

**Appendix-4**  
**Soil Loss Computation for Pilot River Basins**



Table-A4.1 R Factor Division and Meteorological Station in Thiessen's Polygon for Iguacu River Basin (1/2)

IGUACU BASIN						
No	Municipality	Total Area (km <sup>2</sup> )	Area Involved (%)	Area Involved (km <sup>2</sup> )	Rainfall Factor Division	Meteorological Station in Thiessen's Polygon
I-01	Campina Grande do Sul	554.4	14.28	79.2	8	Piraquara
I-02	Quatro Barras	183.2	54.32	99.5	8	Piraquara
I-03	Piraquara	171.9	100.00	171.9	8	Piraquara
I-04	Sao Jose dos Pinhais	916.1	73.60	674.2	8	Piraquara
I-05	Colombo	189.6	67.29	127.6	8	Piraquara
I-06	Pinhais	98.2	100.00	98.2	8	Piraquara
I-07	Almirante Tamandare	521.3	36.31	189.3	8	Piraquara
I-08	Curitiba	431.7	100.00	431.7	8	Piraquara
I-09	Campo Largo	1,262.9	23.53	297.2	8	Piraquara
I-10	Araucaria	503.7	100.00	503.7	8	Piraquara
I-11	Fazenda Rio Grande	110.9	100.00	110.9	8	Piraquara
I-12	Mandirituba	392.3	100.00	392.3	8	Lapa
I-13	Tijucas do Sul	678.9	62.25	422.6	8	Piraquara
I-14	Balsa Nova	321.9	99.32	319.7	8	Lapa
I-15	Contenda	222.2	100.00	222.2	8	Lapa
I-16	Quitandinha	419.4	100.00	419.4	8	Lapa
I-17	Agudos do Sul	259.6	100.00	259.6	8	Lapa
I-18	Pien	261.7	100.00	261.7	8	Lapa
I-19	Rio Negro	603.2	100.00	603.2	7	Lapa
I-20	Campo do Tenente	314.0	100.00	314.0	7	Lapa
I-21	Lapa	2,203.9	100.00	2,203.9	7	Lapa
I-22	Porto Amazonas	206.8	73.98	153.0	7	Lapa
I-23	Palmeira	1,500.8	18.22	273.4	7	Lapa
I-24	Sao Joao do Triunfo	712.2	99.43	708.1	7	Tebreira
I-25	Antonio Olinto	482.5	100.00	482.5	7	Lapa
I-26	Sao Mateus do Sul	1,332.8	100.00	1,332.8	7	Tebreira
I-27	Reboucas	504.7	98.85	498.9	7	Tebreira
I-28	Itaí	896.8	45.51	408.1	7	Tebreira
I-29	Rio Azul	642.6	100.00	642.6	7	Tebreira
I-30	Mallet	672.8	100.00	672.8	6	Uniao da Vitoria
I-31	Paulo Frontin	377.5	100.00	377.5	6	Uniao da Vitoria
I-32	Paula Freitas	417.0	100.00	417.0	6	Uniao da Vitoria
I-33	Uniao da Vitoria	773.9	100.00	773.9	6	Uniao da Vitoria
I-34	Porto Vitoria	220.2	100.00	220.2	6	Uniao da Vitoria
I-35	General Carneiro	1,063.7	100.00	1,063.7	6	Uniao da Vitoria
I-36	Bituruna	1,209.7	100.00	1,209.7	6	Uniao da Vitoria
I-37	Cruz Machado	1,500.5	100.00	1,500.5	6	Uniao da Vitoria
I-38	Inacio Martins	897.5	98.04	879.9	6	Guarapuava
I-39	Guarapuava	4,152.2	81.95	3,402.7	6	Guarapuava
I-40	Pinhao	2,875.2	100.00	2,875.2	6	Guarapuava
I-41	Palmas	3,125.5	100.00	3,125.5	6	Palmas
I-42	Clevelandia	708.4	100.00	708.4	6	Clevelandia
I-43	Honorio-Serpa	806.6	100.00	806.6	6	Clevelandia
I-44	Mangueirinha	801.3	100.00	801.3	6	Clevelandia
I-45	Candol	999.8	100.00	999.8	6	Laranjeiras
I-46	Cantagalo	1,844.5	41.97	774.1	6	Laranjeiras
I-47	Virmound	198.4	100.00	198.4	6	Laranjeiras
I-48	Laranjeiras do Sul	1,182.5	89.02	1,052.7	6	Laranjeiras
I-49	Chopinzinho	992.5	100.00	992.5	6	Laranjeiras
I-50	Coronel Vivida	681.5	100.00	681.5	2	Pato Branco
I-51	Pato Branco	570.2	100.00	570.2	2	Pato Branco
I-52	Maripolis	232.1	100.00	232.1	6	Pato Branco
I-53	Vitorino	326.1	100.00	326.1	2	Pato Branco
I-54	Renascenca	434.7	100.00	434.7	2	Francisco Beltrao
I-55	Bom Sucesso do Sul	135.3	100.00	135.3	2	Francisco Beltrao
I-56	Itapejara D'Oeste	246.0	100.00	246.0	2	Francisco Beltrao
I-57	Vere	345.6	100.00	345.6	2	Francisco Beltrao
I-58	Sao Joao	408.9	100.00	408.9	1	Francisco Beltrao
I-59	Sulina	158.5	100.00	158.5	1	Quedas
I-60	Saudade do Iguacu	147.8	100.00	147.8	6	Laranjeiras
I-61	Rio Bonito do Iguacu	459.3	100.00	459.3	6	Laranjeiras
I-62	Nova Laranjeiras	1,283.7	45.09	578.8	6	Laranjeiras
I-63	Guaraniacu	1,052.5	47.03	495.0	1	Quedas
I-64	Quedas do Iguacu	1,192.9	100.00	1,192.9	1	Quedas
I-65	Sao Jorge do Oeste	385.1	100.00	385.1	1	Quedas
I-66	Cruzeiro do Iguacu	96.6	100.00	96.6	1	Quedas
I-67	Boa Esperanca do Iguacu	249.4	100.00	249.4	1	Quedas

Table-A4.1 R Factor Division and Meteorological Station in Thiessen's Polygon for Iguacu River Basin (2/2)

IGUACU BASIN						
No	Municipality	Total Area (km <sup>2</sup> )	Area Involved (%)	Area Involved (km <sup>2</sup> )	Rainfall Factor Division	Meteorological Station in Thiessen's Polygon
I-68	Dols Vizinhas	372.7	100.00	372.7	2	Francisco Beltrao
I-69	Eneas Marques	234.7	100.00	234.7	2	Francisco Beltrao
I-70	Francisco Beltrao	696.7	100.00	696.7	2	Francisco Beltrao
I-71	Marmeleiro	449.9	100.00	449.9	2	Francisco Beltrao
I-72	Flor da Serra do Sul	94.7	100.00	94.7	2	Francisco Beltrao
I-73	Barracao	386.3	100.00	386.3	2	Francisco Beltrao
I-74	Salgado Filho	506.4	100.00	506.4	2	Francisco Beltrao
I-75	Santo Antonio do Sudoeste	313.8	100.00	313.8	2	Planalto
I-76	Pranchita	297.1	100.00	297.1	2	Planalto
I-77	Pinhai do Sao Bento	107.6	100.00	107.6	2	Planalto
I-78	Ampere	307.9	100.00	307.9	2	Planalto
I-79	Nova Esperanca do Sudoeste	176.9	100.00	176.9	2	Francisco Beltrao
I-80	Salto do Lontra	336.9	100.00	336.9	2	Francisco Beltrao
I-81	Santa Izabel do Oeste	330.5	100.00	330.5	1	Planalto
I-82	Nova Prata do Iguacu	333.0	100.00	333.0	1	Quedas
I-83	Perola do Oeste	330.1	100.00	330.1	1	Planalto
I-84	Planalto	337.1	100.00	337.1	1	Planalto
I-85	Realeza	351.9	100.00	351.9	1	Planalto
I-86	Capanema	403.9	100.00	403.9	1	Planalto
I-87	Tres Barras do Parana	521.7	100.00	521.7	1	Quedas
I-88	Catanduvas	593.9	100.00	593.9	1	Quedas
I-89	Ibema	151.7	97.79	148.3	1	Quedas
I-90	Cascavel	2,157.5	55.57	1,198.9	1	Cascavel
I-91	Boa Vista da Aparecida	232.2	100.00	232.2	1	Quedas
I-92	Capitao Leonidas Marques	279.8	100.00	279.8	1	Planalto
I-93	Santa Lucia	137.1	100.00	137.1	1	Planalto
I-94	Lindoeste	273.2	100.00	273.2	1	Cascavel
I-95	Santa Tereza do Oeste	423.3	55.64	235.5	1	Cascavel
I-96	Ceu Azul	1,185.0	79.09	937.2	1	Cascavel
I-97	Matelandia	611.4	98.37	601.4	1	Sao Miguel
I-98	Medianeira	799.2	77.72	621.1	1	Sao Miguel
I-99	Sao Miguel do Iguacu	997.2	45.70	455.7	1	Sao Miguel
I-100	Santa Terezinha de Itaipu	289.8	55.94	162.1	1	Sao Miguel
I-101	Foz do Iguacu	476.1	65.58	312.2	1	Sao Miguel
<b>Total</b>				<b>55,301.7</b>		

Area Involved: Area within Iguacu River Basin

Rainfall Factor Division: refer to Figure-3.1 (determined by Rufino et al.)

Thiessen's Polygon: refer to Sectoral Report Vol.B

Source: SANEPAR GIS Computation for Total Area and Area Involved of Municipalities

Table-A4.2 R Factor Division and Meteorological Station in Thiessen's Polygon for Tibagi River Basin

TIBAGI BASIN						
No	Municipality	Total Area (km <sup>2</sup> )	Area Involved (%)	Area Involved (km <sup>2</sup> )	Rainfall Factor Division	Meteorological Station in Thiessen's Polygon
T-01	Porto Amazonas	206.8	26.02	53.8	7	Lapa
T-02	Palmeira	1,500.8	81.78	1,227.4	7	Ponta Grossa
T-03	Teixeira Soares	1,343.3	97.04	1,303.5	7	Teixeira
T-04	Irati	898.8	15.57	139.6	7	Teixeira
T-05	Imbituva	1,073.8	75.55	811.3	7	Teixeira
T-06	Ipiranga	932.3	99.97	932.0	7	Ponta Grossa
T-07	Ponta Grossa	2,269.6	82.43	1,870.8	7	Ponta Grossa
T-08	Castro	3,089.8	73.74	2,278.4	8	Ponta Grossa
T-09	Ivaí	609.9	34.80	212.2	7	Teixeira
T-10	Reserva	1,770.8	31.39	555.9	7	Telemaco
T-11	Tibagi	2,938.1	99.61	2,926.6	7	Telemaco
T-12	Piraí do Sul	1,367.3	70.59	965.2	7	Telemaco
T-13	Vertania	824.2	45.12	380.1	7	Telemaco
T-14	Telemaco Borba	1,625.3	100.00	1,625.3	7	Telemaco
T-15	Ortigueira	2,471.6	64.27	1,588.5	7	Telemaco
T-16	Curituba	581.7	62.19	361.8	7	Telemaco
T-17	Sapopema	694.2	78.62	531.9	7	Telemaco
T-18	São Jerônimo da Serra	851.7	99.95	851.3	4	Londrina
T-19	Mauá da Serra	153.4	31.27	48.0	5	Telemaco
T-20	Marilandia do Sul	385.3	39.51	152.2	5	Apucarana
T-21	Califórnia	130.9	74.27	97.2	5	Apucarana
T-22	Apucarana	554.9	32.83	182.2	4	Apucarana
T-23	Arapongas	395.0	48.59	191.9	4	Apucarana
T-24	Londrina	2,095.6	100.00	2,095.6	4	Londrina
T-25	Nova Santa Bárbara	112.2	100.00	112.2	4	Londrina
T-26	Santa Cecília do Pavão	68.5	100.00	68.5	4	Londrina
T-27	Santo Antônio do Paraisópolis	151.9	100.00	151.9	4	Londrina
T-28	Congonhinhas	588.1	17.78	104.6	4	Bandeirantes
T-29	Nova Fátima	232.1	35.99	83.5	4	Bandeirantes
T-30	São Sebastião da Amoreira	217.4	100.00	217.4	4	Londrina
T-31	Assaí	450.5	100.00	450.5	3	Londrina
T-32	Nova América da Colina	133.3	100.00	133.3	4	Londrina
T-33	Corneio Procopio	627.5	53.65	336.7	4	Bandeirantes
T-34	Uraí	209.6	100.00	209.6	3	Londrina
T-35	Jataizinho	199.1	100.00	199.1	3	Londrina
T-36	Ibipora	295.4	100.00	295.4	3	Londrina
T-37	Rolândia	473.7	12.11	57.4	4	Londrina
T-38	Cambe	478.9	29.98	143.5	4	Londrina
T-39	Sertãozinho	493.0	97.13	478.9	3	Bela Vista
T-40	Rancho Alegre	187.4	100.00	187.4	3	Bela Vista
T-41	Leópolis	344.7	19.98	68.9	3	Londrina
T-42	Sertaneja	433.0	52.35	226.7	3	Bela Vista
T-43	Primeiro de Maio	371.7	38.41	142.8	3	Bela Vista
<b>Total</b>				<b>25,051.0</b>		

Area Involved: Area within Tibagi River Basin

Rainfall Factor Division: refer to Figure-3.1 (determined by Rufino et al.)

Thiessen's Polygon: refer to Sectoral Report Vol B

Source: SANEPAR GIS Computation for Total Area and Area Involved of Municipalities

Table-A4.3 R Factor Computation

Station	R Factor Division	Unit of R Factor: MJ-mm/h-a-hr													
		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total	
Bela Vista	Rainfall (mm)	206.5	136.6	143.6	118.4	118.3	96.3	51.1	48.1	112.8	143.1	181.9	217.7	128.7	1544.7
	R Division 3	1356.4	715.2	767.6	578.6	590.5	416.3	286.1	278.2	567.1	779.2	917.1	1483.4	8725.7	
Bandeirantes	Rainfall (mm)	179.9	160.1	160.2	90.4	110.9	78.7	49.8	46.3	105.3	122.7	165.3	211.4	123.6	1482.8
	R Division 4	1024.9	845.9	846.7	461.9	491.2	333.1	229.5	221.1	469.0	564.5	899.7	1352.8	7650.0	
Londrina	Rainfall (mm)	109.5	165.5	157.7	120.9	117.8	90.5	62.5	53.1	118.9	136.8	179.4	242.4	136.2	1634.7
	R Division 3	1123.6	908.3	844.6	585.6	566.9	423.2	315.0	287.5	573.5	689.1	1028.7	1700.8	9044.8	
	R Division 4	1030.5	824.9	764.1	516.8	498.3	361.7	258.3	232.1	505.2	615.6	938.0	1581.7	8127.9	
Apucarana	Rainfall (mm)	190.3	154.6	151.5	112.7	151.0	112.2	69.2	66.2	128.6	153.6	193.1	211.3	138.4	1860.3
	R Division 4	1024.4	731.9	709.3	465.6	705.7	463.1	277.9	268.2	567.0	724.5	765.4	1224.7	7917.9	
	R Division 5	1248.8	889.4	861.7	562.5	857.3	559.2	331.6	319.7	674.5	880.4	930.6	1495.0	9610.8	
Toledo	Rainfall (mm)	181.0	155.3	139.1	102.6	150.8	98.5	87.3	74.1	131.7	150.8	151.4	205.4	133.7	1627.9
	R Division 5	1167.1	909.8	767.8	505.2	868.8	480.6	418.7	355.3	708.2	867.0	874.2	1447.8	9370.4	
	R Division 7	922.5	703.7	683.0	359.7	688.9	338.9	286.2	232.3	532.3	667.3	673.5	1161.1	7129.3	
Cascavel	Rainfall (mm)	177.2	173.0	137.1	163.7	218.2	120.9	114.4	109.8	147.8	206.3	197.8	177.9	162.6	1961.3
	R Division 1	1087.5	1045.1	724.4	954.9	1554.6	861.6	559.9	530.2	812.2	1397.2	1310.1	1094.7	11732.4	
	Rainfall (mm)	161.3	135.8	125.3	86.4	119.8	88.8	92.8	73.2	109.7	127.2	122.4	146.2	115.7	1398.3
Praquara	Rainfall (mm)	196.2	174.0	149.6	262.2	452.0	262.9	285.8	190.4	386.1	507.1	472.6	660.0	533.6	5333.6
	Rainfall (mm)	139.0	138.0	120.8	86.4	142.5	107.2	109.4	96.3	119.9	146.1	127.7	158.6	126.2	1513.9
Lapa	R Division 8	713.1	545.4	425.7	234.0	579.3	342.3	355.1	293.1	419.8	607.3	471.8	709.7	5986.5	
	R Division 7	781.3	611.6	490.4	206.4	645.9	406.0	419.0	356.3	484.5	674.2	537.1	777.8	6480.8	
Ponta Grossa	Rainfall (mm)	163.2	133.7	140.3	103.0	157.4	98.1	105.1	85.0	128.4	136.3	128.5	151.3	127.3	1530.7
	R Division 7	810.2	574.4	623.1	390.0	780.1	352.3	390.6	287.8	537.0	593.3	524.0	712.7	6655.6	
	R Division 8	741.6	508.7	558.8	326.5	682.2	329.2	327.0	225.4	471.7	527.3	458.9	645.3	5770.6	
Teoterra	Rainfall (mm)	174.7	126.0	132.0	99.0	168.3	113.7	111.1	89.9	133.6	147.0	152.5	146.9	132.9	1894.7
	R Division 7	891.8	503.5	543.4	346.5	825.1	427.3	412.2	302.1	564.4	651.6	894.1	650.8	6792.8	
	Rainfall (mm)	162.0	147.1	146.8	143.7	196.1	141.4	128.6	107.8	156.4	183.9	174.4	184.2	157.7	1892.4
Guarapuava	R Division 6	928.2	643.7	641.5	619.2	1060.3	602.9	517.3	395.4	713.6	945.5	861.1	948.2	8876.9	
Laranjeiras	Rainfall (mm)	167.1	175.4	120.0	154.8	188.3	150.6	140.4	115.0	152.7	209.6	180.1	161.7	161.4	1936.3
	R Division 6	783.7	852.5	456.2	687.8	966.1	656.7	584.9	431.1	672.2	1171.4	893.0	907.0	9062.6	
Planalto	Rainfall (mm)	179.8	143.2	123.3	153.8	181.4	157.4	117.2	124.0	144.4	186.3	182.8	173.1	156.6	1878.7
	R Division 2	1150.1	798.4	637.8	986.7	1167.4	924.2	593.9	642.9	806.8	1243.8	1182.7	1079.4	11211.0	
	R Division 2	1103.7	753.7	596.7	940.9	1120.8	890.1	563.3	601.8	763.9	1196.3	1135.9	1033.7	10680.8	
Quevedas	Rainfall (mm)	172.5	174.7	138.0	168.1	181.4	153.0	142.4	117.0	158.3	204.4	202.8	176.8	165.9	1990.6
	R Division 1	1023.2	1044.8	720.7	980.9	1112.2	844.0	755.6	569.5	899.5	1362.8	1344.4	1065.7	11723.2	
	Rainfall (mm)	162.0	152.6	130.5	143.1	168.4	136.0	111.6	112.8	131.5	189.2	178.2	149.9	147.0	1764.3
Seo Miguel	R Division 1	1019.0	924.8	725.5	835.3	1065.1	772.2	579.7	588.3	733.8	1329.4	1194.6	898.8	10666.5	
	Rainfall (mm)	184.9	158.6	125.8	110.8	171.0	116.9	144.2	116.3	139.5	162.0	149.6	159.1	144.3	1738.8
Uniao da Vitoria	Rainfall (mm)	1029.4	785.8	534.3	438.6	896.0	476.0	688.2	472.2	633.0	815.2	711.0	780.1	6250.0	
	R Division 6	185.2	169.5	131.7	161.8	199.3	171.0	161.2	128.3	157.1	208.6	179.5	161.9	168.1	2077.1
Palmas	R Division 6	972.1	775.4	510.7	716.1	1030.9	787.2	711.6	490.2	691.2	1119.0	856.5	716.8	5317.7	
Clevelândia	Rainfall (mm)	186.2	152.4	123.1	162.2	210.8	167.6	154.6	128.8	151.1	192.5	199.1	165.6	166.3	1998.0
	R Division 6	921.2	652.6	463.1	724.9	1180.3	766.7	668.4	484.8	643.3	1004.5	1637.8	751.1	9288.7	
Pato Branco	Rainfall (mm)	193.7	163.7	123.9	168.8	204.6	168.2	155.7	126.5	163.7	208.5	197.5	175.2	170.4	2045.0
	R Division 2	1167.1	875.4	564.1	921.6	1285.1	805.9	561.4	875.4	1329.0	1207.5	961.4	11471.9		
	R Division 6	967.8	721.9	459.5	760.8	1067.3	740.9	663.4	457.2	721.9	1104.3	1001.9	811.3	9478.2	
Francisco	Rainfall (mm)	171.6	168.9	127.2	157.8	197.9	154.1	143.1	117.1	153.5	209.7	164.1	163.8	163.1	1996.8
	R Division 2	963.6	938.4	606.5	854.4	1259.8	821.6	728.7	536.4	816.3	1397.5	1217.5	909.2	11068.8	
	R Division 1	1028.8	983.1	647.7	898.2	1307.9	865.0	771.1	576.8	859.7	1446.1	1205.1	953.6	11603.1	

Source: Rufino et al. for Equations of R Factor Computation

Table-A4.4 Description of Agricultural Aptness Class

Group	Handling Level	Description	Aptness Class
1	ABC	Good aptness for crops with handling level A, B and C	1
	ABc, AB(c)	Good aptness for crops with handling level A and B	2
	aBC, (a)BC	Good aptness for crops with handling level B and C	3
	aBc, (a)Bc	Good aptness for crops with handling level B	4
2	abc	Regular aptness for crops with handling level A, B and C	5
	ab(c), ab	Regular aptness for crops with handling level A and B	6
	(a)bc, bc	Regular aptness for crops with handling level B and C	7
	(a)b(c)	Regular aptness for crops with handling level B	8
	(b)c, c	Regular aptness for crops with handling level C	9
3	(abc)	Restricted aptness for crops with handling level A, B and C	10
	(ab)	Restricted aptness for crops with handling level A and B	11
	(bc)	Restricted aptness for crops with handling level B and C	12
4	P	Good aptness for cultivated pasture	13
	p	Regular aptness for cultivated pasture	14
	(p)	Restricted aptness for cultivated pasture	15
5	S	Good aptness for forest but not for native pasture	16
	s	Regular aptness for forest but not for native pasture	17
	(s)	Restricted aptness for forest but not for native pasture	18
	n	Regular & restricted aptness for native pasture but not for forest	19
6		No aptness for agriculture	20

Handling Level: A; low technology level with manual labor and use of animal traction  
 B; average technology level with manual labor and animal traction  
 C; high technology level with mechanization

Source: Ministry of Agriculture (1981)

Table-A4.5 K and LS Factor for Aptness Class (1/2)

(For typical slopes being the mid-point of the slope class ranges)

Act. code	SOIL	AREA (%)	SLOPE (%)	Area in the State (sq. mi.)	TYPICAL SLOPE (min.)	TYPICAL LENGTH (mi.)	K FACTOR (mi.)	S FACTOR	BETA	L FACTOR	KS FACTORS	AVG. KS TIBAGI	AVG. KS IGUAQU	AVO. L TIBAGI	AVO. L IGUAQU
1	Lafonso Vermelho Escuro Eutrofico (LEa)	7	< 8	170,500	0.04	300	0.008	0.4017	0.0659	2.587	0.0037	0.0037			
	Lafonso Roxo Escuro (LRe)	33	< 6	788,500	0.04	300	0.016	0.4817	0.5959	2.6955	0.0083				
	Lafonso Roxo Escuro (LRe)	8	3-20	151,800	0.12	300	0.016	1.0016	1.2012	4.1508	0.0270				
	Terra Roxa Escurecida Eutrofica (TRa)	50	3-20	1,203,600	0.12	300	0.017	1.2016	1.3012	4.1508	0.0285				
	Terra Roxa Escurecida Eutrofica (TRa)	4	3-8	84,600	0.11	300	0.017	1.3399	1.1368	4.0120	0.0277				
	Total	100		2,488,700					0.018	0.018	0.018	0.018	0.018	3.512	3.512
2	Terra Roxa Escurecida Eutrofica (TRa)	93	8-20	1,046,000	0.14	100	0.017	1.8295	1.3141	2.357	0.0311				
	Terra Roxa Escurecida Eutrofica (TRa)	2	< 20	17,500	0.1	100	0.017	1.1717	1.0745	2.166	0.0199				
	Terra Roxa Escurecida Eutrofica (TRa)	2	8-45	27,400	0.27	100	0.017	3.8792	1.8375	2.080	0.0659				
	Terra Roxa Escurecida Eutrofica (TRa)	3	20-45	29,200	0.35	100	0.014	4.7647	2.0035	2.120	0.0677				
	Total	100		1,119,100					0.032	0.033	0.033	0.033	0.033	2.347	2.340
3	Lafonso Roxo Distrófico (LRd)	62	8-20	488,300	0.14	150	0.014	1.8293	1.3141	2.987	0.0250				
	Terra Roxa Escurecida Distrófica (TRd)	33	8-20	247,300	0.14	150	0.024	1.8293	1.3141	2.987	0.0439				
	Podzolo Vermelho Amarelo Distrófico (PVd)	5	8-20	43,000	0.14	150	0.023	1.8293	1.3141	2.987	0.0404				
	Total	100		738,600					0.033	0.033	0.033	0.033	0.033	2.987	2.987
4	Lafonso Vermelho Escuro Distrófico (LEd)	7	3-8	99,100	0.08	150	0.004	0.6768	0.7635	2.291	0.0227				
	Lafonso Roxo Distrófico (LRd)	46	3-8	498,470	0.08	150	0.014	0.6768	0.7635	2.291	0.0295				
	Terra Roxa Escurecida Distrófica (TRd)	1	3-20	9,000	0.12	150	0.024	1.6016	1.2012	2.844	0.0360				
	Podzolo Vermelho Amarelo Distrófico (PVd)	4	< 3	39,600	0.02	150	0.04	0.2480	0.3229	1.599	0.0386				
	Total	100		686,100					0.039	0.039	0.039	0.039	0.039	2.299	2.299
5	Podzolo Vermelho Amarelo Eutrofico (PVe)	-	8-20	4,700	0.14	150	0.04	1.8293	1.3141	2.987	0.0732				
6	Podzolo Vermelho Amarelo Alco (PVA)	-	3-20	155,300	0.12	150	0.034	1.5016	1.2012	2.844	0.0511				
7	Lafonso Vermelho Amarelo Alco (LVA)	5	8-20	103,500	0.14	125	0.007	1.4293	1.3141	2.875	0.0126				
	Lafonso Vermelho Escuro Eutrofico (LEe)	2	0-8	77,900	0.04	125	0.004	0.4817	0.5959	1.870	0.0115				
	Lafonso Vermelho Escuro Eutrofico (LEe)	34	0-8	1,194,900	0.04	125	0.004	0.4817	0.5959	1.870	0.0116				
	Lafonso Vermelho Escuro Alco (LEa)	12	3-8	428,500	0.06	125	0.007	0.6768	0.7635	2.117	0.0047				
	Lafonso Roxo Alco (LRA)	17	3-20	543,900	0.12	125	0.012	1.5016	1.2012	2.574	0.0160				
	Lafonso Bruno Alco (LBA)	7	3-20	233,000	0.12	125	0.012	1.5016	1.2012	2.574	0.0160				
	Terra Roxa Escurecida Alca (TRa)	1	8-45	43,100	0.27	125	0.023	3.8792	1.8375	2.293	0.0892				
	Terra Roxa Escurecida Alca (TRa)	2	3-8	65,000	0.08	125	0.017	0.6768	0.7635	2.117	0.0115				
	Terra Roxa Escurecida Simlar Alca (TRSa)	4	3-8	140,300	0.08	125	0.017	0.6768	0.7635	2.117	0.0115				
	Podzolo Vermelho Amarelo Distrófico (PVd)	1	3-45	28,500	0.24	125	0.029	3.4307	1.7403	2.539	0.0982				
	Podzolo Vermelho Amarelo Alco (PVA)	14	3-20	461,100	0.12	125	0.034	1.5016	1.2012	2.574	0.0511				
	Cambissolo Alco (Ca)	1	3-8	44,900	0.08	125	0.027	0.8278	0.7635	2.117	0.0183				
	Total	100		3,511,800					0.019	0.019	0.019	0.019	0.019	2.213	2.253
8	Terra Roxa Escurecida Distrófica (TRd)	20	8-45	47,100	0.27	100	0.024	3.8792	1.8375	2.080	0.0931				
	Podzolo Vermelho Amarelo Distrófico (PVd)	73	8-45	171,200	0.27	100	0.029	3.8792	1.8375	2.080	0.1125				
	Cambissolo Eutrofico (Ce)	7	8-20	15,700	0.14	100	0.031	1.8293	1.3141	2.357	0.0587				
	Total	100		234,000					0.106	0.106	0.106	0.106	0.106	2.080	2.081
9	Lafonso Vermelho Amarelo Alco (LVA)	4	3-8	47,900	0.06	100	0.007	0.6768	0.7635	1.922	0.0047				
	Lafonso Vermelho Escuro Alco (LEa)	33	3-8	432,000	0.06	100	0.007	0.6768	0.7635	1.922	0.0047				
	Lafonso Roxo Alco (LRA)	5	48	67,700	0.04	100	0.012	0.4817	0.5959	1.728	0.0059				
	Lafonso Bruno Alco (LBA)	1	3-8	21,600	0.06	100	0.012	0.6768	0.7635	1.922	0.0081				
	Lafonso Bruno Alca (LBA)	26	3-8	320,600	0.06	100	0.012	0.6768	0.7635	1.922	0.0081				
	Cambissolo Alco (Ca)	21	3-20	272,700	0.12	100	0.027	1.5016	1.2012	2.279	0.0465				
	Solos Hidromorficos Gleyzados Indistruhuados (HG)	11		162,800					0.017	0.017	0.017	0.017	0.017	2.024	1.965
	Total	100		1,305,500					0.017	0.017	0.017	0.017	0.017	2.024	1.965
10	non	-		0											



Table-A4.5 K and LS Factor for Aptness Class (2/2)

(for typical slopes being the mid-point of the slope class range)

API code	SOIL	AREA (%)	SLOPE (%)	Area in the State (%)	TYPICAL SLOPE (m/m)	TYPICAL LENGTH (m)	K FACTOR (M.U.)	S FACTOR	BETA	L FACTOR	KS FACTORS	AVG. KS TIBAGI	AVG. KS IGUAZU	AVG. L TIBAGI	AVG. L IGUAZU	
11	Loteoeste Vermelho Amarello Alao (LVa)	2	8-15	47,800	0.27	80	0.007	3,879	1.837	1.851	0.027					
		97	>20	2,853,400	0.33	80	0.032	4,785	2.004	1.904	0.152					
		1	>45	36,000	0.35	80	0.032	7,580	2.459	2.010	0.243					
		100		2,940,100							0.151	0.151	1.944	1.944	1.746	1.746
12	Cambieito Alao (Ca)	100	3-4	702,000	0.06	80	0.027	0.677	0.783	1.745	0.016	0.016	0.016	1.745	1.745	
		100		1,884,900							0.047	0.047	1.884	1.884	1.680	1.680
13	Podoclo Vermelho Amarello Eletrolo (PE)	33	8-20	614,500	0.14	60	0.04	1,829	1.314	1.763	0.073					
		42	3-6	803,300	0.06	60	0.029	0.677	0.783	1.541	0.020					
		16	8-20	294,200	0.14	60	0.034	1,829	1.314	1.763	0.092					
		7	8-20	137,700	0.14	60	0.027	1,829	1.314	1.763	0.048					
		2	3-20	39,100	0.12	60	0.032	1,829	1.314	1.763	0.048					
100		1,884,900							0.047	0.047	1.884	1.884	1.680	1.680		
14	Loteoeste Vermelho Amarello Alao (LVa)	10	20-45	31,800	0.33	60	0.007	4,785	2.004	1.848	0.033					
		44	20-45	144,500	0.33	60	0.034	4,785	2.004	1.948	0.182					
		30	8-45	99,100	0.27	60	0.027	3,879	1.837	1.813	0.105					
		16	8-20	53,200	0.14	60	0.033	1,829	1.314	1.763	0.090					
		100		330,600							0.110	0.110	1.856	1.856	1.650	1.650
15	Solos Litoloos Eletroloos (RE)	72	20-45	142,100	0.33	60	0.039	4,785	2.004	1.848	0.188					
		28	8-20	55,900	0.14	60	0.033	1,829	1.314	1.763	0.090					
		100		197,400							0.151	0.151	1.881	1.881	1.683	1.683
		5	20-45	18,400	0.33	60	0.014	4,785	2.004	1.848	0.087					
		100		312,600							0.075	0.075	1.724	1.724	1.720	1.720
16	Terra Rosa Espurenda Eletroloos (TRa)	15	20	77,600	0.33	60	0.074	4,785	2.004	1.848	0.114					
		7	>20	11,500	0.33	60	0.033	4,785	2.004	1.848	0.187					
		65	20-45	320,400	0.33	60	0.034	4,785	2.004	1.948	0.142					
		14	20-45	92,700	0.33	60	0.027	4,785	2.004	1.848	0.129					
		100		501,600							0.140	0.140	1.848	1.848	1.646	1.646
17	Terra Rosa Espurenda Eletroloos (TRa)	15	20	77,600	0.33	60	0.074	4,785	2.004	1.848	0.114					
		7	>20	11,500	0.33	60	0.033	4,785	2.004	1.848	0.187					
		65	20-45	320,400	0.33	60	0.034	4,785	2.004	1.948	0.142					
		14	20-45	92,700	0.33	60	0.027	4,785	2.004	1.848	0.129					
		100		501,600							0.140	0.140	1.848	1.848	1.646	1.646
18	Cambieito Alao (Ca)	100	>20	198,200	0.33	60	0.027	4,785	2.004	1.848	0.129	0.129	0.129	1.822	1.822	
		100		135,700	0.06	60	0.033	0.677	0.783	1.541	0.022	0.022	0.022	1.476	1.476	
		14	>45	140,700	0.55	60	0.027	7,580	2.459	1.726	0.205					
		10	>45	142,000	0.55	60	0.038	7,580	2.459	1.726	0.205					
		76	>20	1,073,000	0.33	60	0.033	4,785	2.004	1.848	0.157					
100		1,356,700							0.176	0.176	1.807	1.807	1.607	1.607		

Assumptions:  
 (1) Slopes > 20% are mainly forest or pasture.  
 (2) Slope lengths are assumed.  
 (3) For Thung river basin, solo Loteoeste Branco and Terra Branca were excluded from the avg. K.  
 Source: Agricultural Land Aptitude of Paraná for Soil Classes with area and slope  
 ESPAR database (Rouff, 1995) for K Computation













Table-A4.7 Aptness Class and Computation of Average K and LS Factor for Tibagi River Basin (1/3)

		Area of Aptness Class with Land Use (km <sup>2</sup> )																							
		Apt. class 1	Apt. class 2	Apt. class 3	Apt. class 4	Apt. class 5	Apt. class 6	Apt. class 7	Apt. class 8	Apt. class 9	Apt. class 10	Apt. class 11	Apt. class 12	Apt. class 13	Apt. class 14	Apt. class 15	Apt. class 16	Apt. class 17	Apt. class 18	Apt. class 19	Apt. class 20	Average K <sub>W</sub>	Average L		
K <sub>S</sub>		0.02	0.03	0.03	0.01	0.65	0.02	0.11	0.02	0.15	0.02	0.05	0.12	0.15	0.08	0.15	0.08	0.15	0.12	0.02	0.18				
L		3.51	2.35	2.02	2.27	2.84	2.21	2.09	2.02	3.9	1.75	1.67	1.85	1.68	1.72	1.85	1.82	1.48	1.48	1.67					
No	Municipality	Land Use	Area (km <sup>2</sup> )																					Average K <sub>W</sub>	Average L
1-22	Apuacana	Forest	182.2	34.3	55.5																				
		2nd Vegetation	31.8																						
		Reforestation	76.6		55.2																				
		Pasture	0.0																						
		Crop	0.1		0.1																				
		Others	74.7	34.5	40.2																				
			0.0																						
1-23	Aspangas	Forest	101.6	40.6	35.0																				
		2nd Vegetation	24.6																						
		Reforestation	87.9		87.3																				
		Pasture	4.6		4.6																				
		Crop	84.8	89.6	4.4																				
		Others	2.8																						
1-31	Atua	Forest	450.5	388.0																					
		2nd Vegetation	0.3																						
		Reforestation	33.9																						
		Pasture	32.8	35.9																					
		Crop	363.5	363.1																					
		Others	13.4																						
1-21	California	Forest	87.2	45.2	20.0																				
		2nd Vegetation	22.7		0.5																				
		Reforestation	49.7	19.4	29.3																				
		Pasture	1.5	1.3																					
		Crop	24.5	24.5																					
		Others																							
1-39	Caroba	Forest	143.5	128.8	13.7																				
		2nd Vegetation	50.2	36.5	13.7																				
		Reforestation																							
		Pasture																							
		Crop	83.5	83.5																					
		Others																							
1-6	Caroba	Forest	2379.4		9.4	4.4		58.4	80.8	607.5		413.2		58.3		198.4	225.7	11.0	2.8	318.9					
		2nd Vegetation	54.6																						
		Reforestation	734.7																						
		Pasture	20.7																						
		Crop	725.7																						
		Others	730.4		9.4	4.4		58.4	80.8	608.3		413.2		1.9											
			3.3																						
1-28	Compadrebas	Forest	104.6	47.5	27.3			24.0																	
		2nd Vegetation	8.7																						
		Reforestation																							
		Pasture	17.8					13.8																	
		Crop	80.0	47.5	27.3			10.2																	
		Others																							
1-33	Conato Procopio	Forest	336.7	320.8																					
		2nd Vegetation	2.8																						
		Reforestation	49.2																						
		Pasture	112.9	54.4																					
		Crop	188.2	188.2																					
		Others	5.6																						
1-18	Curva	Forest	361.8		8.4		131.4	218.4																	
		2nd Vegetation	8.6					3.8																	
		Reforestation	82.4					89.4																	
		Pasture	74.9					74.8																	
		Crop	59.9					8.8	50.3																
		Others	127.2		5.4		125.8																		
			0.8																						
1-38	Espera	Forest	265.4	256.9																					
		2nd Vegetation	84.7	49.2																					
		Reforestation																							
		Pasture	3.1	3.1																					
		Crop	105.6	185.9																					
		Others	17.6																						
1-5	Imbuva	Forest	811.3					844.4	72.4	74.0		29.5	0.7												
		2nd Vegetation	109.4																						
		Reforestation	381.2					301.2	72.4	17.8		18.2	0.7												
		Pasture	87.5							58.4		11.1													
		Crop	5.8							6.8															
		Others	237.4							237.4															
1-8	Jiranga	Forest	832.6		13.2			182.8	85.8	247.2	14.4	181.4		74.1	26.8	74.8	44.4								
		2nd Vegetation	71.0																						
		Reforestation	388.5																						
		Pasture	71.8																						
		Crop	80.0																						
		Others	310.7		12.2			182.8	50.0	55.9															
1-4	Jud	Forest	138.8					78.1	81.1							34.3	4.3								
		2nd Vegetation	2.0																						
		Reforestation	63.5					2.8	21.1																
		Pasture	2.0																						
		Crop	78.2					76.2																	
		Others	5.8																						





Table A4.7 Aptness Class and Computation of Average K and LS Factor for Tibagi River Basin (3/3)

No.	Municipality	Land Use	Area (ha)	Apt class 1	Apt class 2	Apt class 3	Apt class 4	Apt class 5	Apt class 6	Apt class 7	Apt class 8	Apt class 9	Apt class 10	Apt class 11	Apt class 12	Apt class 13	Apt class 14	Apt class 15	Apt class 16	Apt class 17	Apt class 18	Apt class 19	Apt class 20	Average KB	Average LS		
T-18	Sao Jeronimo de Serra	Forest	857.5	108.8		55.7				125.8	77.8	207.8				135.9					102.1				0.1490	1.6490	
		2nd Vegetation	100.7													11.0					98.7				0.1379	1.8553	
		Reforestation																									
		Pasture	136.8												14.0		122.8									0.0578	1.6930
		Crop	501.9	108.8		35.7				125.9	77.8	253.9														0.0744	2.5382
Others	4.4																			4.4							
T-30	Sao Sebastiao de Amoiveira	Forest	217.4			0.1								7.1											0.1377	2.0238	
		2nd Vegetation	0.0			5.4																			0.0254	3.2446	
		Reforestation																									
		Pasture	50.5			36.5																				0.0180	3.8120
		Crop	180.5			180.5																				0.0180	3.5120
Others	4.4																										
T-77	Sapopema	Forest	531.8			1.4			78.5	44.8				15.8		3.3									0.1450	1.6490	
		2nd Vegetation	50.7																						0.1450	1.6490	
		Reforestation	187.7																								
		Pasture	89.9																							0.1450	1.6490
		Crop	220.1			1.4			78.5	44.8					15.8		3.3									0.0844	2.2212
Others	228.7																										
T-42	Sertaozinho	Forest	0.0																						0.0180	3.5120	
		2nd Vegetation	0.0																						0.0180	3.5120	
		Reforestation	1.2			1.2																					
		Pasture																									
		Crop	152.5			152.5																				0.0180	3.5120
Others	478.9			394.2																							
T-39	Sertaozinho	Forest	8.0											83.8											0.1510	1.9040	
		2nd Vegetation	140.4			74.5								65.1											0.0287	2.7590	
		Reforestation																									
		Pasture	23.7			23.7																				0.0180	3.5120
		Crop	258.8			258.8																				0.0180	3.5120
Others	12.0												12.0														
T-3	Tejucu Soares	Forest	1505.5						302.9	60.0	371.5			499.5				3.7	35.3	18.8					0.0382	1.7348	
		2nd Vegetation	192.5											142.7				3.7	35.3	18.8					0.0175	1.9974	
		Reforestation	822.7											285.5											0.0180	1.7450	
		Pasture	118.8											119.8												0.0170	2.9240
		Crop	81.0						302.0	60.0	81.0			25.0												0.0541	2.1765
Others	407.8																										
T-14	Tejucu do Boque	Forest	1628.5			2.8	78.7	171.8	572.7	44.4	178.4	31.5	243.7	188.4	1.7	69.5	21.8								0.0510	2.8440	
		2nd Vegetation	107.8					107.8																	0.0543	1.8954	
		Reforestation	1331.2					0.9	672.7	44.4	178.4	31.5	243.7	188.4	1.7	69.5									0.0510	2.8440	
		Pasture	48.8					48.8																		0.0187	2.3853
		Crop	87.4			2.0	78.7	16.4																			
Others	41.6																										
T-11	Tejucu	Forest	7826.6						458.8	0.9	674.5	88.8	627.2	74.8	194.1	178.9	282.4								0.0178	1.8870	
		2nd Vegetation	150.6																						0.0652	1.7090	
		Reforestation	394.7												182.5	74.9	194.1	178.9	282.4					220.8	0.1712	1.8688	
		Pasture	250.5																							0.0328	1.9488
		Crop	758.8							408.8	0.9	447.1														0.0186	2.1142
Others	954.8																										
T-34	Uru	Forest	209.6			143.1								68.5											0.1510	1.9040	
		2nd Vegetation	2.1																						0.1510	1.9040	
		Reforestation	0.9																								
		Pasture	25.3																							0.1510	1.9040
		Crop	181.4			143.1																				0.0481	3.1725
Others	50.1																										
T-15	Vitoria	Forest	580.1						28.7		171.8			18.8				80.8	51.3					48.1	0.1790	1.8970	
		2nd Vegetation	12.2																						0.1261	1.8632	
		Reforestation	85.1															48.4	18.7					38.8	0.1652	1.8737	
		Pasture	88.9																						0.0328	1.8080	
		Crop	80.3							29.7		114.5			18.8			14.2								0.0188	2.0630
Others	144.0																										
Total			25,061.0																								

Note: Land class for aptness codes 8 or 10 does not occur in the Tibagi Basin.





Table-A4.9 C Factor for Current Soil Loss in Tibagi River Basin

C Factor (Current) area weighted average per municipality - Tibagi Basin

No	Municipality	Region ESPAR	Crop (ha)	Cotton (ha)	Cotton (fr)	C Factor cotton	Sugarcane (ha)	Sugarcane (fr)	C Factor sugarcane	Beans (ha)	Beans Conv. (fr)	C Factor beans conv.	Beans NT (fr)	C Factor beans NT	Maize (ha)	Maize conv. (fr)	C Factor maize conv.	Maize NT (fr)	C Factor maize NT	Soybean (ha)	Soybean conv. (fr)	C Factor soybean conv.	Soybean NT (fr)	C Factor soybean NT	Potato (ha)	Potato (fr)	C Factor potato	Coffee (ha)	Coffee (fr)	C Factor coffee	Wheat (ha)	Wheat conv. (fr)	C Factor wheat conv.	Wheat NT (fr)	C Factor wheat NT	Average cropland C			
T-22	Apucarana	12	7500	100	1	0.248				200	1	0.1			3600	0.8	0.065	0.2	0.008	2200	0.86	0.343	0.14	0.063				1400	1	0.219	657	0.6	0.343	0.4	0.063	0.1817			
T-23	Arapongas	12	9400	100	1	0.248	100	1	0.117	100	1	0.1			2500	0.93	0.065	0.07	0.008	5500	0.86	0.343	0.14	0.063				1100	1	0.219	2187	0.76	0.343	0.22	0.063	0.2245			
T-31	Assai	10	36300	2200	1	0.248				400	1	0.1			9000	1	0.087			24300	1	0.306						400	1	0.223	12000	1	0.306				0.2449		
T-21	California	12	2500	100	1	0.248				400	1	0.1			1900	1	0.065												100	1	0.219						0.1849		
T-38	Cambe	9	9300				100	1	0.117						2000	0.71	0.128	0.29	0.008	8400	0.79	0.255	0.21	0.021				800	1	0.223	5093	0.53	0.255	0.47	0.021	0.1822			
T-8	Castro	5	73900							4400	0.96	0.18375	0.14	0.005	28100	0.3	0.053	0.7	0.007	41400	0.11	0.266	0.89	0.028														0.6457	
T-28	Condoninhas	9	8000	300	1	0.248	900	1	0.117	200	1	0.1			2400	1	0.128			3200	1	0.255							1000	1	0.223	11798	0	0.266	1	0.028	0.6457		
T-37	Cornelio Procopio	9	16500	300	1	0.248	700	1	0.117						1600	0.94	0.128	0.06	0.008	11300	1	0.255							2500	1	0.223	196	1	0.255				0.1932	
T-16	Cyruva	7	12700							3600	1	0.1855			7100	1	0.132												1400	1								0.1264	
T-36	Dopora	10	18500							300	1	0.087			16800	1	0.306												2000	1	0.306							0.2543	
T-5	Imbituba	14	23700							5700	0.98	0.168	0.02	0.009	11400	0.79	0.097	0.21	0.009	6200	0.3	0.257	0.7	0.026		200	1	0.361				580	0.4	0.297	0.6	0.026	0.1068		
T-6	Ipiranga	14	31100							2200	1	0.168			22100	0.68	0.097	0.32	0.009	6500	0.25	0.257	0.75	0.026								1999	0	0.297	1	0.026	0.6805		
T-4	Itai	14	7600							3500	1	0.20025			3900	1	0.098			200	1	0.338																0.1514	
T-9	Ivaí	4	2700							3100	1	0.168			4100	0.89	0.097	0.11	0.009	400	0.17	0.297	0.83	0.026															0.1183
T-35	Jataizinho	10	10800	500	1	0.248				4400	0.92	0.087			4400	0.92	0.087	0.08	0.009	5900	0.95	0.306	0.05	0.034															0.2040
T-41	Leopoldo	9	5600	200	1	0.248				2000	1	0.128			2000	1	0.128			3400	0.94	0.255	0.06	0.021															0.2008
T-24	Londrina	9	77300	500	1	0.248				1500	1	0.1			27800	0.87	0.128	0.13	0.008	40200	0.84	0.255	0.15	0.021				7000	1	0.223	12000	0.73	0.255	0.27	0.021			0.1782	
T-20	Martinho do Sul	13	5600							300	1	0.1			3600	0.39	0.045	0.61	0.008	2400	0								100	1	0.223	593	0	0.21	1	0.028	0.8310		
T-19	Maua da Serra	13	1100							600	1	0.045			600	1	0.045			500	1	0.008																	0.0245
T-32	Nova America da Colina	9	8900	400	1	0.248	3600	1	0.117	300	1	0.1			1100	1	0.128			3000	1	0.255							500	1	0.223	1800	1	0.255				0.1761	
T-29	Nova Fátima	10	5000	200	1	0.248				100	1	0.1			1200	0.72	0.087	0.28	0.009	2900	0.87	0.306	0.13	0.034															0.1761
T-25	Nova Santa Barbara	9	16100	4000	1	0.248									1500	0.81	0.128	0.19	0.008	4500	0.85	0.255	0.15	0.021														0.2103	
T-15	Ondina	7	55500							14400	1	0.1855			45500	0.98	0.132	0.02	0.007	2600	0.85	0.276	0.15	0.024														0.1422	
T-2	Palmeira	4	53300							2900	1	0.20025			23100	0.5	0.098	0.5	0.008	26800	0.44	0.338	0.56	0.028															0.1248
T-12	Paraíso do Sul	5	22000							2600	1	0.18375			12000	0.7	0.053	0.3	0.007	6500	0.18	0.258	0.82	0.026				500	1	0.361								0.0711	
T-7	Porto Grossa	4	82800							5800	1	0.20025			36300	0.63	0.098	0.37	0.008	40500	0.32	0.338	0.68	0.028															0.1029
T-1	Porto Amazonas	4	2600							1100	1	0.098			1100	1	0.098			500	0.2	0.338	0.8	0.028				100	1	0.361									0.1245
T-43	Primeiro de Maio	10	9600	100	1	0.248				900	1	0.087			900	1	0.087			8500	1	0.306																	0.2840
T-40	Rancho Alegre	10	15100	200	1	0.248				2500	1	0.087			12400	1	0.306																						0.2699
T-10	Reserva	14	24500							9100	1	0.168			15000	1	0.097			500	1	0.297																	0.1277
T-37	Rolândia	12	3700				600	1	0.117	700	0.7	0.095			2000	0.82	0.343	0.38	0.063										400	1	0.219	1211						0.1796	
T-26	Santa Cecília do Pavão	9	6800							200	1	0.1			2100	1	0.128			4500	0.94	0.255	0.06	0.021														0.2025	
T-27	Santa Antonia do Paraisópolis	9	10900	300	1	0.248				2300	1	0.128			2300	1	0.128			8300	0.94	0.255	0.06	0.021															0.2173
T-18	São Jerônimo da Serra	9	50100	9000	1	0.248				2400	1	0.1			23500	1	0.128			7800	1	0.255																0.1835	
T-30	São Sebastião da Amoreira	9	16100	500	1	0.248	6300	1	0.117	1500	0.88	0.128			1500	0.88	0.128	0.12	0.008	6900	0.91	0.255	0.09	0.021														0.1456	
T-17	Sapopema	7	22000							4800	1	0.1855			16500	1	0.132																					0.1301	
T-42	Santana	10	15300							3200	1	0.087			3200	1	0.087			12100	0.86	0.306	0.14	0.034															0.2301
T-39	Santópolis	10	29000							2100	1	0.087			26000	1	0.087																					0.1728	
T-3	Tejano Soares	4	40000							9800	0.58	0.20025	0.42	0.006	16300	0.53	0.098	0.47	0.008	13900	0.2	0.338	0.8	0.028				500	1	0.361	900	1	0.223	2199	0.92	0.306	0.68	0.034	0.2301
T-14	Talmano Borba	7	9830							7200	1	0.132			7200	1	0.132			400	1	0.276																0.1377	
T-11	Tibagi	7	85700																																				



Table-A4.10 Current Soil Loss from Iguacu River Basin (1/8)

Current

No	Municipality	Total Area* (km2)	R Factor	Average KS factors	Avg non-terr. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
177	Agudos do Sul	243.0	5697	0.0000	0.0000	2			35.6	0.162
		Forest	5697	0.1780	1.6670	0.002		0.0001	0.2	
		2nd vegetation	5697	0.1602	1.6762	0.342		0.0030	4.6	
		Reforestation	5697	0.1780	1.6670	0.068		0.0010	1.7	
		Pasture	5697	0.1510	1.6810	0.006		0.0100	14.5	
		Crop Others	5697	0.1172 0.0000	1.6569 0.0000	0.518 0.064	0.414	0.1266	60.9	
17	Amirante Farnandaz	173.5	5334	0.0000	0.0000	2			7.7	0.025
		Forest	5334	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation	5334	0.1490	1.6642	0.490		0.0030	4.0	
		Reforestation	5334	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	5334	0.0607	1.7810	0.239		0.0100	5.8	
		Crop Others	5334	0.0140 0.0000	1.9950 0.0000	0.197 0.084	0.016	0.1642	19.2	
178	Ampere	307.9	10681	0.0000	0.0000	21			19.6	0.113
		Forest	10681	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation	10681	0.1510	1.9040	0.267		0.0030	9.2	
		Reforestation	10681	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	10681	0.0234	2.2321	0.326		0.0100	5.6	
		Crop Others	10681	0.0326 0.0000	2.9560 0.0000	0.407 0.000	0.714	0.2473	37.7	
125	Antonio Olinto	431.7	6481	0.0000	0.0000	4			12.0	0.097
		Forest	6481	0.1780	1.6670	0.125		0.0001	0.2	
		2nd vegetation	6481	0.0833	1.6945	0.448		0.0030	2.7	
		Reforestation	6481	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	6481	0.0000	0.0000	0.000		0.0100	0.0	
		Crop Others	6481	0.0184 0.0000	2.1187 0.0000	0.322 0.165	0.038	0.1540	29.6	
110	Araucaria	425.8	5334	0.0000	0.0000	2			13.8	0.110
		Forest	5334	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation	5334	0.0571	1.8519	0.225		0.0030	1.7	
		Reforestation	5334	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	5334	0.0142	2.0214	0.135		0.0100	1.5	
		Crop Others	5334	0.0160 0.0000	2.2330 0.0000	0.455 0.195	0.103	0.1744	22.9	
114	Baixa Nova	319.7	5697	0.0000	0.0000	2			4.3	0.056
		Forest	5697	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation	5697	0.0747	1.7023	0.261		0.0030	2.2	
		Reforestation	5697	0.1160	1.6560	0.097		0.0010	1.1	
		Pasture	5697	0.0160	2.2330	0.607		0.0100	2.0	
		Crop Others	5697	0.0160 0.0000	2.2330 0.0000	0.225 0.000	0.061	0.1989	29.7	
173	Barracao	313.5	11069	0.0000	0.0000	21			62.5	0.369
		Forest	11069	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation	11069	0.1510	1.9040	0.193		0.0030	9.5	
		Reforestation	11069	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	11069	0.1510	1.9040	0.237		0.0100	31.8	
		Crop Others	11069	0.0595 0.0000	2.2470 0.0000	0.387 0.183	0.433	0.1922	107.7	
136	Baurina	1,178.8	8250	0.0000	0.0000	16			7.8	0.168
		Forest	8250	0.1780	1.6670	0.370		0.0001	0.2	
		2nd vegetation	8250	0.1196	1.7173	0.369		0.0030	5.1	
		Reforestation	8250	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	8250	0.0140	1.9950	0.013		0.0100	2.3	
		Crop Others	8250	0.0158 0.0000	2.2094 0.0000	0.222 0.026	0.043	0.1121	24.3	
167	Boa Esperanca do Iguacu	249.4	11723	0.0000	0.0000	19			77.1	0.360
		Forest	11723	0.1510	1.9040	0.005		0.0001	0.3	
		2nd vegetation	11723	0.1510	1.9040	0.157		0.0030	10.1	
		Reforestation	11723	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	11723	0.1510	1.9040	0.296		0.0100	33.7	
		Crop Others	11723	0.0637 0.0000	2.4524 0.0000	0.542 0.000	0.641	0.2300	120.9	
191	Boa Vista da Aparecida	219.7	11723	0.0000	0.0000	19			19.2	0.079
		Forest	11723	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation	11723	0.1475	1.9356	0.202		0.0030	10.0	
		Reforestation	11723	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	11723	0.0330	2.9670	0.229		0.0100	11.5	
		Crop Others	11723	0.0257 0.0000	2.8272 0.0000	0.515 0.054	0.706	0.1926	26.2	
135	Bom Sucesso do Sul	135.3	11069	0.0000	0.0000	21			13.1	0.048
		Forest	11069	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation	11069	0.1187	1.9871	0.259		0.0030	7.8	
		Reforestation	11069	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	11069	0.0090	2.2690	0.234		0.0100	2.3	
		Crop Others	11069	0.0279 0.0000	2.3250 0.0000	0.507 0.000	0.628	0.1865	30.6	
11	Campina Grande do Sul	76.4	5334	0.0000	0.0000	2			4.8	0.067
		Forest	5334	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation	5334	0.1210	1.6569	0.463		0.0030	3.2	
		Reforestation	5334	0.1490	1.6490	0.122		0.0010	1.3	
		Pasture	5334	0.0152	1.9159	0.253		0.0100	1.6	
		Crop Others	5334	0.0156 0.0000	2.1839 0.0000	0.126 0.036	0.056	0.1416	19.0	
120	Campo do Tenente	314.0	6481	0.0000	0.0000	4			9.8	0.058
		Forest	6481	0.1780	1.6670	0.027		0.0001	0.2	
		2nd vegetation	6481	0.1452	1.6712	0.376		0.0030	4.7	
		Reforestation	6481	0.1780	1.6670	0.069		0.0010	1.9	
		Pasture	6481	0.0490	1.7168	0.120		0.0100	5.5	
		Crop Others	6481	0.0180 0.0000	1.7450 0.0000	0.418 0.000	0.228	0.1454	17.3	
19	Campo Largo	277.7	5334	0.0000	0.0000	2			65.0	0.338
		Forest	5334	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation	5334	0.1458	1.6420	0.327		0.0030	3.8	
		Reforestation	5334	0.1780	1.6670	0.061		0.0010	1.6	
		Pasture	5334	0.1490	1.6480	0.096		0.0100	13.1	
		Crop Others	5334	0.0737 0.0000	2.0894 0.0000	0.510 0.066	0.016	0.1777	114.2	

Table A4.10 Current Soil Loss from Iguaqu River Basin (2/8)

No	Municipality		Total Area* (km2)	R Factor	Average KS factors	Avg non-terr. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
145	Candói		926.7	9063	0.0000	0.0000	20			19.1	0.332
		Forest		9063	0.1510	1.9040	0.100		0.0001	0.3	
		2nd vegetation		9063	0.1510	1.9040	0.241		0.0030	7.8	
		Reforestation		9063	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		9063	0.1405	1.9311	0.202		0.0100	24.6	
		Crop Others		9063	0.0215 0.0000	2.6315 0.0000	0.385 0.072	0.549	0.2043	28.3	
145	Cantagalo		711.7	9063	0.0000	0.0000	20			82.5	0.904
		Forest		9063	0.1780	1.6670	0.105		0.0001	0.3	
		2nd vegetation		9063	0.0830	1.5554	0.270		0.0030	3.5	
		Reforestation		9063	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		9063	0.1170	1.7445	0.231		0.0100	18.5	
		Crop Others		9063	0.0932 0.0000	2.3467 0.0000	0.391 0.003	0.167	0.2063	146.0	
156	Capanema		371.7	11211	0.0000	0.0000	19			55.2	0.391
		Forest		11211	0.1510	1.9040	0.002		0.0001	0.3	
		2nd vegetation		11211	0.1510	1.9040	0.041		0.0030	9.7	
		Reforestation		11211	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11211	0.1510	1.9040	0.310		0.0100	32.2	
		Crop Others		11211	0.0468 0.0000	2.2892 0.0000	0.566 0.081	0.647	0.2830	73.0	
182	Capão Leonidas Marques		260.2	11211	0.0000	0.0000	19			26.2	0.128
		Forest		11211	0.1510	1.9040	0.050		0.0001	0.3	
		2nd vegetation		11211	0.1510	1.9040	0.021		0.0030	9.7	
		Reforestation		11211	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11211	0.0955	2.4036	0.300		0.0100	23.7	
		Crop Others		11211	0.0223 0.0000	3.3570 0.0000	0.569 0.070	0.730	0.2705	29.5	
180	Cascavel		1,179.2	11732	0.0000	0.0000	19			8.7	0.193
		Forest		11732	0.1510	1.9040	0.008		0.0001	0.3	
		2nd vegetation		11732	0.0992	2.0302	0.258		0.0030	7.1	
		Reforestation		11732	0.1510	1.9040	0.017		0.0010	3.4	
		Pasture		11732	0.0107	2.2604	0.214		0.0100	2.8	
		Crop Others		11732	0.0216 0.0000	2.6098 0.0000	0.467 0.016	0.845	0.2188	12.5	
158	Calandivas		593.9	11723	0.0000	0.0000	19			14.7	0.164
		Forest		11723	0.1510	1.9040	0.340		0.0001	0.3	
		2nd vegetation		11723	0.0287	2.2183	0.324		0.0030	2.2	
		Reforestation		11723	0.1510	1.9040	0.015		0.0010	3.4	
		Pasture		11723	0.0305	2.8948	0.203		0.0100	10.4	
		Crop Others		11723	0.0330 0.0000	2.5170 0.0000	0.418 0.000	0.735	0.1852	28.3	
196	Ceu Azul		515.1	11732	0.0000	0.0000	19			0.8	0.013
		Forest		11732	0.0638	2.6021	0.873		0.0001	0.2	
		2nd vegetation		11732	0.0180	3.5129	0.027		0.0030	2.2	
		Reforestation		11732	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11732	0.0180	3.5120	0.033		0.0100	7.4	
		Crop Others		11732	0.0180 0.0000	3.5120 0.0000	0.044 0.023	0.947	0.2819	5.9	
149	Chopininho		555.4	9063	0.0000	0.0000	21			16.8	0.300
		Forest		9063	0.0470	1.6690	0.040		0.0001	0.1	
		2nd vegetation		9063	0.1443	1.8889	0.249		0.0030	7.4	
		Reforestation		9063	0.0470	1.6690	0.006		0.0010	0.7	
		Pasture		9063	0.1073	2.0196	0.247		0.0100	19.5	
		Crop Others		9063	0.0281 0.0000	2.6080 0.0000	0.420 0.033	0.664	0.1777	22.5	
142	Clevelândia		687.1	9299	0.0000	0.0000	18			18.1	0.226
		Forest		9299	0.1780	1.6670	0.042		0.0001	0.3	
		2nd vegetation		9299	0.0863	1.5579	0.231		0.0030	3.9	
		Reforestation		9299	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		9299	0.0165	1.8338	0.219		0.0100	2.8	
		Crop Others		9299	0.0158 0.0000	2.2070 0.0000	0.449 0.059	0.369	0.2451	34.6	
15	Colombo		105.3	5334	0.0000	0.0000	2			4.0	0.008
		Forest		5334	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		5334	0.0541	1.7335	0.454		0.0030	1.5	
		Reforestation		5334	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		5334	0.0140	1.9950	0.245		0.0100	1.5	
		Crop Others		5334	0.0140 0.0000	1.9950 0.0000	0.124 0.174	0.000	0.1552	18.5	
115	Contenda		219.3	5697	0.0000	0.0000	2			18.7	0.077
		Forest		5697	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		5697	0.1160	1.6560	0.253		0.0030	3.3	
		Reforestation		5697	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		5697	0.0348	2.1248	0.176		0.0100	4.2	
		Crop Others		5697	0.0160 0.0000	2.2330 0.0000	0.557 0.014	0.059	0.2017	30.2	
150	Coronel Vinda		687.3	11472	0.0000	0.0000	21			35.7	0.446
		Forest		11472	0.1510	1.9040	0.025		0.0001	0.3	
		2nd vegetation		11472	0.1510	1.9040	0.314		0.0030	9.9	
		Reforestation		11472	0.1510	1.9040	0.002		0.0010	3.3	
		Pasture		11472	0.0555	2.3853	0.234		0.0100	15.2	
		Crop Others		11472	0.0330 0.0000	2.5244 0.0000	0.425 0.020	0.476	0.2113	66.5	
137	Cruz Machado		1,430.7	8250	0.0000	0.0000	18			12.1	0.324
		Forest		8250	0.1734	1.6640	0.183		0.0001	0.2	
		2nd vegetation		8250	0.1433	1.6627	0.283		0.0030	5.9	
		Reforestation		8250	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		8250	0.0140	1.9950	0.056		0.0100	2.3	
		Crop Others		8250	0.0155 0.0000	2.1771 0.0000	0.392 0.046	0.078	0.1229	24.5	
166	Cruzeiro do Iguaçu		83.4	11723	0.0000	0.0000	19			34.1	0.057
		Forest		11723	0.1510	1.9040	0.030		0.0001	0.3	
		2nd vegetation		11723	0.1169	2.2111	0.135		0.0030	6.1	
		Reforestation		11723	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11723	0.0350	2.9506	0.268		0.0100	11.4	
		Crop Others		11723	0.0350 0.0000	2.3400 0.0000	0.493 0.074	0.608	0.2555	55.4	



Table-A4.10 Current Soil Loss from Iguazu River Basin (3/8)

No	Municipality	Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-terr. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
1-68	Curitiba	92.4	5334	0.0000	0.0000	2			8.6	0.015
			5334	0.0000	0.0000	0.000		0.0001	0.0	
			5334	0.0160	2.2330	0.055		0.0030	0.6	
			5334	0.0000	0.0000	0.000		0.0010	0.0	
			5334	0.0160	2.2330	0.054		0.0100	1.9	
			5334	0.0160	2.2330	0.105	0.178	0.1397	16.3	
			5334	0.0000	0.0000	0.786				
1-68	Dois Vizinhos	365.2	11069	0.0000	0.0000	19			27.2	0.188
			11069	0.0000	0.0000	0.000		0.0001	0.0	
			11069	0.1510	1.9040	0.147		0.0030	9.5	
			11069	0.0000	0.0000	0.000		0.0010	0.0	
			11069	0.0462	2.8477	0.294		0.0100	14.6	
			11069	0.0330	2.6180	0.539	0.678	0.2244	38.8	
			11069	0.0000	0.0000	0.020				
1-69	Eneas Marques	234.7	11069	0.0000	0.0000	21			42.4	0.166
			11069	0.0000	0.0000	0.000		0.0001	0.0	
			11069	0.1510	1.9040	0.286		0.0030	9.5	
			11069	0.0000	0.0000	0.000		0.0010	0.0	
			11069	0.1510	1.9040	0.300		0.0100	31.8	
			11069	0.0655	2.2199	0.414	0.654	0.2119	72.8	
			11069	0.0000	0.0000	0.000				
1-11	Fazenda Rio Grande	100.2	5334	0.0000	0.0000	2			10.8	0.020
			5334	0.0000	0.0000	0.000		0.0001	0.0	
			5334	0.0180	1.7450	0.175		0.0030	0.5	
			5334	0.0000	0.0000	0.000		0.0010	0.0	
			5334	0.0179	1.7712	0.242		0.0100	1.7	
			5334	0.0160	2.2330	0.437	0.038	0.1323	19.1	
			5334	0.0000	0.0000	0.036				
1-72	Fior da Serra do Sul	63.4	11069	0.0000	0.0000	19			23.9	0.028
			11069	0.0000	0.0000	0.000		0.0001	0.0	
			11069	0.0180	1.7450	0.272		0.0030	1.0	
			11069	0.0000	0.0000	0.000		0.0010	0.0	
			11069	0.0180	1.7450	0.067		0.0100	3.5	
			11069	0.0162	2.1756	0.340	0.190	0.1935	45.6	
			11069	0.0000	0.0000	0.331				
1-101	Foz do Iguazu	256.0	10667	0.0000	0.0000	19			13.2	0.063
			10667	0.0330	2.9670	0.292		0.0001	0.1	
			10667	0.0330	2.9670	0.100		0.0030	3.1	
			10667	0.0000	0.0000	0.000		0.0010	0.0	
			10667	0.0330	2.4570	0.150		0.0100	8.6	
			10667	0.0330	2.3400	0.278	0.787	0.3212	32.9	
			10667	0.0000	0.0000	0.180				
1-70	Francisco Beltrao	888.3	11069	0.0000	0.0000	21			31.5	0.456
			11069	0.1510	1.9040	0.015		0.0001	0.3	
			11069	0.1510	1.9040	0.197		0.0030	9.5	
			11069	0.0000	0.0000	0.000		0.0010	0.0	
			11069	0.0300	2.1988	0.260		0.0100	7.3	
			11069	0.0324	2.6397	0.517	0.551	0.2080	52.9	
			11069	0.0000	0.0000	0.011				
1-55	General Carneiro	1,011.6	8250	0.0000	0.0000	16			7.4	0.140
			8250	0.1780	1.6670	0.349		0.0001	0.2	
			8250	0.1085	1.8628	0.322		0.0030	5.0	
			8250	0.0000	0.0000	0.000		0.0010	0.0	
			8250	0.0145	2.0930	0.051		0.0100	2.6	
			8250	0.0160	2.2330	0.229	0.151	0.1204	22.7	
			8250	0.0000	0.0000	0.049				
1-63	Guaranicui	493.2	11723	0.0000	0.0000	19			32.4	0.299
			11723	0.1510	1.9040	0.025		0.0001	0.3	
			11723	0.1510	1.9040	0.448		0.0030	10.1	
			11723	0.0000	0.0000	0.000		0.0010	0.0	
			11723	0.1093	2.1963	0.286		0.0100	28.2	
			11723	0.0330	2.5718	0.238	0.364	0.1960	82.7	
			11723	0.0000	0.0000	0.003				
1-39	Guarapuava	3,360.3	8877	0.0000	0.0000	16			3.2	0.198
			8877	0.1780	1.6670	0.137		0.0001	0.3	
			8877	0.1691	1.6549	0.142		0.0030	7.4	
			8877	0.1780	1.6670	0.016		0.0010	2.6	
			8877	0.0314	1.7044	0.237		0.0100	4.7	
			8877	0.0160	2.2330	0.454	0.802	0.0496	1.9	
			8877	0.0000	0.0000	0.012				
1-43	Honoro-Serpa	803.7	9299	0.0000	0.0000	21			53.5	0.802
			9299	0.1510	1.9040	0.028		0.0001	0.3	
			9299	0.1510	1.9040	0.332		0.0030	8.0	
			9299	0.0000	0.0000	0.000		0.0010	0.0	
			9299	0.0429	2.4185	0.199		0.0100	9.6	
			9299	0.0330	2.6807	0.438	0.182	0.2259	110.8	
			9299	0.0000	0.0000	0.003				
1-59	Ibema	117.4	11723	0.0000	0.0000	19			7.2	0.020
			11723	0.1510	1.9040	0.028		0.0001	0.3	
			11723	0.0940	2.4179	0.482		0.0030	8.0	
			11723	0.1510	1.9040	0.046		0.0010	3.4	
			11723	0.0330	2.7349	0.154		0.0100	10.6	
			11723	0.0330	2.3400	0.283	0.947	0.1456	5.3	
			11723	0.0000	0.0000	0.007				
1-35	Inacio Martins	879.9	8877	0.0000	0.0000	16			7.5	0.124
			8877	0.1532	1.6674	0.370		0.0001	0.2	
			8877	0.0308	1.7114	0.294		0.0030	1.4	
			8877	0.0000	0.0000	0.000		0.0010	0.0	
			8877	0.0156	1.8950	0.090		0.0100	2.6	
			8877	0.0152	2.1401	0.246	0.026	0.1234	27.5	
			8877	0.0000	0.0000	0.000				
1-28	Irati	407.9	6793	0.0000	0.0000	4			32.2	0.246
			6793	0.0740	1.7200	0.082		0.0001	0.1	
			6793	0.1092	1.8696	0.360		0.0030	4.2	
			6793	0.0740	1.7200	0.016		0.0010	0.9	
			6793	0.0000	0.0000	0.000		0.0100	0.0	
			6793	0.0555	2.1654	0.540	0.346	0.1518	56.7	
			6793	0.0000	0.0000	0.000				

Table A4.10 Current Soil Loss from Iguaçu River Basin (4/8)

No	Municipality	Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-terr. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
159	Itaipava	242.3	11069	0.0000	0.0000	21			57.2	0.259
		Forest	11069	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation	11069	0.1510	1.9040	0.164		0.0030	9.5	
		Reforestation	11069	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	11069	0.0055	2.2677	0.274		0.0100	2.4	
		Crop	11069	0.0261	3.1381	0.527	0.381	0.2884	102.3	
		Others	11069	0.0000	0.0000	0.015				
121	Lapa	2190.3	6481	0.0000	0.0000	4			6.7	0.276
		Forest	6481	0.1780	1.6670	0.612		0.0001	0.2	
		2nd vegetation	6481	0.1183	1.6679	0.397		0.0030	3.8	
		Reforestation	6481	0.1780	1.6670	0.066		0.0010	1.9	
		Pasture	6481	0.0226	1.7330	0.120		0.0100	2.5	
		Crop	6481	0.0150	1.9330	0.399	0.512	0.1828	11.9	
		Others	6481	0.0000	0.0000	0.006				
148	Laranjeiras do Sul	939.0	9063	0.0000	0.0000	20			38.6	0.678
		Forest	9063	0.1490	1.6480	0.060		0.0001	0.2	
		2nd vegetation	9063	0.1119	1.7848	0.268		0.0030	5.4	
		Reforestation	9063	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	9063	0.1154	1.9277	0.223		0.0100	20.2	
		Crop	9063	0.0462	2.1210	0.342	0.170	0.1506	83.3	
		Others	9063	0.0000	0.0000	0.107				
154	Lindoeste	273.2	11732	0.0000	0.0000	19			59.5	0.304
		Forest	11732	0.1510	1.9040	0.085		0.0001	0.3	
		2nd vegetation	11732	0.1510	1.9040	0.070		0.0030	10.1	
		Reforestation	11732	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	11732	0.1121	2.0477	0.261		0.0100	26.9	
		Crop	11732	0.0243	3.0223	0.584	0.258	0.2014	88.6	
		Others	11732	0.0000	0.0000	0.000				
130	Mallet	872.8	8250	0.0000	0.0000	16			34.4	0.433
		Forest	8250	0.0740	1.7200	0.207		0.0001	0.1	
		2nd vegetation	8250	0.1109	1.7013	0.371		0.0030	4.7	
		Reforestation	8250	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	8250	0.0000	0.0000	0.000		0.0100	0.0	
		Crop	8250	0.0687	1.9978	0.422	0.398	0.1149	77.2	
		Others	8250	0.0000	0.0000	0.000				
112	Mandrituba	390.1	5697	0.0000	0.0000	2			11.3	0.082
		Forest	5697	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation	5697	0.1160	1.6560	0.205		0.0030	3.3	
		Reforestation	5697	0.1160	1.6560	0.060		0.0010	1.1	
		Pasture	5697	0.1082	1.6631	0.250		0.0100	10.2	
		Crop	5697	0.0185	2.1008	0.480	0.242	0.1504	16.5	
		Others	5697	0.0000	0.0000	0.005				
144	Mangueirinha	794.0	9299	0.0000	0.0000	20			10.4	0.155
		Forest	9299	0.1780	1.6670	0.085		0.0001	0.3	
		2nd vegetation	9299	0.1669	1.6832	0.337		0.0030	7.8	
		Reforestation	9299	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	9299	0.0787	1.9520	0.146		0.0100	14.3	
		Crop	9299	0.0154	2.1638	0.423	0.709	0.2364	13.2	
		Others	9299	0.0000	0.0000	0.009				
152	Maropólis	202.8	9478	0.0000	0.0000	21			2.9	0.011
		Forest	9478	0.1510	1.9040	0.007		0.0001	0.3	
		2nd vegetation	9478	0.0494	2.0600	0.265		0.0030	2.9	
		Reforestation	9478	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	9478	0.0160	2.2330	0.113		0.0100	3.4	
		Crop	9478	0.0146	2.2404	0.439	0.652	0.1000	2.8	
		Others	9478	0.0000	0.0000	0.126				
171	Marmeleiro	409.7	11069	0.0000	0.0000	21			12.6	0.056
		Forest	11069	0.1510	1.9040	0.016		0.0001	0.3	
		2nd vegetation	11069	0.1496	1.9073	0.295		0.0030	9.5	
		Reforestation	11069	0.1510	1.9040	0.003		0.0010	3.2	
		Pasture	11069	0.0160	2.2330	0.141		0.0100	4.0	
		Crop	11069	0.0099	2.2646	0.456	0.445	0.1949	17.7	
		Others	11069	0.0000	0.0000	0.089				
197	Matelandia	593.1	10667	0.0000	0.0000	19			2.2	0.025
		Forest	10667	0.0784	2.4262	0.509		0.0001	0.2	
		2nd vegetation	10667	0.0229	3.1295	0.239		0.0030	2.3	
		Reforestation	10667	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	10667	0.0180	3.5120	0.140		0.0100	6.7	
		Crop	10667	0.0180	3.5120	0.099	0.540	0.2868	5.9	
		Others	10667	0.0000	0.0000	0.013				
198	Medianeira	563.6	10667	0.0000	0.0000	19			5.6	0.061
		Forest	10667	0.0733	2.3454	0.388		0.0001	0.2	
		2nd vegetation	10667	0.0243	3.0055	0.118		0.0030	2.4	
		Reforestation	10667	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	10667	0.0180	3.5120	0.167		0.0100	6.7	
		Crop	10667	0.0180	3.5120	0.266	0.653	0.3248	14.3	
		Others	10667	0.0000	0.0000	0.061				
179	Nova Esperança do Sudoeste	178.9	11069	0.0000	0.0000	21			86.2	0.288
		Forest	11069	0.1510	1.9040	0.026		0.0001	0.3	
		2nd vegetation	11069	0.1510	1.9040	0.149		0.0030	9.5	
		Reforestation	11069	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	11069	0.1510	1.9040	0.292		0.0100	31.8	
		Crop	11069	0.0847	2.1489	0.534	0.479	0.2026	141.4	
		Others	11069	0.0000	0.0000	0.000				
162	Nova Laranjeiras	573.8	9063	0.0000	0.0000	20			19.6	0.212
		Forest	9063	0.1510	1.9040	0.339		0.0001	0.3	
		2nd vegetation	9063	0.1129	1.9886	0.351		0.0030	6.1	
		Reforestation	9063	0.1510	1.9040	0.002		0.0010	2.6	
		Pasture	9063	0.1003	2.1387	0.169		0.0100	19.4	
		Crop	9063	0.0330	2.9870	0.139	0.197	0.1977	101.0	
		Others	9063	0.0000	0.0000	0.000				
182	Nova Friburgo	327.5	11723	0.0000	0.0000	19			31.2	0.191
		Forest	11723	0.1510	1.9040	0.018		0.0001	0.3	
		2nd vegetation	11723	0.1510	1.9040	0.112		0.0030	10.1	
		Reforestation	11723	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture	11723	0.1275	2.1153	0.317		0.0100	31.6	
		Crop	11723	0.0330	2.7335	0.537	0.741	0.2476	36.3	
		Others	11723	0.0000	0.0000	0.016				

Table-A4.10 Current Soil Loss from Iguaqu River Basin (5/8)

No	Municipality		Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg. non-terr. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
141	Palmas		3,053.4	9318	0.0000	0.0000	16			5.1	0.293
		Forest		9318	0.1780	1.6670	0.244		0.0001	0.3	
		2nd vegetation		9318	0.1669	1.6534	0.253		0.0030	7.7	
		Reforestation		9318	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		9318	0.0296	1.5643	0.313		0.0100	4.3	
		Crop		9318	0.0156	2.1077	0.169	0.663	0.1461	9.7	
	Others			0.0000	0.0000	0.024					
123	Palmeira		272.9	6481	0.0000	0.0000	4			2.8	0.014
		Forest		6481	0.0740	1.7200	0.009		0.0001	0.1	
		2nd vegetation		6481	0.0758	1.6766	0.509		0.0030	2.5	
		Reforestation		6481	0.0740	1.7200	0.017		0.0010	0.8	
		Pasture		6481	0.0180	1.7450	0.095		0.0100	2.0	
		Crop		6481	0.0147	1.9458	0.368	0.762	0.1218	3.5	
	Others			0.0000	0.0000	0.002					
151	Palo Branco		561.2	11472	0.0000	0.0000	21			34.9	0.387
		Forest		11472	0.1210	1.9040	0.068		0.0001	0.3	
		2nd vegetation		11472	0.0904	2.1492	0.310		0.0030	3.7	
		Reforestation		11472	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11472	0.0160	2.2330	0.228		0.0100	4.1	
		Crop		11472	0.0112	2.2975	0.441	0.000	0.3148	73.3	
	Others			0.0000	0.0000	0.015					
132	Paula Freitas		367.1	8250	0.0000	0.0000	16			9.1	0.063
		Forest		8250	0.0180	1.7450	0.102		0.0001	0.0	
		2nd vegetation		8250	0.0174	1.5931	0.369		0.0030	0.8	
		Reforestation		8250	0.0180	1.7450	0.022		0.0010	0.3	
		Pasture		8250	0.0000	0.0000	0.000		0.0100	0.0	
		Crop		8250	0.0160	2.2330	0.388	0.470	0.1335	19.9	
	Others			0.0000	0.0000	0.119					
131	Paulo Frontin		361.1	8250	0.0000	0.0000	16			7.1	0.048
		Forest		8250	0.0180	1.7450	0.095		0.0001	0.0	
		2nd vegetation		8250	0.0146	1.9601	0.358		0.0030	0.7	
		Reforestation		8250	0.0180	1.7450	0.001		0.0010	0.3	
		Pasture		8250	0.0000	0.0000	0.000		0.0100	0.0	
		Crop		8250	0.0146	2.0609	0.542	0.551	0.1651	12.1	
	Others			0.0000	0.0000	0.044					
143	Perola do Oeste		308.8	11211	0.0000	0.0000	19			50.5	0.292
		Forest		11211	0.1510	1.9040	0.015		0.0001	0.3	
		2nd vegetation		11211	0.1510	1.9040	0.137		0.0030	9.7	
		Reforestation		11211	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11211	0.1051	2.0735	0.301		0.0100	24.4	
		Crop		11211	0.0330	2.3400	0.433	0.439	0.2497	79.6	
	Others			0.0000	0.0000	0.084					
118	Pien		245.6	5697	0.0000	0.0000	2			19.4	0.090
		Forest		5697	0.0799	1.7110	0.050		0.0001	0.1	
		2nd vegetation		5697	0.1160	1.6560	0.315		0.0030	3.3	
		Reforestation		5697	0.1160	1.6560	0.069		0.0010	1.1	
		Pasture		5697	0.1160	1.6560	0.016		0.0100	10.9	
		Crop		5697	0.0474	1.8954	0.493	0.325	0.1373	34.5	
	Others			0.0000	0.0000	0.067					
18	Pinhais		70.7	5334	0.0000	0.0000	2			10.7	0.014
		Forest		5334	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		5334	0.0180	1.7450	0.113		0.0030	0.6	
		Reforestation		5334	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		5334	0.0160	1.8712	0.216		0.0100	1.6	
		Crop		5334	0.0140	1.9950	0.391	0.164	0.1972	18.6	
	Others			0.0000	0.0000	0.280					
177	Pinhal de São Bento		107.6	10681	0.0000	0.0000	21			14.0	0.028
		Forest		10681	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		10681	0.1039	2.3280	0.549		0.0030	7.8	
		Reforestation		10681	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		10681	0.0330	2.5720	0.300		0.0100	9.1	
		Crop		10681	0.0330	2.3400	0.151	0.581	0.2180	46.6	
	Others			0.0000	0.0000	0.000					
140	Pinhão		2,812.8	8877	0.0000	0.0000	16			5.5	0.342
		Forest		8877	0.1780	1.6670	0.264		0.0001	0.3	
		2nd vegetation		8877	0.0916	1.7414	0.246		0.0030	4.2	
		Reforestation		8877	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		8877	0.0140	1.9950	0.118		0.0100	2.5	
		Crop		8877	0.0660	2.0441	0.350	0.607	0.0461	14.1	
	Others			0.0000	0.0000	0.022					
13	Piraquara		182.2	5334	0.0000	0.0000	2			10.7	0.033
		Forest		5334	0.1780	1.6670	0.367		0.0001	0.2	
		2nd vegetation		5334	0.1747	1.6648	0.087		0.0030	4.7	
		Reforestation		5334	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		5334	0.1295	1.6520	0.173		0.0100	11.4	
		Crop		5334	0.0268	1.9458	0.317	0.214	0.1482	24.3	
	Others			0.0000	0.0000	0.058					
144	Planalto		329.8	11211	0.0000	0.0000	19			35.9	0.272
		Forest		11211	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		11211	0.1510	1.9040	0.106		0.0030	9.7	
		Reforestation		11211	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11211	0.1510	1.9040	0.333		0.0100	32.2	
		Crop		11211	0.0417	2.3077	0.540	0.779	0.3067	43.3	
	Others			0.0000	0.0000	0.021					
122	Porto Amazonas		151.0	6481	0.0000	0.0000	4			8.1	0.073
		Forest		6481	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		6481	0.0470	1.6690	0.322		0.0030	1.5	
		Reforestation		6481	0.0470	1.6690	0.066		0.0010	0.5	
		Pasture		6481	0.0470	1.6690	0.798		0.0100	5.1	
		Crop		6481	0.0193	1.7416	0.314	0.045	0.1165	19.2	
	Others			0.0000	0.0000	0.000					
134	Porto Vitória		192.2	8250	0.0000	0.0000	18			6.2	0.022
		Forest		8250	0.1780	1.6670	0.149		0.0001	0.2	
		2nd vegetation		8250	0.1628	1.7201	0.469		0.0030	6.9	
		Reforestation		8250	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		8250	0.0000	0.0000	0.000		0.0100	0.0	
		Crop		8250	0.0160	2.2330	0.256	0.595	0.1090	8.2	
	Others			0.0000	0.0000	0.126					

Table-A4.10 Current Soil Loss from Iguacu River Basin (6/8)

No	Municipality		Total Area* (km2)	R Factor	Average KS factors	Avg non-terr. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
1-76	Franchina	Forest	275.4	10681	0.0000	0.0000	13		0.0001	0.0	0.123
		2nd vegetation		10681	0.1257	2.1323	0.163		0.0030	8.6	
		Reforestation		10681	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		10681	0.0330	2.9670	0.294		0.0100	10.5	
		Crop		10681	0.0330	2.4345	0.471	0.744	0.2975	37.3	
		Others			0.0000	0.0000	0.072				
1-7	Quabo Barras	Forest	93.7	5334	0.0000	0.0000	2		0.0001	0.1	0.072
		2nd vegetation		5334	0.1510	1.9040	0.074		0.0030	4.6	
		Reforestation		5334	0.1510	1.9040	0.001		0.0010	1.5	
		Pasture		5334	0.0568	1.9666	0.346		0.0100	6.0	
		Crop		5334	0.0140	1.9950	0.262	0.191	0.1576	14.3	
		Others			0.0000	0.0000	0.059				
1-84	Quejas do Iguacu	Forest	1,137.2	11723	0.0000	0.0000	19		0.0001	0.2	0.149
		2nd vegetation		11723	0.0729	2.1047	0.231		0.0030	0.7	
		Reforestation		11723	0.0090	2.2690	0.311		0.0010	0.2	
		Pasture		11723	0.0182	2.5361	0.115		0.0100	3.4	
		Crop		11723	0.0330	2.3583	0.206	0.631	0.1385	28.1	
		Others			0.0000	0.0000	0.045				
1-16	Quitandinha	Forest	116.7	5697	0.0000	0.0000	2		0.0001	0.1	0.112
		2nd vegetation		5697	0.1160	1.6560	0.047		0.0030	3.3	
		Reforestation		5697	0.1160	1.6560	0.007		0.0010	1.1	
		Pasture		5697	0.1160	1.6560	0.084		0.0100	10.9	
		Crop		5697	0.0189	2.2162	0.515	0.237	0.1795	23.8	
		Others			0.0000	0.0000	0.006				
1-85	Realiza	Forest	344.5	11211	0.0000	0.0000	19		0.0001	0.3	0.259
		2nd vegetation		11211	0.1510	1.9040	0.038		0.0030	9.7	
		Reforestation		11211	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11211	0.1206	2.1780	0.322		0.0100	29.4	
		Crop		11211	0.0330	2.6038	0.587	0.673	0.2630	50.3	
		Others			0.0000	0.0000	0.022				
1-27	Reboucas	Forest	138.9	6793	0.0000	0.0000	4		0.0001	0.1	0.237
		2nd vegetation		6793	0.0749	1.7200	0.036		0.0030	4.0	
		Reforestation		6793	0.1154	1.7156	0.381		0.0010	0.0	
		Pasture		6793	0.0900	0.0000	0.000		0.0100	0.0	
		Crop		6793	0.0363	2.1983	0.563	0.282	0.1598	44.5	
		Others			0.0000	0.0000	0.000				
1-54	Renascenca	Forest	407.2	11069	0.0000	0.0000	21		0.0001	0.3	0.088
		2nd vegetation		11069	0.1513	1.9040	0.013		0.0030	7.1	
		Reforestation		11069	0.1058	2.0140	0.290		0.0010	3.2	
		Pasture		11069	0.1510	1.9040	0.062		0.0100	4.0	
		Crop		11069	0.0184	2.2617	0.426	0.636	0.3100	18.1	
		Others			0.0000	0.0000	0.062				
1-29	Rio Azul	Forest	642.6	6793	0.0000	0.0000	4		0.0001	0.0	0.326
		2nd vegetation		6793	0.0180	1.7450	0.119		0.0030	3.6	
		Reforestation		6793	0.0668	2.0109	0.368		0.0010	0.0	
		Pasture		6793	0.1050	2.0810	0.001		0.0100	14.8	
		Crop		6793	0.0326	2.2646	0.492	0.105	0.1527	51.3	
		Others			0.0000	0.0000	0.000				
1-81	Rio Bonito do Iguacu	Forest	435.0	9063	0.0000	0.0000	20		0.0001	0.2	0.056
		2nd vegetation		9063	0.0850	2.0878	0.705		0.0030	0.8	
		Reforestation		9063	0.0124	2.2791	0.043		0.0010	0.0	
		Pasture		9063	0.0900	0.0000	0.000		0.0100	7.0	
		Crop		9063	0.0330	2.3400	0.164	0.433	0.1751	45.8	
		Others			0.0000	0.0000	0.128				
1-19	Rio Negro	Forest	660.3	6481	0.0000	0.0000	4		0.0001	0.0	0.116
		2nd vegetation		6481	0.1316	1.6671	0.294		0.0030	4.3	
		Reforestation		6481	0.1571	1.6778	0.348		0.0010	1.7	
		Pasture		6481	0.1160	1.6560	0.054		0.0100	12.4	
		Crop		6481	0.0503	1.8742	0.233	0.435	0.1354	33.1	
		Others			0.0000	0.0000	0.071				
1-74	Salgado Filho	Forest	602.2	11069	0.0000	0.0000	21		0.0001	0.0	0.279
		2nd vegetation		11069	0.1510	1.9040	0.000		0.0030	9.5	
		Reforestation		11069	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11069	0.0486	2.2230	0.289		0.0100	12.0	
		Crop		11069	0.0330	2.3400	0.164	0.047	0.1992	127.2	
		Others			0.0000	0.0000	0.008				
1-80	Salto do Lonis	Forest	354.3	11069	0.0000	0.0000	19		0.0001	0.3	0.179
		2nd vegetation		11069	0.1510	1.9040	0.014		0.0030	9.5	
		Reforestation		11069	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11069	0.0618	2.1332	0.293		0.0100	14.6	
		Crop		11069	0.0258	2.3187	0.486	0.513	0.2218	45.6	
		Others			0.0000	0.0000	0.007				
1-81	Santa Izabel do Oeste	Forest	326.8	11211	0.0000	0.0000	19		0.0001	0.3	0.256
		2nd vegetation		11211	0.1510	1.9040	0.018		0.0030	9.7	
		Reforestation		11211	0.1510	1.9040	0.008		0.0010	3.2	
		Pasture		11211	0.1038	2.3292	0.320		0.0100	27.1	
		Crop		11211	0.0330	2.5635	0.472	0.524	0.2804	65.8	
		Others			0.0000	0.0000	0.011				
1-93	Santa Lucia	Forest	137.1	11211	0.0000	0.0000	19		0.0001	0.3	0.256
		2nd vegetation		11211	0.1510	1.9040	0.010		0.0030	0.0	
		Reforestation		11211	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11211	0.1510	1.9040	0.346		0.0100	32.2	
		Crop		11211	0.0477	3.1524	0.644	0.476	0.2621	137.3	
		Others			0.0090	0.0000	0.000				

Table-A4.10 Current Soil Loss from Iguacu River Basin (7/8)

No	Municipality		Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-terr. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
1-95	Santa Tereza do Oeste		235.5	11732	0.0300	0.0000	19			13.1	0.046
		Forest		11732	0.1510	1.9040	0.064		0.0001	0.3	
		2nd vegetation		11732	0.1510	1.9040	0.047		0.0030	10.1	
		Reforestation		11732	0.1510	1.9040	0.018		0.0010	3.4	
		Pasture		11732	0.0423	2.1835	0.303		0.0100	10.8	
		Crop		11732	0.0258	2.7605	0.568	0.846	0.1714	11.6	
Others		0.0000	0.0000	0.000							
1-100	Santa Tereza de Itaipu		157.0	10667	0.0000	0.0000	19			10.2	0.030
		Forest		10667	0.0090	2.2690	0.022		0.0001	0.0	
		2nd vegetation		10667	0.0090	2.2690	0.144		0.0030	0.7	
		Reforestation		10667	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		10667	0.0158	2.2831	0.283		0.0100	3.9	
		Crop		10667	0.0272	2.7908	0.520	0.888	0.3435	16.7	
Others		0.0000	0.0000	0.000							
1-125	Santo Antonio do Sudoeste		289.9	10681	0.0000	0.0000	21			37.9	0.206
		Forest		10681	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		10681	0.1510	1.9040	0.135		0.0030	9.2	
		Reforestation		10681	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		10681	0.1065	2.0125	0.282		0.0100	22.9	
		Crop		10681	0.0294	2.3174	0.507	0.519	0.2416	53.9	
Others		0.0000	0.0000	0.000							
1-158	Sao Joao		356.6	11603	0.0000	0.0000	21			23.6	0.176
		Forest		11603	0.1510	1.9040	0.004		0.0001	0.3	
		2nd vegetation		11603	0.1510	1.9040	0.102		0.0030	10.0	
		Reforestation		11603	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11603	0.1022	2.0230	0.304		0.0100	24.0	
		Crop		11603	0.0283	2.6786	0.560	0.758	0.2454	26.1	
Others		0.0000	0.0000	0.000							
1-124	Sao Joao do Trunfo		707.6	6793	0.0000	0.0000	4			4.9	0.065
		Forest		6793	0.0711	1.7145	0.223		0.0001	0.1	
		2nd vegetation		6793	0.0648	1.9552	0.481		0.0030	2.6	
		Reforestation		6793	0.0470	1.6690	0.093		0.0010	0.5	
		Pasture		6793	0.0000	0.0000	0.000		0.0100	0.0	
		Crop		6793	0.0160	2.2330	0.202	0.201	0.1244	17.8	
Others		0.0000	0.0000	0.001							
1-65	Sao Jorge do Oeste		355.9	11723	0.0000	0.0000	19			28.5	0.190
		Forest		11723	0.1510	1.9040	0.004		0.0001	0.3	
		2nd vegetation		11723	0.1510	1.9040	0.201		0.0030	10.1	
		Reforestation		11723	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11723	0.0416	2.8893	0.260		0.0100	14.1	
		Crop		11723	0.0285	3.2045	0.439	0.661	0.1861	45.0	
Others		0.0000	0.0000	0.076							
1-14	Sao Jose dos Pinhais		620.6	5334	0.0000	0.0000	2			11.3	0.137
		Forest		5334	0.1651	1.6585	0.130		0.0001	0.1	
		2nd vegetation		5334	0.1415	1.6458	0.115		0.0030	3.7	
		Reforestation		5334	0.1490	1.6430	0.003		0.0010	1.3	
		Pasture		5334	0.0829	1.6622	0.238		0.0100	7.4	
		Crop		5334	0.0172	2.0227	0.438	0.052	0.1440	19.9	
Others		0.0000	0.0000	0.078							
1-126	Sao Mateus do Sul		1,272.7	6793	0.0000	0.0000	4			9.7	0.231
		Forest		6793	0.0745	1.7200	0.154		0.0001	0.1	
		2nd vegetation		6793	0.0379	1.9245	0.447		0.0030	1.5	
		Reforestation		6793	0.0740	1.7200	0.025		0.0010	0.9	
		Pasture		6793	0.0000	0.0000	0.000		0.0100	0.0	
		Crop		6793	0.0160	2.2330	0.329	0.201	0.1819	26.0	
Others		0.0000	0.0000	0.045							
1-99	Sao Miguel do Iguacu		445.2	10667	0.0000	0.0000	19			17.3	0.144
		Forest		10667	0.1510	1.9040	0.160		0.0001	0.3	
		2nd vegetation		10667	0.1162	2.2178	0.166		0.0030	8.2	
		Reforestation		10667	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		10667	0.0330	2.7329	0.241		0.0100	9.6	
		Crop		10667	0.0220	3.1976	0.410	0.710	0.2944	32.0	
Others		0.0000	0.0000	0.023							
1-60	Saude da Iguacu		143.1	9063	0.0000	0.0000	20			21.8	0.053
		Forest		9063	0.1510	1.9040	0.029		0.0001	0.3	
		2nd vegetation		9063	0.1510	1.9040	0.137		0.0030	7.8	
		Reforestation		9063	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		9063	0.1135	2.0003	0.273		0.0100	20.6	
		Crop		9063	0.0226	2.3093	0.528	0.512	0.1842	27.3	
Others		0.0000	0.0000	0.033							
1-59	Sulina		158.5	11723	0.0000	0.0000	20			53.3	0.158
		Forest		11723	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		11723	0.1510	1.9040	0.150		0.0030	10.1	
		Reforestation		11723	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11723	0.0920	2.4355	0.300		0.0100	26.3	
		Crop		11723	0.0330	2.6250	0.550	0.448	0.2245	79.6	
Others		0.0000	0.0000	0.000							
1-13	Iguacas do Sul		409.8	5334	0.0000	0.0000	2			5.8	0.045
		Forest		5334	0.1780	1.6870	0.062		0.0001	0.2	
		2nd vegetation		5334	0.1173	1.6557	0.255		0.0030	3.1	
		Reforestation		5334	0.1648	1.6583	0.197		0.0010	1.5	
		Pasture		5334	0.0429	1.7688	0.265		0.0100	4.0	
		Crop		5334	0.0156	2.1829	0.190	0.000	0.1269	18.4	
Others		0.0000	0.0000	0.031							
1-17	Três Barras do Parana		500.8	11723	0.0000	0.0000	4			10.4	0.097
		Forest		11723	0.1510	1.9040	0.048		0.0001	0.3	
		2nd vegetation		11723	0.1510	1.9040	0.237		0.0030	10.1	
		Reforestation		11723	0.1510	1.9040	0.002		0.0010	3.4	
		Pasture		11723	0.0124	2.2603	0.209		0.0100	3.3	
		Crop		11723	0.0265	2.3268	0.466	0.722	0.1243	14.7	
Others		0.0000	0.0000	0.040							
1-33	Uniao da Vitoria		631.9	8250	0.0000	0.0000	15			6.2	0.080
		Forest		8250	0.0452	1.6738	0.315		0.0001	0.1	
		2nd vegetation		8250	0.1219	1.8743	0.384		0.0030	5.7	
		Reforestation		8250	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		8250	0.0160	2.2330	0.001		0.0100	2.9	
		Crop		8250	0.0160	2.2330	0.195	0.329	0.1235	17.1	
Others		0.0000	0.0000	0.105							

Table-A4.10 Current Soil Loss from Iguacu River Basin (8/8)

No	Municipality		Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-terr. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
1-57	Veie		340.9	11069	0.0000	0.0000	21			38.9	0.235
		Forest		11069	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		11069	0.1510	1.9040	0.148		0.0030	9.5	
		Reforestation		11069	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11069	0.0884	2.4678	0.296		0.0100	24.2	
		Crop		11069	0.0302	2.2210	0.543	0.606	0.2494	51.2	
		Others			0.0000	0.0000	0.013				
1-47	Viamound		198.4	9063	0.0000	0.0000	20			39.0	0.145
		Forest		9063	0.0470	1.6890	0.001		0.0001	0.1	
		2nd vegetation		9063	0.0788	1.7405	0.286		0.0030	3.7	
		Reforestation		9063	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		9063	0.1510	1.9040	0.254		0.0100	26.1	
		Crop		9063	0.0273	2.2221	0.459	0.182	0.2042	68.2	
		Others			0.0000	0.0000	0.000				
1-53	Vitorino		270.2	11472	0.0000	0.0000	21			29.7	0.150
		Forest		11472	0.0470	1.6890	0.002		0.0001	0.1	
		2nd vegetation		11472	0.0188	2.1828	0.292		0.0030	1.4	
		Reforestation		11472	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11472	0.0160	2.2330	0.091		0.0100	4.1	
		Crop		11472	0.0268	2.5806	0.443	0.538	0.3156	53.7	
		Others			0.0000	0.0000	0.172				
Total =			53,406.1						Average =	17.8	

Assumptions

- (1) L factor for terraced cropland = 1.27 (assuming avg terrace distance = 36m, slope = 8%)
- (2) P factor for non-cropland = 1.00
- (3) P factor for storage terraces = 0.05 (RUSLE, to compute sediment delivery)
- (4) P factor for contour on terraced cropland = 0.60 (RUSLE, assuming planting row ridges about 5 cm high)
- (5) P factor for non-terraced cropland = 0.80 (RUSLE, assuming planting across water flow, not on contour)

Note: Total area\* of each municipality = Total Area of Municipality within Iguacu River Basin - Area of Others in the Landuse Classification  
 Abbreviation: Avg. non-terr. L factor: L factor for non-terraced land  
 Source: ESPAR database (Roloff, 1995) for KS and C Factors

Table-A4.11 Current Soil Loss from Tibagi River Basin (1/4)

Current

No	Municipality		Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-ten. L factor	Area of Landuse (km <sup>2</sup> )	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
T-22	Apucarana		182.2	7918	0.0000	0.0000	182.2			15.5	0.1145
		Forest		7918	0.1510	1.9040	31.8		0.0001	0.2	
		2nd vegetation		7918	0.0648	2.6802	75.6		0.0030	4.1	
		Reforestation		7918	0.0000	0.0000	0		0.0010	0.0	
		Pasture		7918	0.0330	2.9670	0.1		0.0100	7.8	
		Crop		7918	0.0261	3.2187	74.7	0.471	0.1617	33.6	
		Others		0.0000	0.0000	0					
T-23	Arapongas		189.9	7918	0.0000	0.0000	191.9			5.7	0.0442
		Forest		7918	0.0581	2.7323	24		0.0001	0.1	
		2nd vegetation		7918	0.0330	2.9670	67.3		0.0030	2.3	
		Reforestation		7918	0.0000	0.0000	0		0.0010	0.0	
		Pasture		7918	0.0330	2.9670	4.6		0.0100	7.8	
		Crop		7918	0.0187	3.4865	84	0.617	0.2245	9.5	
		Others		0.0000	0.0000	2					
T-31	Assai		437.1	9045	0.0000	0.0000	450.5			28.2	0.5000
		Forest		9045	0.1510	1.9040	0.3		0.0001	0.3	
		2nd vegetation		9045	0.1510	1.9040	33.9		0.0030	7.8	
		Reforestation		9045	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9045	0.0310	3.3544	39.8		0.0100	9.4	
		Crop		9045	0.0180	3.5120	363.1	0.570	0.2449	32.2	
		Others		0.0000	0.0000	13.4					
T-21	California		97.2	9511	0.0000	0.0000	97.2			8.3	0.0326
		Forest		9511	0.1484	1.9274	22.7		0.0001	0.3	
		2nd vegetation		9511	0.0270	3.1841	48.7		0.0030	2.5	
		Reforestation		9511	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9511	0.0180	3.5120	1.3		0.0100	6.1	
		Crop		9511	0.0180	3.5120	24.5	0.228	0.0849	27.3	
		Others		0.0000	0.0000	0					
T-38	Cambe		143.5	8128	0.0000	0.0000	143.5			5.3	0.0307
		Forest		8128	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		8128	0.0221	3.3633	50.2		0.0030	1.8	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0000	0.0000	0		0.0100	0.0	
		Crop		8128	0.0180	3.5120	93.3	0.829	0.1822	7.1	
		Others		0.0000	0.0000	0					
T-8	Castro		2,275.1	5771	0.0000	0.0000	2,278.4			2.2	0.2065
		Forest		5771	0.1780	1.6670	54.6		0.0001	0.2	
		2nd vegetation		5771	0.1352	1.6743	734.7		0.0030	3.9	
		Reforestation		5771	0.1780	1.6670	20.7		0.0010	1.7	
		Pasture		5771	0.0178	1.8644	725.7		0.0100	1.9	
		Crop		5771	0.0270	2.0592	739.4	0.900	0.0457	1.1	
		Others		0.0000	0.0000	3.3					
T-28	Congonhinhas		104.6	7650	0.0000	0.0000	104.6			7.9	0.0334
		Forest		7650	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		7650	0.1490	1.6480	6.7		0.0030	3.6	
		Reforestation		7650	0.0000	0.0000	0		0.0010	0.0	
		Pasture		7650	0.0455	2.0836	17.9		0.0100	7.4	
		Crop		7650	0.0229	3.1604	80	0.640	0.1932	8.2	
		Others		0.0000	0.0000	0					
T-33	Cornelio Protopio		330.9	7650	0.0000	0.0000	336.7			25.8	0.3463
		Forest		7650	0.1510	1.9040	2.6		0.0001	0.2	
		2nd vegetation		7650	0.1510	1.9040	49.2		0.0030	6.6	
		Reforestation		7650	0.0000	0.0000	0		0.0010	0.0	
		Pasture		7650	0.0663	2.6788	112.9		0.0100	17.8	
		Crop		7650	0.0180	3.5120	166.2	0.435	0.2296	37.3	
		Others		0.0000	0.0000	5.8					
T-16	Curiuva		361.0	7129	0.0000	0.0000	361.8			10.1	0.1482
		Forest		7129	0.0954	1.8716	9.6		0.0001	0.1	
		2nd vegetation		7129	0.0160	2.2130	89.4		0.0030	0.8	
		Reforestation		7129	0.0160	2.2130	74.9		0.0010	0.3	
		Pasture		7129	0.0216	2.3141	59.9		0.0100	3.6	
		Crop		7129	0.0502	2.8492	127.2	0.631	0.1264	26.4	
		Others		0.0000	0.0000	0.8					
T-36	Ibipora		283.4	9045	0.0000	0.0000	285.4			6.6	0.0779
		Forest		9045	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		9045	0.0833	2.7224	94.7		0.0030	6.2	
		Reforestation		9045	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9045	0.0180	3.5120	3.1		0.0100	5.7	
		Crop		9045	0.0180	3.5120	185.6	0.908	0.2949	7.1	
		Others		0.0000	0.0000	12					
T-5	Imbituva		811.3	6793	0.0000	0.0000	811.3			2.9	0.0551
		Forest		6793	0.1501	1.7185	109.4		0.0001	0.2	
		2nd vegetation		6793	0.0331	2.1810	391.2		0.0030	1.5	
		Reforestation		6793	0.0390	2.0043	67.5		0.0010	0.5	
		Pasture		6793	0.0160	2.2130	5.8		0.0100	2.4	
		Crop		6793	0.0160	2.2130	237.4	0.569	0.1088	7.2	
		Others		0.0000	0.0000	0					
T-6	Ipiranga		632.0	6556	0.0000	0.0000	632			4.6	0.1726
		Forest		6556	0.1039	1.7077	71		0.0001	0.1	
		2nd vegetation		6556	0.0298	1.8084	388.5		0.0030	1.1	
		Reforestation		6556	0.1397	1.6729	72.8		0.0010	1.5	
		Pasture		6556	0.0170	2.0240	69		0.0100	2.3	
		Crop		6556	0.0317	2.1882	310.7	0.523	0.0805	11.3	
		Others		0.0000	0.0000	0					
T-4	Irati		133.7	6793	0.0000	0.0000	139.6			11.4	0.0619
		Forest		6793	0.1510	1.6810	2		0.0001	0.2	
		2nd vegetation		6793	0.1247	1.8705	53.5		0.0030	4.8	
		Reforestation		6793	0.1510	1.6810	2		0.0010	1.7	
		Pasture		6793	0.0000	0.0000	0		0.0100	0.0	
		Crop		6793	0.0160	2.2130	76.2	0.343	0.1514	16.6	
		Others		0.0000	0.0000	5.9					

Table-A4.11 Current Soil Loss from Tibagi River Basin (2/4)

No	Municipality		Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-terr. L factor	Area of Landuse (km <sup>2</sup> )	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
T-9	Val		212.2	6793	0.0000	0.0000	212.2			8.6	0.0742
		Forest		6793	0.1510	1.6810	9.3		0.0001	0.2	
		2nd vegetation		6793	0.0793	1.9999	113.5		0.0030	3.2	
		Reforestation		6793	0.0000	0.0000	0		0.0010	0.0	
		Pasture		6793	0.0160	2.2130	12.9		0.0100	2.4	
		Crop		6793	0.0191	2.3520	76.5	0.272	0.1163	18.7	
		Others			0.0000	0.0000	0				
T-35	Jataizinho		186.5	9045	0.0000	0.0000	199.1			34.2	0.2584
		Forest		9045	0.1510	1.9040	0.8		0.0001	0.3	
		2nd vegetation		9045	0.1510	1.9040	6.4		0.0030	7.8	
		Reforestation		9045	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9045	0.1510	1.9040	71.7		0.0100	26.0	
		Crop		9045	0.0379	3.2714	107.6	0.649	0.2040	41.4	
		Others			0.0000	0.0000	12.6				
T-41	Leopoldo		68.9	9045	0.0000	0.0000	68.9			16.4	0.0459
		Forest		9045	0.1510	1.9040	0.5		0.0001	0.3	
		2nd vegetation		9045	0.1510	1.9040	5		0.0030	7.8	
		Reforestation		9045	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9045	0.1510	1.9040	7.9		0.0100	26.0	
		Crop		9045	0.1170	2.3154	55.5	0.954	0.2008	16.0	
		Others			0.0000	0.0000	0				
T-24	Londrina		2,044.8	8128	0.0000	0.0000	2095.6			4.7	0.3926
		Forest		8128	0.1505	1.8667	120		0.0001	0.2	
		2nd vegetation		8128	0.0747	2.2269	841.8		0.0030	4.1	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0210	3.4029	310.3		0.0100	5.8	
		Crop		8128	0.0180	3.5120	772.7	0.659	0.1782	5.7	
		Others			0.0000	0.0000	50.8				
T-20	Mantanda do Sul		152.2	9611	0.0000	0.0000	152.2			4.2	0.0258
		Forest		9611	0.1510	1.5040	18		0.0001	0.3	
		2nd vegetation		9611	0.0597	2.3478	60.8		0.0030	4.0	
		Reforestation		9611	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9611	0.0330	2.9670	9.2		0.0100	9.4	
		Crop		9611	0.0265	3.2016	66.2	0.655	0.0310	4.5	
		Others			0.0000	0.0000	0				
T-19	Mar da Serra		49.0	9370	0.0000	0.0000	48			6.6	0.0128
		Forest		9370	0.1010	1.6579	5.1		0.0001	0.2	
		2nd vegetation		9370	0.1317	1.8603	21.5		0.0030	6.9	
		Reforestation		9370	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9370	0.0822	2.0615	10.4		0.0100	15.9	
		Crop		9370	0.0165	2.2336	11	1.000	0.0245	0.1	
		Others			0.0000	0.0000	0				
T-32	Nova America da Colina		133.3	8128	0.0000	0.0000	133.3			15.4	0.0535
		Forest		8128	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		8128	0.1510	1.9040	10.7		0.0030	7.0	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.1111	2.3559	33.7		0.0100	21.6	
		Crop		8128	0.0180	3.5120	88.9	0.680	0.1761	14.1	
		Others			0.0000	0.0000	0				
T-29	Nova Fátima		83.5	7650	0.0000	0.0000	83.5			29.8	0.1009
		Forest		7650	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		7650	0.1510	1.9040	7.1		0.0030	6.6	
		Reforestation		7650	0.0000	0.0000	0		0.0010	0.0	
		Pasture		7650	0.1510	1.9040	26.1		0.0100	22.0	
		Crop		7650	0.0544	2.9058	50.3	0.721	0.2103	37.1	
		Others			0.0000	0.0000	0				
T-26	Nova Santa Barbara		112.2	8128	0.0000	0.0000	112.2			14.1	0.0644
		Forest		8128	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		8128	0.0367	2.7822	5.7		0.0030	2.5	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0330	2.9670	5.8		0.0100	8.0	
		Crop		8128	0.0235	3.3134	100.7	0.762	0.2121	15.2	
		Others			0.0000	0.0000	0				
T-15	Origueira		1,580.3	7129	0.0000	0.0000	1588.5			21.1	1.5445
		Forest		7129	0.1780	1.6670	6.3		0.0001	0.2	
		2nd vegetation		7129	0.1490	1.6480	50.8		0.0030	5.3	
		Reforestation		7129	0.1562	1.6521	138.7		0.0010	1.8	
		Pasture		7129	0.1259	1.8175	271.6		0.0100	18.3	
		Crop		7129	0.0349	2.4606	655.7	0.245	0.1422	46.9	
		Others			0.0000	0.0000	8.2				
T-2	Paimera		1,224.8	6566	0.0000	0.0000	1227.4			3.7	0.1856
		Forest		6566	0.1780	1.6670	11.6		0.0001	0.2	
		2nd vegetation		6566	0.0926	1.6994	401.4		0.0030	3.1	
		Reforestation		6566	0.0960	1.5665	50.4		0.0010	1.0	
		Pasture		6566	0.0241	1.7289	208.7		0.0100	2.7	
		Crop		6566	0.0199	2.0026	552.7	0.761	0.1218	4.9	
		Others			0.0000	0.0000	2.6				
T-12	Prai do Sul		962.3	7129	0.0000	0.0000	965.2			4.7	0.1816
		Forest		7129	0.1780	1.6670	19.2		0.0001	0.2	
		2nd vegetation		7129	0.1193	1.6920	265.1		0.0030	4.3	
		Reforestation		7129	0.1780	1.6670	10.6		0.0010	2.1	
		Pasture		7129	0.0172	1.9782	428		0.0100	2.4	
		Crop		7129	0.0446	2.3528	219.5	0.685	0.0711	10.0	
		Others			0.0000	0.0000	2.9				
T-7	Ponta Grossa		1,817.1	6566	0.0000	0.0000	1870.8			2.9	0.2118
		Forest		6566	0.1780	1.6670	5.3		0.0001	0.2	
		2nd vegetation		6566	0.0456	1.7040	329.8		0.0030	1.5	
		Reforestation		6566	0.1060	1.5776	75		0.0010	1.1	
		Pasture		6566	0.0179	1.7685	580.6		0.0100	2.1	
		Crop		6566	0.0175	2.0534	826.4	0.736	0.1049	4.2	
		Others			0.0000	0.0000	53.7				



Table-A4.11 Current Soil Loss from Tibagi River Basin (3/4)

No	Municipality		Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-terr L factor	Area of Landuse (km <sup>2</sup> )	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha.yr)	Regional contribution
T-1	Porto Amazonas		53.8	6481	0.0000	0.0000	53.8			23.4	0.0510
		Forest		6481	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		6481	0.0931	1.6940	5.9		0.0030	3.1	
		Reforestation		6481	0.0000	0.0000	0		0.0010	0.0	
		Pasture		6481	0.1063	1.6578	27.8		0.0100	11.4	
		Crop		6481	0.0447	1.6750	20.1	0.043	0.1245	45.9	
		Others			0.0000	0.0000	0				
T-43	Primeiro de Maio		119.6	8726	0.0000	0.0000	142.8			2.7	0.0130
		Forest		8726	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		8726	0.0601	3.0035	23.4		0.0030	4.7	
		Reforestation		8726	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8726	0.0000	0.0000	0		0.0100	0.0	
		Crop		8726	0.0180	3.5120	96.2	0.990	0.2840	2.2	
		Others			0.0000	0.0000	23.2				
T-43	Rancho Alegre		151.0	8726	0.0000	0.0000	187.4			2.4	0.0146
		Forest		8726	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		8726	0.1510	1.9040	0.2		0.0030	7.5	
		Reforestation		8726	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8726	0.0000	0.0000	0		0.0100	0.0	
		Crop		8726	0.0268	3.4075	150.8	1.000	0.2689	2.4	
		Others			0.0000	0.0000	36.4				
T-10	Reserva		555.9	7129	0.0000	0.0000	655.9			11.8	0.2670
		Forest		7129	0.1049	1.7071	3.3		0.0001	0.1	
		2nd vegetation		7129	0.1510	1.9040	10.4		0.0030	6.1	
		Reforestation		7129	0.1068	1.7931	68.5		0.0010	1.4	
		Pasture		7129	0.0267	2.1477	136.4		0.0100	4.1	
		Crop		7129	0.0194	2.3534	245.7	0.271	0.1277	21.5	
		Others			0.0000	0.0000	0				
T-37	Rolândia		56.6	8128	0.0000	0.0000	57.4			4.1	0.0094
		Forest		8128	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		8128	0.0180	3.5120	19.8		0.0030	1.5	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0000	0.0000	0		0.0100	0.0	
		Crop		8128	0.0180	3.5120	36.8	0.566	0.1795	5.5	
		Others			0.0000	0.0000	0.8				
T-28	Santa Cecília do Pavão		68.5	8128	0.0000	0.0000	68.5			32.1	0.0692
		Forest		8128	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		8128	0.0000	0.0000	0		0.0030	0.0	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0000	0.0000	0		0.0100	0.0	
		Crop		8128	0.0560	3.0447	68.5	0.769	0.2025	32.1	
		Others			0.0000	0.0000	0				
T-27	Santo Antônio do Paraíso		151.9	8128	0.0000	0.0000	151.9			6.8	0.0416
		Forest		8128	0.1490	1.6480	2		0.0001	0.2	
		2nd vegetation		8128	0.1490	1.6480	7.3		0.0030	6.0	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0349	2.6702	33.8		0.0100	7.6	
		Crop		8128	0.0241	3.2999	108.7	0.901	0.2173	6.7	
		Others			0.0000	0.0000	0				
T-18	São Jerônimo da Serra		846.9	8128	0.0000	0.0000	851.3			92.8	3.1891
		Forest		8128	0.1490	1.6480	8		0.0001	0.2	
		2nd vegetation		8128	0.1379	1.6503	100.7		0.0030	5.5	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0576	1.6930	136.9		0.0100	7.9	
		Crop		8128	0.0744	2.3382	601.3	0.312	0.1885	128.0	
		Others			0.0000	0.0000	4.4				
T-30	São Sebastião da Amoreira		217.4	8128	0.0000	0.0000	217.4			3.3	0.0292
		Forest		8128	0.1377	2.0236	8		0.0001	0.2	
		2nd vegetation		8128	0.0254	3.2446	10.6		0.0030	2.0	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0180	3.5120	33.3		0.0100	5.1	
		Crop		8128	0.0180	3.5120	160.5	0.927	0.1728	3.1	
		Others			0.0000	0.0000	0				
T-17	Sapopema		531.9	7129	0.0000	0.0000	531.9			51.7	1.1154
		Forest		7129	0.1490	1.6480	50.7		0.0001	0.2	
		2nd vegetation		7129	0.1490	1.6480	161.2		0.0030	5.3	
		Reforestation		7129	0.0000	0.0000	0		0.0010	0.0	
		Pasture		7129	0.1490	1.6480	99.9		0.0100	17.5	
		Crop		7129	0.0844	2.2212	220.1	0.214	0.1466	113.1	
		Others			0.0000	0.0000	0				
T-42	Sertaneja		154.6	8726	0.0000	0.0000	226.7			1.9	0.0121
		Forest		8726	0.0180	3.5120	0.9		0.0001	0.1	
		2nd vegetation		8726	0.0180	3.5120	1.2		0.0030	1.7	
		Reforestation		8726	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8726	0.0000	0.0000	0		0.0100	0.0	
		Crop		8726	0.0180	3.5120	152.5	0.985	0.2301	1.9	
		Others			0.0000	0.0000	72.1				
T-39	Sertãozinho		466.1	8726	0.0000	0.0000	478.9			5.7	0.1069
		Forest		8726	0.1510	1.9040	6		0.0001	0.3	
		2nd vegetation		8726	0.0797	2.7590	140.4		0.0030	5.8	
		Reforestation		8726	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8726	0.0180	3.5120	23.7		0.0100	5.5	
		Crop		8726	0.0180	3.5120	296	0.926	0.2879	5.7	
		Others			0.0000	0.0000	12.8				
T-3	Tecceira Soares		1,303.5	6793	0.0000	0.0000	1,303.5			3.4	0.1774
		Forest		6793	0.0382	1.7346	192.3		0.0001	0.0	
		2nd vegetation		6793	0.0175	1.8974	522.7		0.0030	0.7	
		Reforestation		6793	0.0180	1.7450	119.6		0.0010	0.2	
		Pasture		6793	0.0170	2.0240	61		0.0100	2.3	
		Crop		6793	0.0341	2.1765	407.9	0.661	0.0685	9.4	
		Others			0.0000	0.0000	0				

Table-A4.11 Current Soil Loss from Tibagi River Basin (4/4)

No	Municipality		Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg. non-terr. L factor	Area of Landuse (km <sup>2</sup> )	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
T-14	Telemaco Borba		1,583.7	7129	0.0000	0.0000	1625.3			1.8	0.1143
		Forest		7129	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		7129	0.0510	2.8440	107.8		0.0030	3.1	
		Reforestation		7129	0.0343	1.8854	1331.2		0.0010	0.5	
		Pasture		7129	0.0510	2.8440	48.8		0.0100	10.3	
		Crop		7129	0.0167	2.3853	97.9	0.455	0.1377	13.9	
		Others			0.0000	0.0000	41.6				
T-11	Tibagi		2,896.5	7129	0.0000	0.0000	2926.6			2.9	0.3393
		Forest		7129	0.1780	1.6670	130.5		0.0001	0.2	
		2nd vegetation		7129	0.0852	1.7000	894.2		0.0030	3.1	
		Reforestation		7129	0.1712	1.6608	256.3		0.0010	2.0	
		Pasture		7129	0.0329	1.8468	758.9		0.0100	4.3	
		Crop		7129	0.0166	2.1142	856.6	0.743	0.0517	2.1	
		Others			0.0000	0.0000	30.1				
T-34	Ural		209.6	9045	0.0000	0.0000	209.6			25.0	0.2123
		Forest		9045	0.1510	1.9040	2.1		0.0001	0.3	
		2nd vegetation		9045	0.1510	1.9040	0.8		0.0030	7.8	
		Reforestation		9045	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9045	0.1510	1.9040	25.3		0.0100	26.0	
		Crop		9045	0.0461	3.1725	181.4	0.831	0.2377	25.2	
		Others			0.0000	0.0000	0				
T-13	Ventania		380.1	7129	0.0000	0.0000	380.1			3.4	0.0519
		Forest		7129	0.1780	1.6670	12.2		0.0001	0.2	
		2nd vegetation		7129	0.1261	1.6632	65.1		0.0030	4.5	
		Reforestation		7129	0.1652	1.6737	68.5		0.0010	2.0	
		Pasture		7129	0.0323	1.9080	90.3		0.0100	4.5	
		Crop		7129	0.0168	2.0630	144	0.670	0.0596	3.1	
		Others			0.0000	0.0000	0				
		<b>Total *</b>	<b>24,655.6</b>				<b>25051</b>			<b>Average =</b>	<b>10.9</b>

Assumptions:

- (1) L factor for terraced cropland = 1.27 (assuming avg. terrace distance = 36m, slope = 8%)
- (2) P factor for non-cropland = 1.00
- (3) P factor for storage terraces = 0.05 (RUSLE, to compute sediment delivery)
- (4) P factor for contour on terraced cropland = 0.60 (RUSLE, assuming plant row ridges about 5 cm high)
- (5) P factor for non-terraced cropland = 0.80 (RUSLE, assuming rows across water flow, not on contour)

Note: Total area\* of each municipality = Total Area of Municipality within Tibagi River Basin - Area of Others in the Landuse Classification

Abbreviation: Avg. non-terr. L factor, L factor for non-terraced land

Source: ESPAR database (Roloff, 1995) for KS and C Factors









Table-A4.14 Future Soil Loss from Iguacu River Basin with Master Plan (1/8)

100 % application of terracing to crop land and 60 % application of non tillage to beans, maize and soybean field

No	Municipality		Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-terr. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
117	Agudos do Sul		243.0	5697	0.0000	0.0000	2			2.9	0.013
		Forest		5697	0.1780	1.6670	0.002		0.0001	0.2	
		2nd vegetation		5697	0.1602	1.6762	0.340		0.0030	4.6	
		Reforestation		5697	0.1780	1.6670	0.068		0.0010	1.7	
		Pasture		5697	0.1510	1.6810	0.008		0.0100	14.5	
		Crop		5697	0.1172	1.6569	0.518	1.000	0.0686	1.7	
		Others			0.0000	0.0000	0.064				
17	Amirante Leandrade		173.5	5334	0.0000	0.0000	2			3.6	0.012
		Forest		5334	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		5334	0.1490	1.6642	0.480		0.0030	4.0	
		Reforestation		5334	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		5334	0.0607	1.7810	0.239		0.0130	5.6	
		Crop		5334	0.0140	1.9950	0.197	1.000	0.1096	0.3	
		Others			0.0000	0.0000	0.084				
178	Ampere		307.9	10681	0.0000	0.0000	21			5.0	0.029
		Forest		10681	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		10681	0.1510	1.9040	0.267		0.0030	9.2	
		Reforestation		10681	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		10681	0.0234	2.2321	0.326		0.0100	5.6	
		Crop		10681	0.0326	2.9550	0.407	1.000	0.1337	1.8	
		Others			0.0000	0.0000	0.000				
125	Antonio Olinto		431.7	6431	0.0000	0.0000	4			1.5	0.012
		Forest		6431	0.1780	1.6670	0.125		0.0001	0.2	
		2nd vegetation		6431	0.0833	1.6945	0.448		0.0030	2.7	
		Reforestation		6431	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		6431	0.0000	0.0000	0.000		0.0100	0.0	
		Crop		6431	0.0184	2.1187	0.322	1.000	0.0862	0.4	
		Others			0.0000	0.0000	0.105				
110	Aracuaia		425.8	5334	0.0000	0.0000	2			0.8	0.007
		Forest		5334	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		5334	0.0971	1.8513	0.225		0.0030	1.7	
		Reforestation		5334	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		5334	0.0142	2.0214	0.135		0.0100	1.5	
		Crop		5334	0.0160	2.2330	0.485	1.000	0.1257	0.4	
		Others			0.0000	0.0000	0.155				
114	Balsa Nova		319.7	5697	0.0000	0.0000	2			1.7	0.010
		Forest		5697	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		5697	0.0747	1.7023	0.261		0.0030	2.2	
		Reforestation		5697	0.1160	1.6560	0.007		0.0010	1.1	
		Pasture		5697	0.0160	2.2330	0.507		0.0190	2.0	
		Crop		5697	0.0160	2.2330	0.225	1.000	0.1428	0.5	
		Others			0.0000	0.0000	0.000				
173	Barracao		315.5	11069	0.0000	0.0000	21			12.7	0.075
		Forest		11069	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		11069	0.1510	1.9040	0.193		0.0030	9.5	
		Reforestation		11069	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11069	0.1510	1.9040	0.237		0.0100	31.8	
		Crop		11069	0.0595	2.2420	0.387	1.000	0.1032	2.6	
		Others			0.0000	0.0000	0.183				
136	Bituruna		1,178.8	8250	0.0000	0.0000	16			2.1	0.047
		Forest		8250	0.1780	1.6670	0.370		0.0001	0.2	
		2nd vegetation		8250	0.1196	1.7173	0.369		0.0030	5.1	
		Reforestation		8250	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		8250	0.0149	1.9950	0.013		0.0100	2.3	
		Crop		8250	0.0158	2.2094	0.222	1.000	0.0698	0.3	
		Others			0.0000	0.0000	0.028				
167	Boa Esperanca do Iguacu		249.4	11723	0.0000	0.0000	19			14.1	0.068
		Forest		11723	0.1510	1.9040	0.005		0.0001	0.3	
		2nd vegetation		11723	0.1510	1.9040	0.157		0.0030	10.1	
		Reforestation		11723	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11723	0.1510	1.9040	0.256		0.0100	33.7	
		Crop		11723	0.0857	2.4924	0.542	1.000	0.1217	4.7	
		Others			0.0000	0.0000	0.000				
191	Boa Vista da Aparecida		219.7	11723	0.0000	0.0000	19			5.6	0.023
		Forest		11723	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		11723	0.1475	1.9356	0.202		0.0030	10.0	
		Reforestation		11723	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11723	0.0330	2.9670	0.229		0.0100	11.5	
		Crop		11723	0.0257	2.9272	0.515	1.000	0.1118	1.3	
		Others			0.0000	0.0000	0.064				
185	Bom Sucesso do Sul		135.3	11069	0.0000	0.0000	21			3.3	0.008
		Forest		11069	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		11069	0.1187	1.9871	0.259		0.0030	7.8	
		Reforestation		11069	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11069	0.0090	2.2690	0.234		0.0100	2.3	
		Crop		11069	0.0279	2.3250	0.507	1.000	0.1179	1.4	
		Others			0.0000	0.0000	0.000				
11	Campina Grande do Sul		76.4	5334	0.0000	0.0000	2			2.1	0.003
		Forest		5334	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		5334	0.1210	1.6569	0.463		0.0030	3.2	
		Reforestation		5334	0.1490	1.6480	0.122		0.0010	1.3	
		Pasture		5334	0.0152	1.9169	0.263		0.0100	1.6	
		Crop		5334	0.0156	2.1839	0.126	1.000	0.0750	0.2	
		Others			0.0000	0.0000	0.036				
120	Campo do Tenente		314.0	6481	0.0000	0.0000	4			2.7	0.016
		Forest		6481	0.1780	1.6670	0.027		0.0001	0.2	
		2nd vegetation		6481	0.1452	1.6742	0.378		0.0030	4.7	
		Reforestation		6481	0.1780	1.6670	0.059		0.0010	1.9	
		Pasture		6481	0.0490	1.7168	0.120		0.0100	5.5	
		Crop		6481	0.0180	1.7450	0.418	1.000	0.0930	0.4	
		Others			0.0000	0.0000	0.000				
19	Campo Largo		277.7	5334	0.0000	0.0000	2			3.7	0.019
		Forest		5334	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		5334	0.1456	1.6420	0.327		0.0030	3.8	
		Reforestation		5334	0.1780	1.6670	0.001		0.0010	1.6	
		Pasture		5334	0.1490	1.6480	0.096		0.0100	13.1	
		Crop		5334	0.0737	2.0894	0.510	1.000	0.1243	1.9	
		Others			0.0000	0.0000	0.066				

Table A4.14 Future Soil Loss from Iguacu River Basin with Master Plan (2/8)

No	Municipality		Total Area* (km2)	R Factor	Average KS factors	Avg non-terr. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha. yr)	Regional contribution
145	Candol		926.7	9063	0.0000	0.0000	20			7.8	0.136
		Forest		9063	0.1510	1.9040	0.100		0.0001	0.3	
		2nd vegetation		9063	0.1510	1.9040	0.241		0.0030	7.8	
		Reforestation		9063	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		9063	0.1405	1.9311	0.202		0.0100	24.6	
		Crop		9063	0.0215	2.6316	0.385	1.000	0.1375	1.0	
	Others	9063	0.0000	0.0000	0.072						
146	Carilagalo		771.7	9063	0.0000	0.0000	20			6.1	0.088
		Forest		9063	0.1780	1.6570	0.105		0.0001	0.3	
		2nd vegetation		9063	0.0830	1.5294	0.270		0.0030	3.5	
		Reforestation		9063	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		9063	0.1170	1.7445	0.231		0.0100	18.5	
		Crop		9063	0.0532	2.3467	0.391	1.000	0.1112	2.0	
	Others	9063	0.0000	0.0000	0.003						
188	Capanema		371.7	11211	0.0000	0.0000	19			13.2	0.092
		Forest		11211	0.1510	1.9040	0.002		0.0001	0.3	
		2nd vegetation		11211	0.1510	1.9040	0.041		0.0030	9.7	
		Reforestation		11211	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11211	0.1510	1.9040	0.310		0.0100	32.2	
		Crop		11211	0.0465	2.2892	0.566	1.000	0.1515	3.0	
	Others	11211	0.0000	0.0000	0.061						
192	Capitão Leônidas Marques		260.2	11211	0.0000	0.0000	19			9.4	0.046
		Forest		11211	0.1510	1.9040	0.050		0.0001	0.3	
		2nd vegetation		11211	0.1510	1.9040	0.021		0.0030	9.7	
		Reforestation		11211	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11211	0.0955	2.4036	0.300		0.0100	25.7	
		Crop		11211	0.0223	3.3570	0.559	1.000	0.1534	1.5	
	Others	11211	0.0000	0.0000	0.070						
190	Cascavel		1,179.2	11732	0.0000	0.0000	19			3.4	0.074
		Forest		11732	0.1510	1.9040	0.008		0.0001	0.3	
		2nd vegetation		11732	0.0992	2.0302	0.258		0.0030	7.1	
		Reforestation		11732	0.1510	1.9040	0.017		0.0010	3.4	
		Pasture		11732	0.1307	2.2504	0.214		0.0100	2.8	
		Crop		11732	0.0216	2.8098	0.487	1.000	0.1737	1.7	
	Others	11732	0.0000	0.0000	0.016						
188	Catalândia		593.9	11723	0.0000	0.0000	19			3.7	0.041
		Forest		11723	0.1510	1.9040	0.040		0.0001	0.3	
		2nd vegetation		11723	0.0287	2.2183	0.324		0.0030	2.2	
		Reforestation		11723	0.1510	1.9040	0.015		0.0010	3.4	
		Pasture		11723	0.0905	2.8948	0.203		0.0100	10.4	
		Crop		11723	0.0330	2.5170	0.418	1.000	0.1238	1.8	
	Others	11723	0.0000	0.0000	0.000						
198	Ceu Azul		915.1	11732	0.0000	0.0000	19			0.6	0.010
		Forest		11732	0.0636	2.8051	0.873		0.0001	0.2	
		2nd vegetation		11732	0.0180	3.5120	0.027		0.0030	2.2	
		Reforestation		11732	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11732	0.0180	3.5120	0.033		0.0100	7.4	
		Crop		11732	0.0180	3.5120	0.044	1.000	0.1649	1.3	
	Others	11732	0.0000	0.0000	0.023						
149	Chopininho		955.4	9063	0.0000	0.0000	21			7.5	0.134
		Forest		9063	0.0470	1.6690	0.040		0.0001	0.1	
		2nd vegetation		9063	0.1443	1.8889	0.249		0.0030	7.4	
		Reforestation		9063	0.0470	1.6690	0.006		0.0010	0.7	
		Pasture		9063	0.1073	2.0106	0.247		0.0100	19.5	
		Crop		9063	0.0281	2.6080	0.420	1.000	0.1224	1.2	
	Others	9063	0.0000	0.0000	0.038						
142	Clevelândia		667.1	9299	0.0000	0.0000	16			2.0	0.025
		Forest		9299	0.1780	1.6670	0.042		0.0001	0.3	
		2nd vegetation		9299	0.0889	1.5579	0.231		0.0030	3.9	
		Reforestation		9299	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		9299	0.0165	1.8338	0.219		0.0100	2.8	
		Crop		9299	0.0154	2.2070	0.449	1.000	0.1318	0.7	
	Others	9299	0.0000	0.0000	0.029						
15	Colombo		105.4	5334	0.0000	0.0000	2			1.3	0.003
		Forest		5334	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		5334	0.0641	1.7335	0.454		0.0030	1.5	
		Reforestation		5334	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		5334	0.0140	1.9950	0.248		0.0100	1.5	
		Crop		5334	0.0140	1.9950	0.124	1.000	0.0816	0.2	
	Others	5334	0.0000	0.0000	0.174						
1-15	Contenda		219.0	5697	0.0000	0.0000	2			1.9	0.008
		Forest		5697	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		5697	0.1160	1.6560	0.253		0.0030	3.3	
		Reforestation		5697	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		5697	0.0345	2.1248	0.176		0.0100	4.2	
		Crop		5697	0.0160	2.2330	0.557	1.000	0.1566	0.6	
	Others	5697	0.0000	0.0000	0.014						
1-50	Coronel Vinda		667.3	11472	0.0000	0.0000	21			7.7	0.056
		Forest		11472	0.1510	1.9040	0.005		0.0001	0.3	
		2nd vegetation		11472	0.1510	1.9040	0.314		0.0030	9.3	
		Reforestation		11472	0.1510	1.9040	0.002		0.0010	3.3	
		Pasture		11472	0.0985	2.3853	0.234		0.0100	15.2	
		Crop		11472	0.0330	2.5244	0.425	1.000	0.1358	2.0	
	Others	11472	0.0000	0.0000	0.020						
1-37	Cruz Machado		1,430.7	8250	0.0000	0.0000	18			2.2	0.028
		Forest		8250	0.1734	1.6640	0.183		0.0001	0.2	
		2nd vegetation		8250	0.1433	1.6627	0.283		0.0030	3.9	
		Reforestation		8250	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		8250	0.0140	1.9950	0.096		0.0100	2.3	
		Crop		8250	0.0165	2.1771	0.392	1.000	0.0656	0.3	
	Others	8250	0.0000	0.0000	0.046						
1-68	Cruzeiro do Iguacu		89.4	11723	0.0000	0.0000	19			5.7	0.010
		Forest		11723	0.1510	1.9040	0.030		0.0001	0.3	
		2nd vegetation		11723	0.1169	2.2111	0.135		0.0030	3.1	
		Reforestation		11723	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11723	0.0330	2.9506	0.268		0.0100	11.4	
		Crop		11723	0.0330	2.3436	0.493	1.000	0.1361	2.0	
	Others	11723	0.0000	0.0000	0.074						



Table-A4.14 Future Soil Loss from Iguaçu River Basin with Master Plan (3/8)

No	Municipality	Total Area* (km2)	R Factor	Average KS factors	Avg non-terr. L	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution	
1-8	Coritiba	92.4	5334	0.0000	0.0000	2			0.0	0.001	
			Forest	5334	0.0000	0.0000	0.000		0.0001	0.0	
			2nd vegetation	5334	0.0160	2.2330	0.065		0.0030	0.6	
			Reforestation	5334	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	5334	0.0160	2.2330	0.084		0.0100	1.9	
			Crop	5334	0.0160	2.2330	0.105	1.000	0.0934	0.3	
Others	5334	0.0000	0.0000	0.786							
1-88	Dois Vizinhos	365.2	11069	0.0000	0.0000	19			6.7	0.046	
			Forest	11069	0.0000	0.0000	0.000		0.0001	0.0	
			2nd vegetation	11069	0.1510	1.9040	0.147		0.0030	9.5	
			Reforestation	11069	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	11069	0.0452	2.8477	0.294		0.0100	14.6	
			Crop	11069	0.0330	2.6180	0.539	1.000	0.1202	1.7	
Others	11069	0.0000	0.0000	0.020							
1-89	Eneas Marques	234.7	11069	0.0000	0.0000	21			13.5	0.080	
			Forest	11069	0.0000	0.0000	0.000		0.0001	0.0	
			2nd vegetation	11069	0.1510	1.9040	0.286		0.0030	9.5	
			Reforestation	11069	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	11069	0.1510	1.9040	0.300		0.0100	31.8	
			Crop	11069	0.0655	2.2199	0.414	1.000	0.1105	3.1	
Others	11069	0.0000	0.0000	0.000							
1-11	Fazenda Rio Grande	100.2	5334	0.0000	0.0000	2			0.7	0.001	
			Forest	5334	0.0000	0.0000	0.000		0.0001	0.0	
			2nd vegetation	5334	0.0180	1.7450	0.175		0.0030	0.5	
			Reforestation	5334	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	5334	0.0179	1.7712	0.242		0.0100	1.7	
			Crop	5334	0.0160	2.2330	0.487	1.000	0.0781	0.3	
Others	5334	0.0000	0.0000	0.096							
1-72	Flor da Serra do Sul	63.4	11069	0.0000	0.0000	19			1.1	0.001	
			Forest	11069	0.0000	0.0000	0.000		0.0001	0.0	
			2nd vegetation	11069	0.0180	1.7450	0.272		0.0030	1.0	
			Reforestation	11069	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	11069	0.0180	1.7450	0.067		0.0100	3.5	
			Crop	11069	0.0162	2.1756	0.340	1.000	0.1035	0.7	
Others	11069	0.0000	0.0000	0.331							
1-101	Foz do Iguaçu	256.0	10667	0.0000	0.0000	19			2.8	0.014	
			Forest	10667	0.0330	2.9670	0.292		0.0001	0.1	
			2nd vegetation	10667	0.0330	2.9670	0.100		0.0030	3.1	
			Reforestation	10667	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	10667	0.0330	2.4570	0.150		0.0100	8.6	
			Crop	10667	0.0330	2.3400	0.278	1.000	0.1793	2.4	
Others	10667	0.0000	0.0000	0.180							
1-70	Francisco Beltrão	683.3	11069	0.0000	0.0000	21			4.6	0.060	
			Forest	11069	0.1510	1.9040	0.015		0.0001	0.3	
			2nd vegetation	11069	0.1510	1.9040	0.197		0.0030	9.5	
			Reforestation	11069	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	11069	0.0300	2.1988	0.260		0.0100	7.3	
			Crop	11069	0.0324	2.6397	0.517	1.000	0.1139	1.6	
Others	11069	0.0000	0.0000	0.011							
1-35	General Carneiro	1,011.6	8250	0.0000	0.0000	16			2.0	0.034	
			Forest	8250	0.1780	1.6670	0.349		0.0001	0.2	
			2nd vegetation	8250	0.1055	1.8628	0.322		0.0030	5.0	
			Reforestation	8250	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	8250	0.0148	2.0930	0.061		0.0100	2.6	
			Crop	8250	0.0160	2.2330	0.229	1.000	0.0643	0.3	
Others	8250	0.0000	0.0000	0.043							
1-63	Guaraniáçu	493.2	11723	0.0000	0.0000	19			13.0	0.120	
			Forest	11723	0.1510	1.9040	0.025		0.0001	0.3	
			2nd vegetation	11723	0.1510	1.9040	0.443		0.0030	10.1	
			Reforestation	11723	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	11723	0.1093	2.1963	0.286		0.0100	28.2	
			Crop	11723	0.0330	2.5718	0.238	1.000	0.1181	1.7	
Others	11723	0.0000	0.0000	0.003							
1-39	Guarapuava	3,360.3	8877	0.0000	0.0000	16			2.4	0.151	
			Forest	8877	0.1780	1.6670	0.137		0.0001	0.3	
			2nd vegetation	8877	0.1651	1.6549	0.142		0.0030	7.4	
			Reforestation	8877	0.1780	1.6670	0.018		0.0010	2.6	
			Pasture	8877	0.0314	1.7044	0.237		0.0100	4.7	
			Crop	8877	0.0160	2.2330	0.454	1.000	0.0453	0.2	
Others	8877	0.0000	0.0000	0.012							
1-43	Honório Serpa	803.7	9299	0.0000	0.0000	21			5.4	0.081	
			Forest	9299	0.1510	1.9040	0.028		0.0001	0.3	
			2nd vegetation	9299	0.1510	1.9040	0.332		0.0030	8.0	
			Reforestation	9299	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	9299	0.0429	2.4156	0.199		0.0100	9.6	
			Crop	9299	0.0330	2.6807	0.438	1.000	0.1530	1.8	
Others	9299	0.0000	0.0000	0.003							
1-80	Ibema	117.4	11723	0.0000	0.0000	19			6.1	0.017	
			Forest	11723	0.1510	1.9040	0.028		0.0001	0.3	
			2nd vegetation	11723	0.0540	2.4179	0.482		0.0030	8.0	
			Reforestation	11723	0.1510	1.9040	0.046		0.0010	3.4	
			Pasture	11723	0.0330	2.7349	0.154		0.0100	10.6	
			Crop	11723	0.0330	2.3400	0.283	1.000	0.1079	1.6	
Others	11723	0.0000	0.0000	0.007							
1-38	Itaó Marins	879.9	8877	0.0000	0.0000	16			0.8	0.013	
			Forest	8877	0.1532	1.6674	0.570		0.0001	0.2	
			2nd vegetation	8877	0.0308	1.7114	0.294		0.0030	1.4	
			Reforestation	8877	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	8877	0.0156	1.8950	0.650		0.0100	2.6	
			Crop	8877	0.0152	2.1421	0.246	1.000	0.0659	0.3	
Others	8877	0.0000	0.0000	0.000							
1-28	Itaó	407.9	6793	0.0000	0.0000	4			2.1	0.016	
			Forest	6793	0.0740	1.7200	0.082		0.0001	0.1	
			2nd vegetation	6793	0.1092	1.8696	0.360		0.0030	4.2	
			Reforestation	6793	0.0740	1.7200	0.018		0.0010	0.9	
			Pasture	6793	0.0000	0.0000	0.000		0.0100	0.0	
			Crop	6793	0.0556	2.1654	0.540	1.000	0.0801	1.2	
Others	6793	0.0000	0.0000	0.000							

Table-A4.14 Future Soil Loss from Iguacu River Basin with Master Plan (4/8)

No	Municipality	Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-terr. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution	
E-56	Capeara D'Este	242.3	11069	0.0000	0.0000	21	1.000	0.1611	3.4	0.015	
									Forest	0.0001	0.0
									2nd vegetation	0.0030	9.5
									Reforestation	0.0019	0.0
									Pasture	0.0100	2.4
									Crop	0.0261	3.1381
Others	0.0000	0.0000	0.015								
E-21	Lapa	2,190.3	6431	0.0000	0.0000	4	1.000	0.1159	2.1	0.083	
									Forest	0.0001	0.2
									2nd vegetation	0.0030	3.8
									Reforestation	0.0010	1.9
									Pasture	0.0100	2.5
									Crop	0.0150	1.9330
Others	0.0000	0.0000	0.066								
E-45	Laranjeiras do Sul	939.0	9063	0.0000	0.0000	29	1.000	0.0953	7.3	0.128	
									Forest	0.0001	0.2
									2nd vegetation	0.0030	5.4
									Reforestation	0.0010	0.0
									Pasture	0.0100	20.2
									Crop	0.0462	2.1210
Others	0.0000	0.0000	0.107								
E-94	Lindoeste	273.2	11732	0.0000	0.0000	19	1.000	0.1283	8.6	0.044	
									Forest	0.0001	0.3
									2nd vegetation	0.0030	10.1
									Reforestation	0.0010	0.0
									Pasture	0.0100	26.9
									Crop	0.0243	3.0223
Others	0.0000	0.0000	0.000								
E-30	Mallet	672.8	8250	0.0000	0.0000	16	1.000	0.0675	2.6	0.033	
									Forest	0.0001	0.1
									2nd vegetation	0.0030	4.7
									Reforestation	0.0010	0.0
									Pasture	0.0100	0.0
									Crop	0.0967	1.9978
Others	0.0000	0.0000	0.000								
E-12	Mandrituba	390.1	5697	0.0000	0.0000	2	1.000	0.0869	3.5	0.025	
									Forest	0.0001	0.0
									2nd vegetation	0.0030	3.3
									Reforestation	0.0010	1.1
									Pasture	0.0100	10.2
									Crop	0.0165	2.1008
Others	0.0000	0.0000	0.005								
E-44	Mangueirinha	794.0	9299	0.0000	0.0000	20	1.000	0.1496	5.1	0.076	
									Forest	0.0001	0.3
									2nd vegetation	0.0030	7.8
									Reforestation	0.0010	0.0
									Pasture	0.0100	14.3
									Crop	0.0154	2.1638
Others	0.0000	0.0000	0.009								
E-52	Maripolis	202.8	9478	0.0000	0.0000	21	1.000	0.0869	1.6	0.008	
									Forest	0.0001	0.3
									2nd vegetation	0.0030	2.9
									Reforestation	0.0010	0.0
									Pasture	0.0100	3.4
									Crop	0.0148	2.2404
Others	0.0000	0.0000	0.126								
E-71	Marianeiro	409.7	11069	0.0000	0.0000	21	1.000	0.1185	3.9	0.030	
									Forest	0.0001	0.3
									2nd vegetation	0.0030	9.5
									Reforestation	0.0010	3.2
									Pasture	0.0100	4.0
									Crop	0.0099	2.2646
Others	0.0000	0.0000	0.089								
E-97	Materlandia	593.1	10667	0.0000	0.0000	19	1.000	0.1571	1.7	0.019	
									Forest	0.0001	0.2
									2nd vegetation	0.0030	2.3
									Reforestation	0.0010	0.0
									Pasture	0.0100	6.7
									Crop	0.0180	3.5120
Others	0.0000	0.0000	0.013								
E-58	Medianeira	583.6	10667	0.0000	0.0000	19	1.000	0.1766	1.9	0.021	
									Forest	0.0001	0.2
									2nd vegetation	0.0030	2.4
									Reforestation	0.0010	0.0
									Pasture	0.0100	6.7
									Crop	0.0180	3.5120
Others	0.0000	0.0000	0.061								
E-79	Nova Esperanca do Sudoeste	178.9	11069	0.0000	0.0000	21	1.000	0.1062	12.7	0.042	
									Forest	0.0001	0.3
									2nd vegetation	0.0030	9.5
									Reforestation	0.0010	0.0
									Pasture	0.0100	31.8
									Crop	0.0847	2.1483
Others	0.0000	0.0000	0.000								
E-62	Nova Laranjeiras	578.8	9063	0.0000	0.0000	20	1.000	0.1073	5.7	0.062	
									Forest	0.0001	0.3
									2nd vegetation	0.0030	6.1
									Reforestation	0.0010	2.6
									Pasture	0.0100	19.4
									Crop	0.0336	2.9670
Others	0.0000	0.0000	0.000								
E-82	Nova Frlata do Iguacu	327.5	11723	0.0000	0.0000	19	1.000	0.1387	12.5	0.076	
									Forest	0.0001	0.3
									2nd vegetation	0.0030	10.1
									Reforestation	0.0010	0.0
									Pasture	0.0100	31.6
									Crop	0.0330	2.7335
Others	0.0000	0.0000	0.016								

Table-A4.14 Future Soil Loss from Iguaqu River Basin with Master Plan (5/8)

No	Municipality		Total Area* (km2)	R Factor	Average KS factors	Avg non-ten. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
141	Palmas		3,063.4	9318	0.0000	0.0000	16			3.6	0.204
		Forest		9318	0.1780	1.6670	0.241		0.0061	0.3	
		2nd vegetation		9318	0.1669	1.6534	0.253		0.0030	7.7	
		Reforestation		9318	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		9318	0.0296	1.5643	0.313		0.0100	4.3	
		Crop		9318	0.0156	2.3077	0.169	1.000	0.1220	0.7	
123	Palmeira		272.9	6481	0.0000	0.0000	4			1.6	0.008
		Forest		6481	0.0740	1.7200	0.009		0.0001	0.1	
		2nd vegetation		6481	0.0758	1.6766	0.508		0.0030	2.5	
		Reforestation		6481	0.0740	1.7200	0.017		0.0010	0.8	
		Pasture		6481	0.0180	1.7450	0.095		0.0100	2.0	
		Crop		6481	0.0147	1.9488	0.368	1.000	0.1170	0.4	
151	Pala Branco		561.2	11472	0.0000	0.0000	21			2.5	0.026
		Forest		11472	0.1510	1.9040	0.006		0.0001	0.3	
		2nd vegetation		11472	0.0504	2.1492	0.319		0.0030	3.7	
		Reforestation		11472	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11472	0.0160	2.2330	0.228		0.0100	4.1	
		Crop		11472	0.0112	2.2575	0.441	1.000	0.1702	0.8	
132	Paula Freitas		367.1	8250	0.0000	0.0000	16			0.6	0.004
		Forest		8250	0.0180	1.7450	0.102		0.0001	0.0	
		2nd vegetation		8250	0.0174	1.8931	0.369		0.0030	0.8	
		Reforestation		8250	0.0180	1.7450	0.022		0.0010	0.3	
		Pasture		8250	0.0000	0.0000	0.000		0.0100	0.0	
		Crop		8250	0.0160	2.2330	0.388	1.000	0.1038	0.5	
131	Paulo Frontin		361.1	8250	0.0000	0.0000	16			0.5	0.003
		Forest		8250	0.0180	1.7450	0.095		0.0001	0.0	
		2nd vegetation		8250	0.0145	1.9601	0.358		0.0030	0.7	
		Reforestation		8250	0.0180	1.7450	0.001		0.0010	0.3	
		Pasture		8250	0.0000	0.0000	0.000		0.0100	0.0	
		Crop		8250	0.0146	2.0609	0.542	1.000	0.0884	0.4	
133	Perola do Oeste		308.8	11211	0.0000	0.0000	19			10.3	0.059
		Forest		11211	0.1510	1.9040	0.015		0.0001	0.3	
		2nd vegetation		11211	0.1510	1.9040	0.137		0.0030	9.7	
		Reforestation		11211	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11211	0.1051	2.0735	0.301		0.0100	24.4	
		Crop		11211	0.0330	2.3400	0.483	1.000	0.1352	1.9	
118	Pian		246.6	5697	0.0000	0.0000	2			1.8	0.008
		Forest		5697	0.0799	1.7110	0.090		0.0001	0.1	
		2nd vegetation		5697	0.1160	1.6560	0.315		0.0030	3.3	
		Reforestation		5697	0.1160	1.6560	0.069		0.0010	1.1	
		Pasture		5697	0.1160	1.6560	0.016		0.0100	10.9	
		Crop		5697	0.0474	1.8954	0.493	1.000	0.0782	0.8	
15	Pinhas		70.7	5334	0.0000	0.0000	2			0.8	0.001
		Forest		5334	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		5334	0.0180	1.7450	0.113		0.0030	0.5	
		Reforestation		5334	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		5334	0.0160	1.8712	0.216		0.0100	1.6	
		Crop		5334	0.0140	1.9950	0.391	1.000	0.1630	0.5	
177	Pinhal de Sao Bento		107.6	10681	0.0000	0.0000	21			7.2	0.015
		Forest		10681	0.0500	0.0000	0.000		0.0001	0.0	
		2nd vegetation		10681	0.1039	2.3280	0.543		0.0030	7.8	
		Reforestation		10681	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		10681	0.0330	2.3720	0.300		0.0100	9.1	
		Crop		10681	0.0330	2.3400	0.151	1.000	0.1149	1.5	
140	Pinhao		2,812.8	8877	0.0000	0.0000	18			1.8	0.094
		Forest		8877	0.1780	1.6670	0.284		0.0001	0.3	
		2nd vegetation		8877	0.0916	1.7414	0.246		0.0030	4.2	
		Reforestation		8877	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		8877	0.0140	1.9550	0.118		0.0100	2.5	
		Crop		8877	0.0660	2.0441	0.350	1.000	0.0425	0.9	
13	Piraquara		182.2	5334	0.0000	0.0000	2			2.8	0.008
		Forest		5334	0.1780	1.6670	0.367		0.0001	0.2	
		2nd vegetation		5334	0.1747	1.6648	0.087		0.0030	4.7	
		Reforestation		5334	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		5334	0.1295	1.6520	0.173		0.0100	11.4	
		Crop		5334	0.0263	1.9493	0.317	1.000	0.1035	0.6	
124	Planalto		329.8	11211	0.0000	0.0000	19			13.6	0.084
		Forest		11211	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		11211	0.1510	1.9040	0.106		0.0030	9.7	
		Reforestation		11211	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		11211	0.1510	1.9040	0.333		0.0100	32.2	
		Crop		11211	0.0417	2.3077	0.540	1.000	0.1658	3.0	
122	Porto Amazonas		153.0	6481	0.0000	0.0000	4			2.2	0.006
		Forest		6481	0.0000	0.0000	0.000		0.0001	0.0	
		2nd vegetation		6481	0.0470	1.6690	0.322		0.0030	1.5	
		Reforestation		6481	0.0470	1.6690	0.066		0.0010	0.5	
		Pasture		6481	0.0470	1.6690	0.298		0.0100	5.1	
		Crop		6481	0.0193	1.7418	0.314	1.000	0.0752	0.4	
134	Porto Vitoria		192.2	8250	0.0000	0.0000	16			3.8	0.014
		Forest		8250	0.1780	1.6670	0.149		0.0001	0.2	
		2nd vegetation		8250	0.1628	1.7201	0.469		0.0030	6.9	
		Reforestation		8250	0.0000	0.0000	0.000		0.0010	0.0	
		Pasture		8250	0.0000	0.0000	0.000		0.0100	0.0	
		Crop		8250	0.0160	2.2330	0.256	1.000	0.0582	0.3	

Table-A4.14 Future Soil Loss from Iguaçu River Basin with Master Plan (6/8)

No	Municipality	Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-terr. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
176	Franchita	275.4	10681	0.0000	0.0000	19			5.9	0.030
			10681	0.0000	0.0000	0.000		0.0001	0.0	
				0.1257	2.1323	0.163		0.0030	8.6	
			10681	0.0000	0.0000	0.000		0.0010	0.0	
			10681	0.0330	2.9670	0.294		0.0100	10.5	
			10681	0.0330	2.4345	0.471	1.000	0.1597	2.1	
				0.0000	0.0000	0.072				
12	Ouro Preto	93.7	5334	0.0000	0.0000	2			2.7	0.005
			5334	0.1514	1.6716	0.258		0.0001	0.1	
			5334	0.1510	1.9040	0.074		0.0030	4.6	
			5334	0.1510	1.9040	0.001		0.0010	1.5	
			5334	0.0668	1.9666	0.348		0.0100	6.0	
			5334	0.0140	1.9550	0.262	1.000	0.0830	0.2	
				0.0000	0.0000	0.059				
164	Quedas do Iguaçu	1137.2	11723	0.0000	0.0000	19			13	0.027
			11723	0.0729	2.1047	0.231		0.0001	0.2	
			11723	0.0090	2.2690	0.311		0.0030	0.7	
			11723	0.0090	2.2690	0.091		0.0010	0.2	
			11723	0.0182	2.5361	0.115		0.0100	5.4	
			11723	0.0330	2.3583	0.206	1.000	0.1052	1.6	
				0.0000	0.0000	0.045				
116	Quitandinha	416.7	5637	0.0000	0.0000	2			2.3	0.016
			5637	0.1160	1.6560	0.047		0.0001	0.1	
			5637	0.1160	1.6560	0.341		0.0030	3.3	
			5637	0.1160	1.6560	0.007		0.0010	1.1	
			5637	0.1160	1.6560	0.084		0.0100	10.9	
			5637	0.0189	2.2162	0.515	1.000	0.1201	0.5	
				0.0000	0.0000	0.006				
185	Reseiza	344.5	11211	0.0000	0.0000	19			11.3	0.073
			11211	0.1510	1.9040	0.038		0.0001	0.3	
			11211	0.1510	1.9040	0.031		0.0030	9.7	
			11211	0.0000	0.0000	0.000		0.0010	0.0	
			11211	0.1206	2.1780	0.322		0.0100	29.4	
			11211	0.0330	2.6038	0.587	1.000	0.1525	2.2	
				0.0000	0.0000	0.022				
127	Rebouças	498.9	6793	0.0000	0.0000	4			2.0	0.019
			6793	0.0740	1.7200	0.036		0.0001	0.1	
			6793	0.1158	1.7156	0.381		0.0030	4.0	
			6793	0.0000	0.0000	0.000		0.0010	0.0	
			6793	0.0000	0.0000	0.000		0.0100	0.0	
			6793	0.0363	2.1983	0.583	1.000	0.0917	0.9	
				0.0000	0.0000	0.000				
154	Renasença	457.2	11069	0.0000	0.0000	21			3.4	0.026
			11069	0.1510	1.9040	0.013		0.0001	0.3	
			11069	0.1058	2.0140	0.290		0.0030	7.1	
			11069	0.1510	1.9040	0.062		0.0010	3.2	
			11069	0.0160	2.2330	0.147		0.0100	4.0	
			11069	0.0104	2.2617	0.426	1.000	0.1693	0.7	
				0.0000	0.0000	0.062				
129	Rio Azul	642.6	6793	0.0000	0.0000	4			1.7	0.021
			6793	0.0180	1.7450	0.113		0.0001	0.0	
			6793	0.0668	2.0108	0.385		0.0030	3.6	
			6793	0.0000	0.0000	0.000		0.0010	0.0	
			6793	0.1050	2.0810	0.001		0.0100	14.8	
			6793	0.0326	2.2046	0.492	1.000	0.0846	0.7	
				0.0000	0.0000	0.000				
161	Rio Bonito do Iguaçu	435.0	9063	0.0000	0.0000	20			0.8	0.007
			9063	0.0860	2.0878	0.705		0.0001	0.2	
			9063	0.0124	2.2791	0.049		0.0030	0.8	
			9063	0.0000	0.0000	0.000		0.0010	0.0	
			9063	0.0330	2.3400	0.065		0.0100	7.0	
			9063	0.0330	2.3400	0.128	1.000	0.1208	1.4	
				0.0000	0.0000	0.053				
119	Rio Negro	560.3	6481	0.0000	0.0000	4			2.9	0.031
			6481	0.0000	0.0000	0.000		0.0001	0.0	
			6481	0.1316	1.6671	0.294		0.0030	4.3	
			6481	0.1571	1.6778	0.348		0.0010	1.7	
			6481	0.1160	1.6560	0.054		0.0100	12.4	
			6481	0.0503	1.8742	0.233	1.000	0.0728	0.9	
				0.0000	0.0000	0.071				
174	Salgado Filho	502.2	11069	0.0000	0.0000	21			6.9	0.064
			11069	0.0000	0.0000	0.000		0.0001	0.0	
			11069	0.1510	1.9040	0.539		0.0030	9.5	
			11069	0.0000	0.0000	0.000		0.0010	0.0	
			11069	0.0488	2.2230	0.289		0.0100	12.0	
			11069	0.0330	2.3400	0.164	1.000	0.1064	1.5	
				0.0000	0.0000	0.008				
130	Salto do Lontra	334.3	11069	0.0000	0.0000	19			6.9	0.043
			11069	0.1510	1.9040	0.014		0.0001	0.3	
			11069	0.1510	1.9040	0.200		0.0030	9.5	
			11069	0.0000	0.0000	0.000		0.0010	0.0	
			11069	0.0618	2.1332	0.293		0.0100	14.6	
			11069	0.0256	2.3187	0.486	1.000	0.1235	1.3	
				0.0000	0.0000	0.007				
181	Santa Izabel do Oeste	326.8	11211	0.0000	0.0000	19			11.5	0.070
			11211	0.1510	1.9040	0.018		0.0001	0.3	
			11211	0.1510	1.9040	0.171		0.0030	9.7	
			11211	0.1510	1.9040	0.008		0.0010	3.2	
			11211	0.1038	2.3292	0.320		0.0100	27.1	
			11211	0.0330	2.5685	0.472	1.000	0.1528	2.2	
				0.0000	0.0000	0.011				
193	Santa Lucia	137.1	11211	0.0000	0.0000	19			13.1	0.034
			11211	0.1510	1.9040	0.010		0.0001	0.3	
			11211	0.0000	0.0000	0.000		0.0030	0.0	
			11211	0.0000	0.0000	0.000		0.0010	0.0	
			11211	0.1510	1.9040	0.346		0.0100	32.2	
			11211	0.0477	3.1524	0.544	1.000	0.1451	3.0	
				0.0000	0.0000	0.000				

Table-A4.14 Future Soil Loss from Iguaqu River Basin with Master Plan (7/8)

No	Municipality	Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-terr. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution	
199	Santa Teresinha do Oeste	235.5	11732	0.0000	0.0000	19			4.8	0.021	
			Forest	11732	0.1510	1.9040	0.024		0.0001	0.3	
			2nd vegetation	11732	0.1510	1.9040	0.047		0.0030	10.1	
			Reforestation	11732	0.1510	1.9040	0.018		0.0010	3.4	
			Pasture	11732	0.0423	2.1835	0.303		0.0100	10.8	
			Crop	11732	0.0259	2.7605	0.568	1.000	0.1475	1.7	
100	Santa Teresinha de Itaipu	157.0	10667	0.0000	0.0000	19			2.3	0.007	
			Forest	10667	0.0090	2.2690	0.022		0.0001	0.0	
			2nd vegetation	10667	0.0090	2.2690	0.144		0.0030	0.7	
			Reforestation	10667	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	10667	0.0158	2.2891	0.283		0.0100	3.9	
			Crop	10667	0.0272	2.7908	0.520	1.000	0.1877	2.1	
175	Santo Antonio do Sudoeste	289.9	10681	0.0000	0.0000	21			9.2	0.050	
			Forest	10681	0.0000	0.0000	0.000		0.0001	0.0	
			2nd vegetation	10681	0.1510	1.9040	0.135		0.0030	9.2	
			Reforestation	10681	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	10681	0.1065	2.0125	0.282		0.0100	22.9	
			Crop	10681	0.0294	2.3174	0.607	1.000	0.1278	1.5	
158	Sao Joao	355.6	11603	0.0000	0.0000	21			9.6	0.071	
			Forest	11603	0.1510	1.9040	0.024		0.0001	0.3	
			2nd vegetation	11603	0.1510	1.9040	0.102		0.0030	10.0	
			Reforestation	11603	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	11603	0.1022	2.0230	0.304		0.0100	24.0	
			Crop	11603	0.0263	2.6788	0.560	1.000	0.1523	1.8	
124	Sao Joao do Triunfo	707.6	6793	0.0000	0.0000	4			1.4	0.018	
			Forest	6793	0.0711	1.7143	0.223		0.0001	0.1	
			2nd vegetation	6793	0.0648	1.9552	0.481		0.0030	2.6	
			Reforestation	6793	0.0470	1.6690	0.093		0.0010	0.5	
			Pasture	6793	0.0000	0.0000	0.000		0.0100	0.0	
			Crop	6793	0.0160	2.2330	0.202	1.000	0.0753	0.3	
163	Sao Jorge do Oeste	353.9	11723	0.0000	0.0000	19			6.8	0.045	
			Forest	11723	0.1510	1.9040	0.024		0.0001	0.3	
			2nd vegetation	11723	0.1510	1.9040	0.201		0.0030	10.1	
			Reforestation	11723	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	11723	0.0416	2.8893	0.260		0.0100	14.1	
			Crop	11723	0.0265	3.2045	0.459	1.000	0.1043	1.2	
14	Sao Jose dos Pinhais	620.6	5334	0.0000	0.0000	2			2.5	0.029	
			Forest	5334	0.1651	1.6585	0.139		0.0001	0.1	
			2nd vegetation	5334	0.1415	1.6498	0.115		0.0030	3.7	
			Reforestation	5334	0.1490	1.6430	0.003		0.0010	1.3	
			Pasture	5334	0.0829	1.6822	0.238		0.0100	7.4	
			Crop	5334	0.0172	2.0227	0.436	1.000	0.0833	0.3	
128	Sao Mateus do Sul	1,272.7	6793	0.0000	0.0000	4			0.9	0.021	
			Forest	6793	0.0740	1.7200	0.154		0.0001	0.1	
			2nd vegetation	6793	0.0379	1.9245	0.447		0.0030	1.5	
			Reforestation	6793	0.0740	1.7200	0.025		0.0010	0.9	
			Pasture	6793	0.0000	0.0000	0.000		0.0100	0.0	
			Crop	6793	0.0160	2.2330	0.329	1.000	0.1013	0.4	
199	Sao Miguel do Iguacu	445.2	10667	0.0000	0.0000	19			4.5	0.037	
			Forest	10667	0.1510	1.9040	0.160		0.0001	0.3	
			2nd vegetation	10667	0.1162	2.2178	0.166		0.0030	8.2	
			Reforestation	10667	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	10667	0.0330	2.7329	0.241		0.0100	9.6	
			Crop	10667	0.0220	3.1976	0.410	1.000	0.1704	1.5	
150	Saude de Iguacu	143.1	9063	0.0000	0.0000	20			7.4	0.020	
			Forest	9063	0.1510	1.9040	0.029		0.0001	0.3	
			2nd vegetation	9063	0.1510	1.9040	0.137		0.0030	7.8	
			Reforestation	9063	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	9063	0.1135	2.0003	0.273		0.0100	20.6	
			Crop	9063	0.0226	2.3093	0.528	1.000	0.1051	0.9	
159	Sulina	158.5	11723	0.0000	0.0000	20			10.4	0.031	
			Forest	11723	0.0000	0.0000	0.000		0.0001	0.0	
			2nd vegetation	11723	0.1510	1.9040	0.150		0.0030	10.1	
			Reforestation	11723	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	11723	0.0920	2.4355	0.300		0.0100	26.3	
			Crop	11723	0.0330	2.6290	0.590	1.000	0.1196	1.8	
113	Tupac do Sul	409.6	5334	0.0000	0.0000	2			2.3	0.017	
			Forest	5334	0.1780	1.6670	0.062		0.0001	0.2	
			2nd vegetation	5334	0.1173	1.6557	0.265		0.0030	3.1	
			Reforestation	5334	0.1648	1.6533	0.197		0.0010	1.5	
			Pasture	5334	0.0429	1.7688	0.265		0.0100	4.0	
			Crop	5334	0.0156	2.1829	0.190	1.000	0.0719	0.2	
187	Tres Barras do Parana	500.8	11723	0.0000	0.0000	4			3.6	0.014	
			Forest	11723	0.1510	1.9040	0.046		0.0001	0.3	
			2nd vegetation	11723	0.1510	1.9040	0.237		0.0030	10.1	
			Reforestation	11723	0.1510	1.9040	0.002		0.0010	3.4	
			Pasture	11723	0.0124	2.2603	0.209		0.0100	3.3	
			Crop	11723	0.0265	2.3208	0.466	1.000	0.0684	0.8	
133	Uniao da Vitoria	691.9	8250	0.0000	0.0000	16			2.5	0.033	
			Forest	8250	0.0452	1.6738	0.315		0.0001	0.1	
			2nd vegetation	8250	0.1219	1.8743	0.384		0.0030	5.7	
			Reforestation	8250	0.0000	0.0000	0.000		0.0010	0.0	
			Pasture	8250	0.0160	2.2330	0.001		0.0100	2.9	
			Crop	8250	0.0160	2.2330	0.195	1.000	0.0660	0.3	
Others		0.0000	0.0000	0.108							

Table-A4.14 Future Soil Loss from Iguacu River Basin with Master Plan (8/8)

No	Municipality	Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-terr. L factor	Area Fraction of Landuse	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha.yr)	Regional contribution
157	Veré	340.9	11069	0.0000	0.0000	21			9.8	0.061
			11069	0.0000	0.0000	0.000		0.0001	0.0	
			11069	0.1510	1.9043	0.148		0.0030	9.5	
			11069	0.0000	0.0000	0.000		0.0010	0.0	
			11069	0.0884	2.4678	0.296		0.0100	24.2	
			11069	0.0302	2.7210	0.543	1.000	0.1329	1.7	
				0.0000	0.0000	0.013				
147	Viamound	198.4	9063	0.0000	0.0000	20			8.1	0.030
			9063	0.0470	1.6890	0.001		0.0001	0.1	
			9063	0.0786	1.7405	0.286		0.0030	3.7	
			9063	0.0000	0.0000	0.000		0.0010	0.0	
			9063	0.1510	1.9040	0.254		0.0100	26.1	
			9063	0.0273	2.2221	0.459	1.000	0.1078	1.0	
				0.0000	0.0000	0.000				
153	Vitorino	270.2	11472	0.0000	0.0000	21			1.8	0.009
			11472	0.0470	1.6890	0.002		0.0001	0.1	
			11472	0.0185	2.1828	0.292		0.0030	1.4	
			11472	0.0000	0.0000	0.000		0.0010	0.0	
			11472	0.0160	2.2330	0.091		0.0100	4.1	
				0.0205	2.5806	0.443	1.000	0.1708	1.5	
				0.0000	0.0000	0.172				
		Total =	53,405.1					Average =	4.0	

Assumptions:

- (1) L factor for terraced cropland = 1.27 (assuming avg. terrace distance = 36m, slope = 8%)
- (2) P factor for non-cropland = 1.00
- (3) P factor for storage terraces = 0.05 (RUSLE, to compute sediment delivery)
- (4) P factor for contour on terraced cropland = 0.60 (RUSLE, assuming planting row ridges about 5 cm high)
- (5) P factor for non-terraced cropland = 0.80 (RUSLE, assuming planting across water flow, not on contour)

Note: Total area\* of each municipality = Total Area of Municipality within Iguacu River Basin - Area of Others in the Landuse Classification  
 Abbreviation: Avg. non-terr. L factor: L factor for non-terraced land  
 Source: ESPAR database (Roloff, 1995) for KS and C Factors

Table-A4.15 Future Soil Loss from Tibagi River Basin with Master Plan (1/4)

100 % application of terracing to crop land and 50 % application of non tillage to beans, maize and soybean field

No	Municipality		Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-ten. 1 factor	Area of Landuse (km <sup>2</sup> )	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
T-22	Apucarana		182.2	7918	0.0000	0.0000	182.2			2.2	0.0159
		Forest		7918	0.1510	1.9040	31.8		0.0001	0.2	
		2nd vegetation		7918	0.0645	2.6802	75.6		0.0030	4.1	
		Reforestation		7918	0.0000	0.0000	0		0.0010	0.0	
		Pasture		7918	0.0330	2.9670	0.1		0.0100	7.8	
		Crop		7918	0.0261	3.2187	74.7	1.000	0.1226	1.0	
		Others		7918	0.0000	0.0000	0				
T-23	Ataopongas		189.9	7918	0.0000	0.0000	191.9			1.5	0.0113
		Forest		7918	0.0591	2.7323	24		0.0001	0.1	
		2nd vegetation		7918	0.0330	2.9670	67.3		0.0030	2.3	
		Reforestation		7918	0.0000	0.0000	0		0.0010	0.0	
		Pasture		7918	0.0330	2.9670	4.6		0.0100	7.8	
		Crop		7918	0.0187	3.4365	94	1.000	0.1585	0.9	
		Others		7918	0.0000	0.0000	2				
T-31	Assal		437.1	9045	0.0000	0.0000	450.5			2.2	0.0390
		Forest		9045	0.1510	1.9040	0.3		0.0001	0.3	
		2nd vegetation		9045	0.1510	1.9040	33.9		0.0030	7.8	
		Reforestation		9045	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9045	0.0310	3.3544	39.8		0.0100	9.4	
		Crop		9045	0.0180	3.5120	363.1	1.000	0.1435	0.9	
		Others		9045	0.0000	0.0000	13.4				
T-21	California		97.2	9611	0.0000	0.0000	97.2			1.5	0.0058
		Forest		9611	0.1484	1.9274	22.7		0.0001	0.3	
		2nd vegetation		9611	0.0270	3.1841	43.7		0.0030	2.6	
		Reforestation		9611	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9611	0.0180	3.5120	1.3		0.0100	6.1	
		Crop		9611	0.0180	3.5120	24.5	1.000	0.0547	0.4	
		Others		9611	0.0000	0.0000	0				
T-38	Cambe		143.5	8128	0.0000	0.0000	143.5			1.1	0.0064
		Forest		8128	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		8128	0.0221	3.3633	50.2		0.0030	1.8	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0000	0.0000	0		0.0100	0.0	
		Crop		8128	0.0130	3.5120	93.3	1.000	0.1300	0.7	
		Others		8128	0.0000	0.0000	0				
T-8	Castro		2,275.1	5771	0.0000	0.0000	2,278.4			2.0	0.1825
		Forest		5771	0.1780	1.6670	54.6		0.0001	0.2	
		2nd vegetation		5771	0.1352	1.6743	734.7		0.0030	3.9	
		Reforestation		5771	0.1780	1.6670	20.7		0.0010	1.7	
		Pasture		5771	0.0178	1.8644	725.7		0.0100	1.9	
		Crop		5771	0.0270	2.0592	739.4	1.000	0.0429	0.3	
		Others		5771	0.0000	0.0000	3.3				
T-28	Congonhinhas		104.6	7650	0.0000	0.0000	104.6			2.3	0.0097
		Forest		7650	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		7650	0.1490	1.6480	6.7		0.0030	5.6	
		Reforestation		7650	0.0000	0.0000	0		0.0010	0.0	
		Pasture		7650	0.0465	2.0836	17.9		0.0100	7.4	
		Crop		7650	0.0229	3.1654	80	1.000	0.1272	0.8	
		Others		7650	0.0000	0.0000	0				
T-33	Cornelio Procopio		330.9	7650	0.0000	0.0000	336.7			7.4	0.0999
		Forest		7650	0.1510	1.9040	2.6		0.0001	0.2	
		2nd vegetation		7650	0.1510	1.9040	49.2		0.0030	6.6	
		Reforestation		7650	0.0000	0.0000	0		0.0010	0.0	
		Pasture		7650	0.0869	2.6788	112.9		0.0100	17.8	
		Crop		7650	0.0180	3.5120	166.2	1.000	0.1443	0.8	
		Others		7650	0.0000	0.0000	5.8				
T-16	Curitiba		361.0	7129	0.0000	0.0000	361.8			1.2	0.0169
		Forest		7129	0.0564	1.8716	9.6		0.0001	0.1	
		2nd vegetation		7129	0.0160	2.2130	89.4		0.0030	0.8	
		Reforestation		7129	0.0160	2.2130	74.9		0.0010	0.3	
		Pasture		7129	0.0216	2.3141	59.9		0.0100	3.6	
		Crop		7129	0.0502	2.8432	127.2	1.000	0.0659	0.9	
		Others		7129	0.0000	0.0000	0.8				
T-36	Ibipora		283.4	9045	0.0000	0.0000	285.4			2.8	0.0324
		Forest		9045	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		9045	0.0833	2.7224	94.7		0.0030	6.2	
		Reforestation		9045	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9045	0.0180	3.5120	3.1		0.0100	5.7	
		Crop		9045	0.0130	3.5120	185.6	1.000	0.1729	1.1	
		Others		9045	0.0000	0.0000	12				
T-5	Imbituva		611.3	6793	0.0000	0.0000	611.3			0.9	0.0292
		Forest		6793	0.1501	1.7185	109.4		0.0001	0.2	
		2nd vegetation		6793	0.0331	2.1810	391.2		0.0030	1.5	
		Reforestation		6793	0.0330	2.0043	67.5		0.0010	0.5	
		Pasture		6793	0.0160	2.2130	5.8		0.0100	2.4	
		Crop		6793	0.0160	2.2130	237.4	1.000	0.0775	0.3	
		Others		6793	0.0000	0.0000	0				
T-6	Ipiranga		932.0	6556	0.0000	0.0000	932			1.0	0.0360
		Forest		6556	0.1039	1.7077	71		0.0001	0.1	
		2nd vegetation		6556	0.0258	1.8084	384.5		0.0030	1.1	
		Reforestation		6556	0.1387	1.6729	77.8		0.0010	1.5	
		Pasture		6556	0.0170	2.0240	89		0.0100	2.3	
		Crop		6556	0.0317	2.1832	310.7	1.000	0.0634	0.5	
		Others		6556	0.0000	0.0000	0				
T-4	Iral		133.7	6793	0.0000	0.0000	139.6			2.1	0.0115
		Forest		6793	0.1510	1.6810	2		0.0001	0.2	
		2nd vegetation		6793	0.1247	1.8705	53.5		0.0030	4.6	
		Reforestation		6793	0.1510	1.6810	2		0.0010	1.7	
		Pasture		6793	0.0000	0.0000	0		0.0100	0.0	
		Crop		6793	0.0160	2.2130	76.2	1.000	0.0795	0.3	
		Others		6793	0.0000	0.0000	5.9				

Table-A4.15 Future Soil Loss from Tibagi River Basin with Master Plan (2/4)

No	Municipality		Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-ter. L factor	Area of Landuse (km <sup>2</sup> )	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
T-9	Ivaí		212.2	6793	0.0000	0.0000	212.2			2.0	0.0172
		Forest		6793	0.1510	1.6310	9.3		0.0001	0.2	
		2nd vegetation		6793	0.0793	1.9999	113.5		0.0030	3.2	
		Reforestation		6793	0.0000	0.0000	0		0.0010	0.0	
		Pasture		6793	0.0160	2.2130	12.9		0.0100	2.4	
		Crop		6793	0.0191	2.3520	76.5	1.000	0.0670	0.3	
		Others			0.0000	0.0000	0				
T-35	Jataizinho		185.5	9045	0.0000	0.0000	199.1			11.2	0.0347
		Forest		9045	0.1510	1.9040	0.8		0.0001	0.3	
		2nd vegetation		9045	0.1510	1.9040	6.4		0.0030	7.8	
		Reforestation		9045	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9045	0.1510	1.9040	71.7		0.0100	26.0	
		Crop		9045	0.0379	3.2714	107.6	1.000	0.1236	1.6	
		Others			0.0000	0.0000	12.6				
T-41	Leópolis		68.9	9045	0.0000	0.0000	68.9			7.3	0.0265
		Forest		9045	0.1510	1.9040	0.5		0.0001	0.3	
		2nd vegetation		9045	0.1510	1.9040	5		0.0030	7.8	
		Reforestation		9045	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9045	0.1510	1.9040	7.9		0.0100	26.0	
		Crop		9045	0.1170	2.3154	55.5	1.000	0.1169	4.7	
		Others			0.0000	0.0000	0				
T-24	Londrina		2,044.8	8128	0.0000	0.0000	2095.6			2.8	0.2338
		Forest		8128	0.1505	1.6567	129		0.0001	0.2	
		2nd vegetation		8128	0.0747	2.2269	241.8		0.0030	4.1	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0210	3.4029	310.3		0.0100	5.8	
		Crop		8128	0.0150	3.5120	772.7	1.000	0.1200	0.7	
		Others			0.0000	0.0000	50.8				
T-20	Marlândia do Sul		152.2	9611	0.0000	0.0000	152.2			2.3	0.0144
		Forest		9611	0.1510	1.9040	16		0.0001	0.3	
		2nd vegetation		9611	0.0937	2.3478	60.8		0.0030	4.0	
		Reforestation		9611	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9611	0.0330	2.9670	9.2		0.0100	9.4	
		Crop		9611	0.0265	3.2015	66.2	1.000	0.0289	0.3	
		Others			0.0000	0.0000	0				
T-19	Maua da Serra		48.0	9370	0.0000	0.0000	48			6.6	0.0178
		Forest		9370	0.1010	1.6379	5.1		0.0001	0.2	
		2nd vegetation		9370	0.1317	1.8603	21.5		0.0030	6.9	
		Reforestation		9370	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9370	0.0822	2.0615	10.4		0.0100	15.9	
		Crop		9370	0.0165	2.2336	11	1.000	0.0208	0.1	
		Others			0.0000	0.0000	0				
T-32	Nova America da Colina		133.3	8128	0.0000	0.0000	133.3			6.5	0.0351
		Forest		8128	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		8128	0.1510	1.9040	10.7		0.0030	7.6	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.1111	2.3559	33.7		0.0100	21.6	
		Crop		8128	0.0180	3.5120	88.9	1.000	0.1276	0.7	
		Others			0.0000	0.0000	0				
T-29	Nova Fatima		83.5	7650	0.0000	0.0000	83.5			8.9	0.0300
		Forest		7650	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		7650	0.1510	1.9040	7.1		0.0030	6.6	
		Reforestation		7650	0.0000	0.0000	0		0.0010	0.0	
		Pasture		7650	0.1510	1.9040	26.1		0.0100	22.0	
		Crop		7650	0.0544	2.9058	50.3	1.000	0.1487	2.4	
		Others			0.0000	0.0000	0				
T-25	Nova Santa Barbara		112.2	8128	0.0000	0.0000	112.2			1.6	0.0075
		Forest		8128	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		8128	0.0967	2.7622	5.7		0.0030	2.5	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0330	2.9670	5.8		0.0100	8.0	
		Crop		8128	0.0235	3.3134	100.7	1.000	0.1697	1.2	
		Others			0.0000	0.0000	0				
T-16	Ortigueira		1,580.3	7129	0.0000	0.0000	1,580.5			5.0	0.3175
		Forest		7129	0.1780	1.6670	6.3		0.0001	0.2	
		2nd vegetation		7129	0.1430	1.6480	50.8		0.0030	5.3	
		Reforestation		7129	0.1552	1.6521	138.7		0.0010	1.8	
		Pasture		7129	0.1259	1.8175	271.6		0.0100	16.3	
		Crop		7129	0.0349	2.4606	656.7	1.000	0.0762	0.7	
		Others			0.0000	0.0000	8.2				
T-2	Palmeira		1,224.8	6556	0.0000	0.0000	1,227.4			1.8	0.0896
		Forest		6556	0.1780	1.6670	11.6		0.0001	0.2	
		2nd vegetation		6556	0.0926	1.6994	401.4		0.0030	3.1	
		Reforestation		6556	0.0960	1.5666	50.4		0.0010	1.0	
		Pasture		6556	0.0241	1.7269	208.7		0.0100	2.7	
		Crop		6556	0.0199	2.0026	562.7	1.000	0.1169	0.6	
		Others			0.0000	0.0000	2.6				
T-12	Pirai do Sul		962.3	7129	0.0000	0.0000	965.2			2.6	0.0930
		Forest		7129	0.1780	1.6670	19.2		0.0001	0.2	
		2nd vegetation		7129	0.1193	1.6920	285.1		0.0030	4.3	
		Reforestation		7129	0.1780	1.6670	10.5		0.0010	2.1	
		Pasture		7129	0.0172	1.9782	42.8		0.0100	2.4	
		Crop		7129	0.0445	2.3628	219.5	1.000	0.0555	0.7	
		Others			0.0000	0.0000	2.9				
T-7	Ponta Grossa		1,817.1	6556	0.0000	0.0000	1,870.8			1.2	0.0863
		Forest		6556	0.1780	1.6670	5.3		0.0001	0.2	
		2nd vegetation		6556	0.0456	1.7040	329.8		0.0030	1.5	
		Reforestation		6556	0.1050	1.5776	7.5		0.0010	1.1	
		Pasture		6556	0.0179	1.7665	580.6		0.0100	2.1	
		Crop		6556	0.0173	2.0594	826.4	1.000	0.0929	0.4	
		Others			0.0000	0.0000	53.7				



Table-A4.15 Future Soil Loss from Tibagi River Basin with Master Plan (3/4)

No	Municipality		Total Area* (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-terr. L factor	Area of Landuse (km <sup>2</sup> )	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
T-1	Porto Amazonas		53.8	6481	0.0000	0.0000	53.8			5.6	0.0144
		Forest		6481	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		6481	0.0931	1.6340	5.9		0.0030	3.1	
		Reforestation		6481	0.0000	0.0000	0		0.0010	0.0	
		Pasture		6481	0.1063	1.6578	27.8		0.0100	11.4	
		Crop		6481	0.0447	1.6750	20.1	1.000	0.0852	0.9	
		Others			0.0000	0.0000	0				
T-43	Primeiro de Maio		119.6	8726	0.0000	0.0000	142.8			1.7	0.0082
		Forest		8726	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		8726	0.0601	3.0035	23.4		0.0030	4.7	
		Reforestation		8726	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8726	0.0000	0.0000	0		0.0100	0.0	
		Crop		8726	0.0189	3.5120	65.2	1.000	0.1599	1.0	
		Others			0.0000	0.0000	23.2				
T-40	Rancho Alegre		151.0	8726	0.0000	0.0000	187.4			1.3	0.0082
		Forest		8726	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		8726	0.1510	1.9040	0.2		0.0030	7.5	
		Reforestation		8726	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8726	0.0000	0.0000	0		0.0100	0.0	
		Crop		8726	0.0266	3.4075	150.8	1.000	0.1507	1.3	
		Others			0.0000	0.0000	36.4				
T-10	Reserva		555.9	7129	0.0000	0.0000	555.9			2.5	0.0558
		Forest		7129	0.1049	1.7071	3.3		0.0001	0.1	
		2nd vegetation		7129	0.1510	1.9040	104		0.0030	6.1	
		Reforestation		7129	0.1068	1.7931	66.5		0.0010	1.4	
		Pasture		7129	0.0267	2.1477	136.4		0.0100	4.1	
		Crop		7129	0.0194	2.3534	245.7	1.000	0.0678	0.4	
		Others			0.0000	0.0000	0				
T-37	Rolandia		56.6	8128	0.0000	0.0000	57.4			1.1	0.0026
		Forest		8128	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		8128	0.0180	3.5120	19.8		0.0030	1.5	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0000	0.0000	0		0.0100	0.0	
		Crop		8128	0.0180	3.5120	36.6	1.000	0.1593	0.9	
		Others			0.0000	0.0000	0.8				
T-26	Santa Cecilia do Pavao		68.5	8128	0.0000	0.0000	68.5			2.0	0.0055
		Forest		8128	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		8128	0.0000	0.0000	0		0.0030	0.0	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0000	0.0000	0		0.0100	0.0	
		Crop		8128	0.0560	3.0447	68.5	1.000	0.1142	2.0	
		Others			0.0000	0.0000	0				
T-27	Santo Antonio do Paraíso		151.9	8128	0.0000	0.0000	151.9			2.7	0.0163
		Forest		8128	0.1490	1.6480	2		0.0001	0.2	
		2nd vegetation		8128	0.1490	1.6480	7.3		0.0030	6.0	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0349	2.6702	33.9		0.0100	7.6	
		Crop		8128	0.0241	3.2909	108.7	1.000	0.1262	0.9	
		Others			0.0000	0.0000	0				
T-18	Sao Jeronimo da Serra		846.9	8128	0.0000	0.0000	851.3			4.4	0.1499
		Forest		8128	0.1490	1.6480	8		0.0001	0.2	
		2nd vegetation		8128	0.1379	1.6503	100.7		0.0030	5.5	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0576	1.6930	136.9		0.0100	7.9	
		Crop		8128	0.0744	2.3382	601.3	1.000	0.1480	3.4	
		Others			0.0000	0.0000	4.4				
T-30	Sao Sebastiao da Amoreira		217.4	8128	0.0000	0.0000	217.4			1.5	0.0135
		Forest		8128	0.1377	2.0236	8		0.0001	0.2	
		2nd vegetation		8128	0.0254	3.2446	10.6		0.0030	2.0	
		Reforestation		8128	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8128	0.0180	3.5120	38.3		0.0100	5.1	
		Crop		8128	0.0180	3.5120	160.5	1.000	0.1274	0.7	
		Others			0.0000	0.0000	0				
T-17	Sapopema		531.9	7129	0.0000	0.0000	531.9			5.7	0.1220
		Forest		7129	0.1490	1.6480	50.7		0.0001	0.2	
		2nd vegetation		7129	0.1490	1.6480	161.2		0.0030	5.3	
		Reforestation		7129	0.0000	0.0000	0		0.0010	0.0	
		Pasture		7129	0.1490	1.6480	99.9		0.0100	17.5	
		Crop		7129	0.0844	2.2212	220.1	1.000	0.0800	1.8	
		Others			0.0000	0.0000	0				
T-42	Sertaneja		154.6	8726	0.0000	0.0000	226.7			0.9	0.0054
		Forest		8726	0.0180	3.5120	0.9		0.0001	0.1	
		2nd vegetation		8726	0.0180	3.5120	1.2		0.0030	1.7	
		Reforestation		8726	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8726	0.0000	0.0000	0		0.0100	0.0	
		Crop		8726	0.0180	3.5120	152.5	1.000	0.1444	0.9	
		Others			0.0000	0.0000	72.1				
T-39	Sertanópolis		466.1	8726	0.0000	0.0000	478.9			2.6	0.0458
		Forest		8726	0.1510	1.9040	6		0.0001	0.3	
		2nd vegetation		8726	0.0797	2.7590	140.4		0.0030	5.8	
		Reforestation		8726	0.0000	0.0000	0		0.0010	0.0	
		Pasture		8726	0.0180	3.5120	23.7		0.0100	5.5	
		Crop		8726	0.0180	3.5120	296	1.000	0.1629	1.0	
		Others			0.0000	0.0000	12.8				
T-3	Tesoura Soares		1303.5	6793	0.0000	0.0000	1303.5			0.6	0.0337
		Forest		6793	0.0382	1.7346	192.3		0.0001	0.0	
		2nd vegetation		6793	0.0175	1.8974	522.7		0.0030	0.7	
		Reforestation		6793	0.0180	1.7450	119.6		0.0010	0.2	
		Pasture		6793	0.0170	2.0240	61		0.0100	2.3	
		Crop		6793	0.0341	2.1765	407.9	1.000	0.0837	0.7	
		Others			0.0000	0.0000	0				

Table-A4.15 Future Soil Loss from Tibagi River Basin with Master Plan (4/4)

No	Municipality		Total Area (km <sup>2</sup> )	R Factor	Average KS factors	Avg non-terr. L factor	Area of Landuse (km <sup>2</sup> )	Terraced cropland (fraction)	Average C	USLE soil loss (t/ha yr)	Regional contribution
T-14	Telemaco Borba		1,583.7	7129	0.0000	0.0000	1625.3			0.9	0.0607
		Forest		7129	0.0000	0.0000	0		0.0001	0.0	
		2nd vegetation		7129	0.0510	2.8440	107.8		0.0030	3.1	
		Reforestation		7129	0.0343	1.9554	1331.2		0.0019	0.6	
		Pasture		7129	0.0510	2.8440	45.8		0.0100	10.3	
		Crop		7129	0.0167	2.3853	97.9	1.000	0.0724	0.3	
		Others			0.0000	0.0000	41.6				
T-11	Tibagi		2,896.5	7129	0.0000	0.0000	2928.6			2.3	0.2758
		Forest		7129	0.1780	1.6670	130.5		0.0001	0.2	
		2nd vegetation		7129	0.0652	1.7000	694.2		0.0030	3.1	
		Reforestation		7129	0.1712	1.6608	256.3		0.0010	2.0	
		Pasture		7129	0.0329	1.8468	758.9		0.0100	4.3	
		Crop		7129	0.0166	2.1142	856.6	1.000	0.0508	0.2	
		Others			0.0000	0.0000	30.1				
T-34	Ural		209.6	9045	0.0000	0.0000	209.6			5.2	0.0438
		Forest		9045	0.1510	1.9040	2.1		0.0001	0.3	
		2nd vegetation		9045	0.1510	1.9040	0.8		0.0030	7.8	
		Reforestation		9045	0.0000	0.0000	0		0.0010	0.0	
		Pasture		9045	0.1510	1.9040	25.3		0.0100	26.0	
		Crop		9045	0.0461	3.1725	161.4	1.000	0.1441	2.3	
		Others			0.0000	0.0000	0				
T-13	Ventania		380.1	7129	0.0000	0.0000	380.1			2.3	0.0350
		Forest		7129	0.1780	1.6670	12.2		0.0001	0.2	
		2nd vegetation		7129	0.1261	1.6632	65.1		0.0030	4.5	
		Reforestation		7129	0.1652	1.6737	68.5		0.0010	2.0	
		Pasture		7129	0.0328	1.9080	90.3		0.0100	4.5	
		Crop		7129	0.0168	2.0630	144	1.000	0.0489	0.2	
		Others			0.0000	0.0000	0				
		<b>Total =</b>	<b>24,656.6</b>				<b>25051</b>		<b>Average =</b>	<b>2.4</b>	

Assumptions:

- (1) L factor for terraced cropland = 1.27 (assuming avg. terrace distance = 36m, slope = 8%)
- (2) P factor for non-cropland = 1.00
- (3) P factor for storage terraces = 0.05 (RUSLE, to compute sediment delivery)
- (4) P factor for contour on terraced cropland = 0.60 (RUSLE, assuming plant row ridges about 5 cm high)
- (5) P factor for non-terraced cropland = 0.80 (RUSLE, assuming rows across water flow, not on contour)

Note: Total area\* of each municipality = Total Area of Municipality within Tibagi River Basin - Area of Others in the Landuse Classification  
 Abbreviation: Avg. non-terr. L factor: L factor for non-terraced land  
 Source: ESPAR database (Roloff, 1995) for KS and C Factors