7.30E-06	9.14E-06	1.31E-06
FD	kg Oil_{eq}	1.93E-03	1.29E-03	3.83E-03	1.13E-03	1.14E-03	1.42E-03	1.42E-03	3.91E-03	5.00E-04	9.77E-04	8.23E-04	1.58E-03	1.98E-03	2.83E-04

Table SM6. Results of Scenario 3 to transportation from Central Units to Recycler plants using the impact assessment methodology described in section 2.3

Impact Categories	Units	Araraquara	Bebedouro	Bilac	Casa Branca	Catanduva	Guariba	Ituverava	Paraguaçu Paulista	Piedade	Piracicaba	São José do Rio Preto	São Manuel	Taquarituba	Taubaté
CC	kg CO_{2eq}	0.00E+00	3.46E-04	5.17E-03	4.07E-03	1.83E-04	2.70E-03	9.35E-04	1.14E-02	5.33E-03	4.32E-03	3.55E-03	2.73E-03	1.23E-02	4.24E-03
OD	kg CFC-11_{eq}	6.43E-11	9.61E-10	7.56E-10	3.39E-11	5.02E-10	1.74E-10	2.11E-09	9.90E-10	8.03E-10	6.59E-10	5.07E-10	2.28E-09	7.89E-10	9.89E-10
TA	kg SO_{2eq}	2.16E-07	3.23E-06	2.54E-06	1.14E-07	1.69E-06	5.84E-07	7.10E-06	3.33E-06	2.70E-06	2.22E-06	1.70E-06	7.69E-06	2.65E-06	3.33E-06
FE	kg P_{eq}	4.39E-09	6.56E-08	5.16E-08	2.31E-09	3.43E-08	1.19E-08	1.44E-07	6.75E-08	5.48E-08	4.50E-08	3.46E-08	1.56E-07	5.38E-08	6.74E-08
ME	kg N_{eq}	2.29E-07	3.42E-06	2.69E-06	1.21E-07	1.79E-06	6.19E-07	7.52E-06	3.53E-06	2.86E-06	2.35E-06	1.80E-06	8.14E-06	2.81E-06	3.52E-06
HT	kg 1,4-DB_{eq}	2.06E-05	3.08E-04	2.42E-04	1.09E-05	1.61E-04	5.57E-05	6.76E-04	3.17E-04	2.57E-04	2.11E-04	1.62E-04	7.32E-04	2.53E-04	3.17E-04
POF	kg NMVOC	2.63E-06	3.93E-05	3.09E-05	1.39E-06	2.05E-05	7.10E-06	8.63E-05	4.05E-05	3.28E-05	2.69E-05	2.07E-05	9.34E-05	3.22E-05	4.04E-05
PMF	kg $PM10_{eq}$	7.10E-07	1.06E-05	8.34E-06	3.74E-07	5.55E-06	1.92E-06	2.33E-05	1.09E-05	8.86E-06	7.28E-06	5.59E-06	2.52E-05	8.70E-06	1.09E-05
TET	kg 1,4-DB_{eq}	1.82E-08	2.71E-07	2.13E-07	9.58E-09	1.42E-07	4.91E-08	5.96E-07	2.80E-07	2.27E-07	1.86E-07	1.43E-07	6.45E-07	2.23E-07	2.79E-07
FET	kg 1,4-DB_{eq}	2.85E-04	4.25E-03	3.35E-03	1.50E-04	2.22E-03	7.69E-04	9.35E-03	4.38E-03	3.55E-03	2.92E-03	2.24E-03	1.01E-02	3.49E-03	4.38E-03
MET	kg 1,4-DB_{eq}	2.75E-07	4.11E-06	3.23E-06	1.45E-07	2.15E-06	7.44E-07	9.04E-06	4.24E-06	3.43E-06	2.82E-06	2.17E-06	9.78E-06	3.37E-06	4.23E-06
WD	m^3	1.18E-06	1.76E-05	1.38E-05	6.20E-07	9.18E-06	3.17E-06	3.86E-05	1.81E-05	1.47E-05	1.20E-05	9.26E-06	4.17E-05	1.44E-05	1.81E-05
FD	kg Oil_{eq}	1.20E-04	1.79E-03	1.41E-03	6.33E-05	9.38E-04	3.24E-04	3.94E-03	1.85E-03	1.50E-03	1.23E-03	9.46E-04	4.26E-03	1.47E-03	1.85E-03

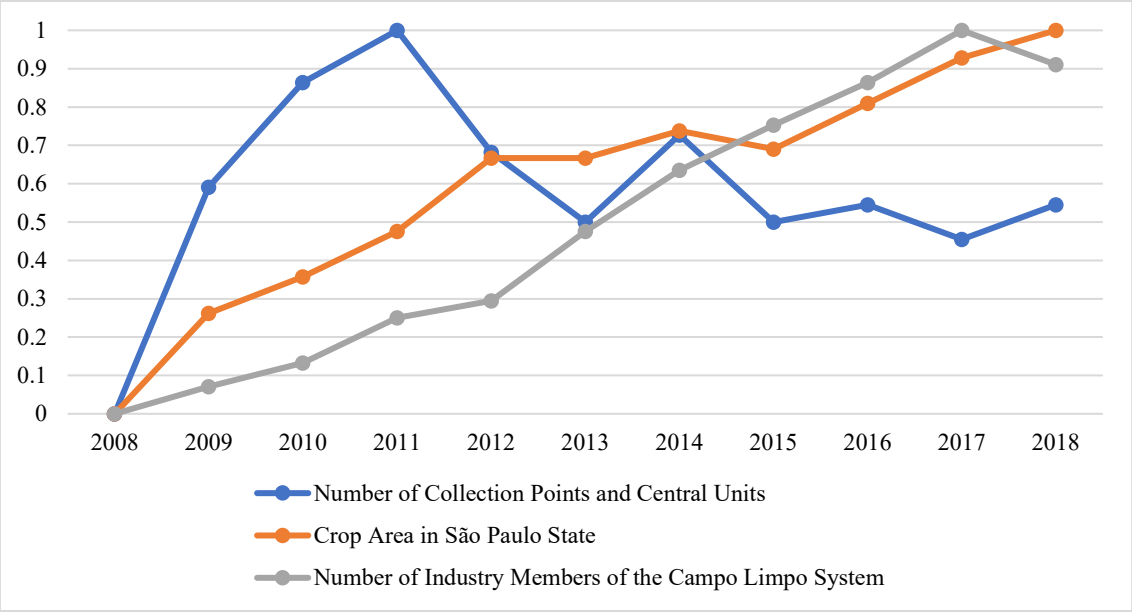

Figure SM1. Normalization of historical data for the CLS in São Paulo State.

Source: INPEV (2018), IBGE (2018)

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