

Programa Mananciais

Upper Tietê water sources urban and environmental sanitation
Urban context and Municipality of São Paulo actions and works
1994-2018

Prefeitura do Município de São Paulo

Secretaria Municipal de Habitação

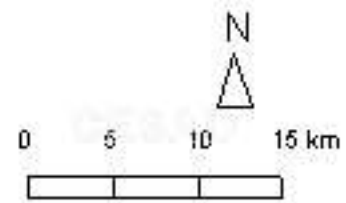
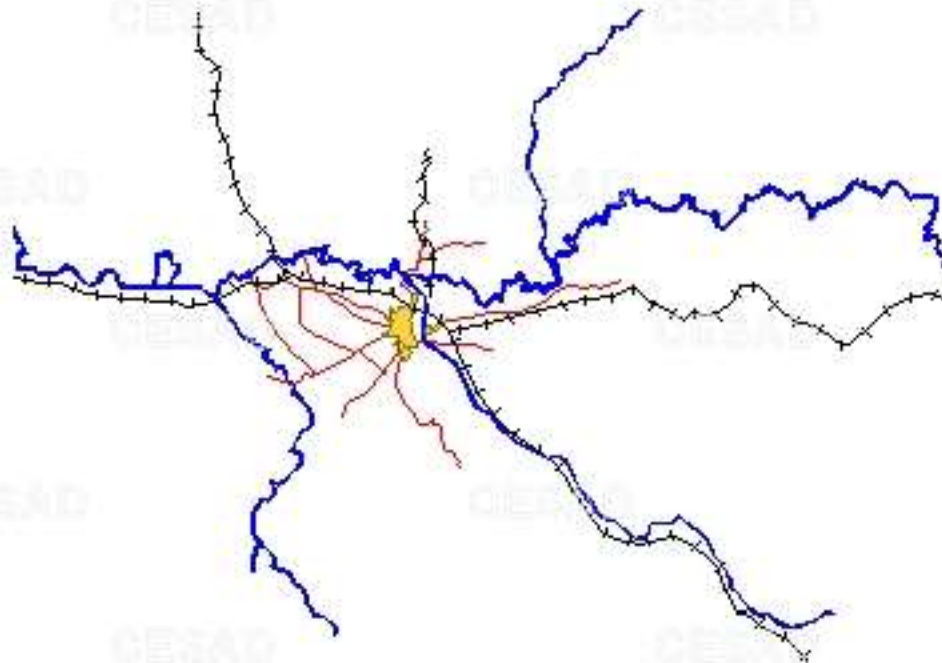
June, 2018

São Paulo metropolitan area growth and urban sprawl

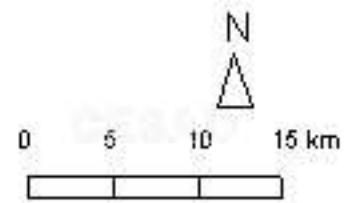
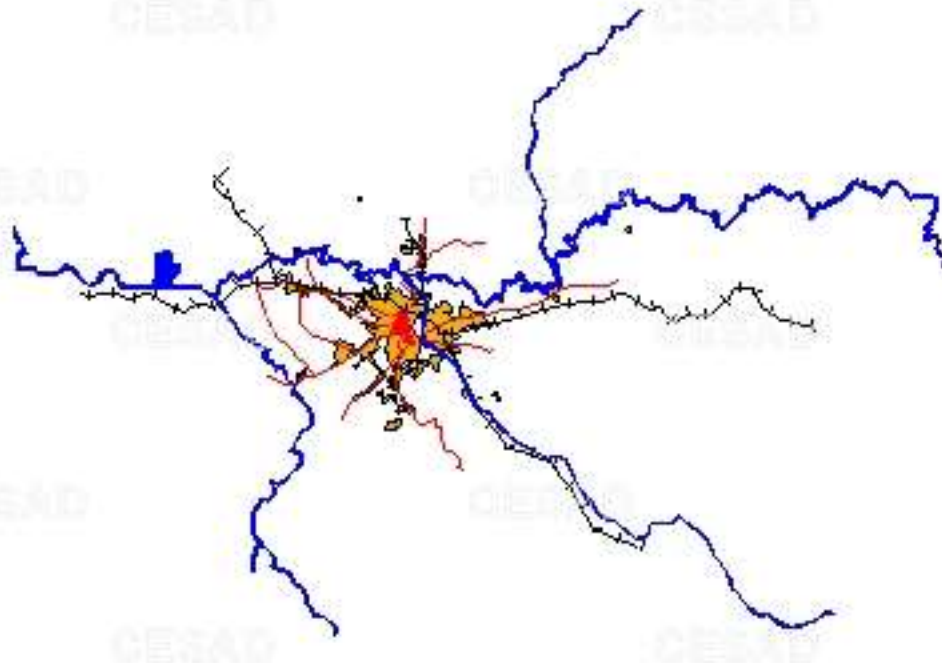


São Paulo Metropolitan Area facts:

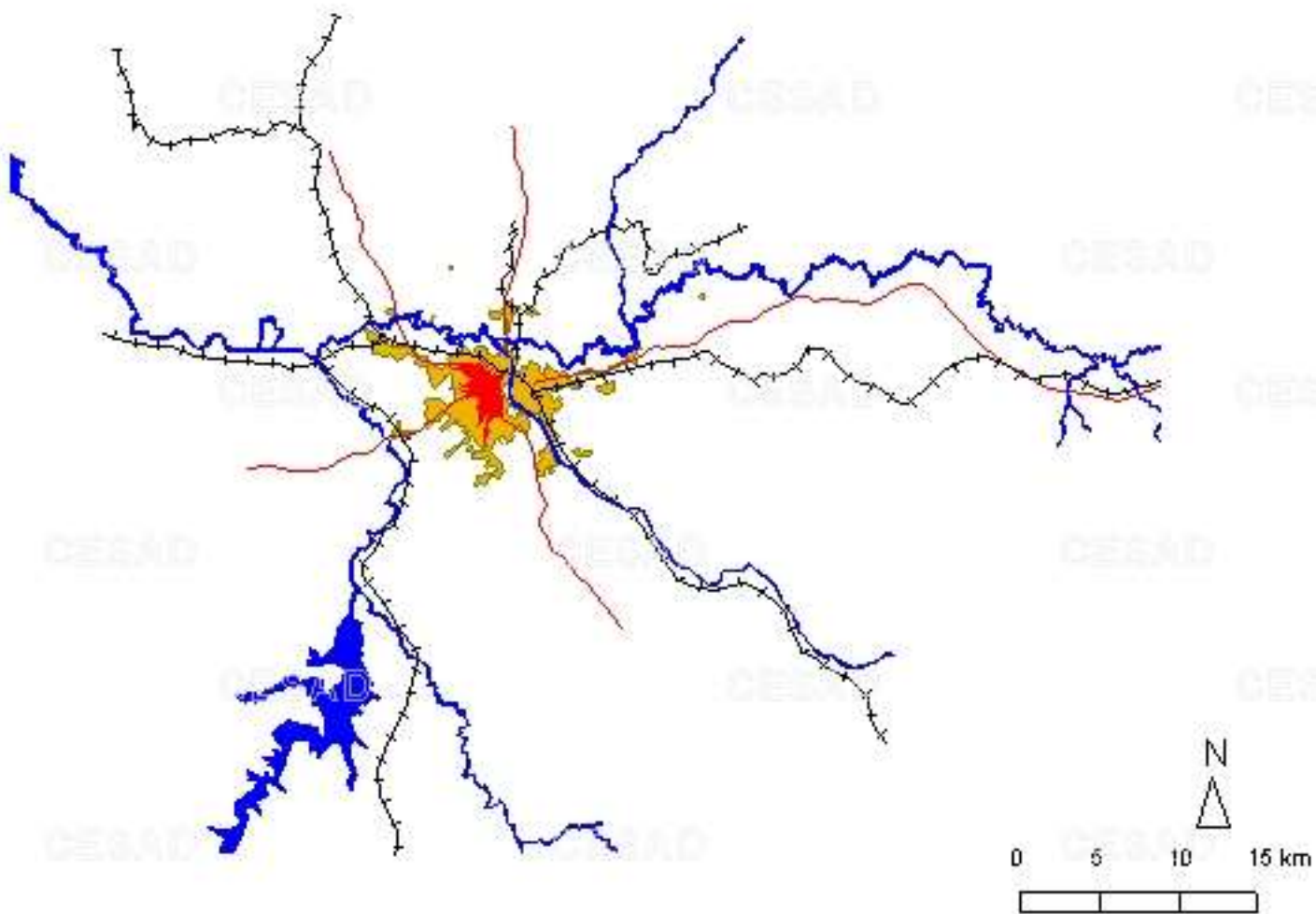
- 21.4 million inhabitants (2017) – 10% of Brazilian population;
- 39 municipalities;
- R\$ 1.1trillion GDP = ca. US\$ 350 billion (2015) – 18% of Brazil's GDP and 54% of São Paulo State GDP.



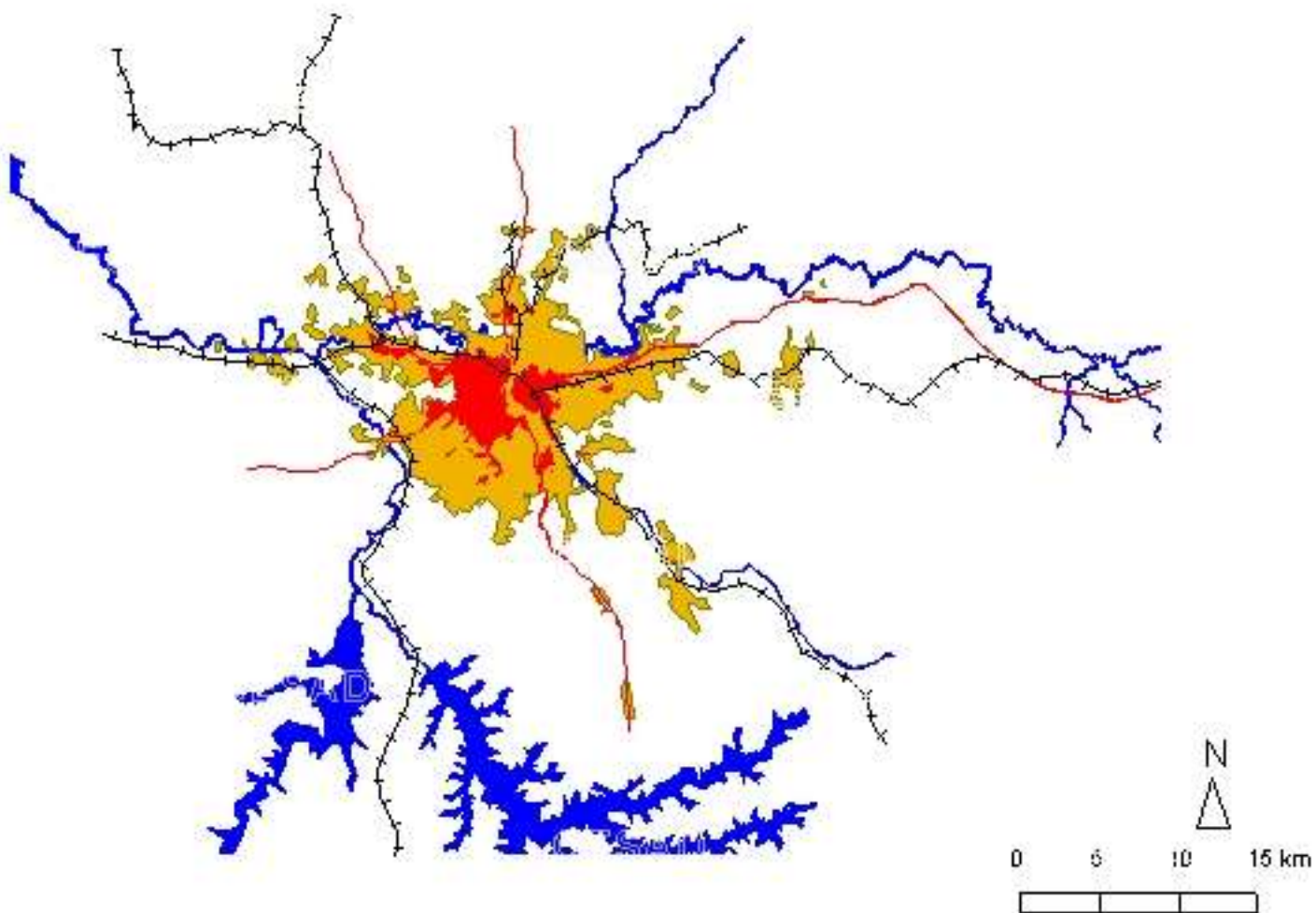
1881-1905



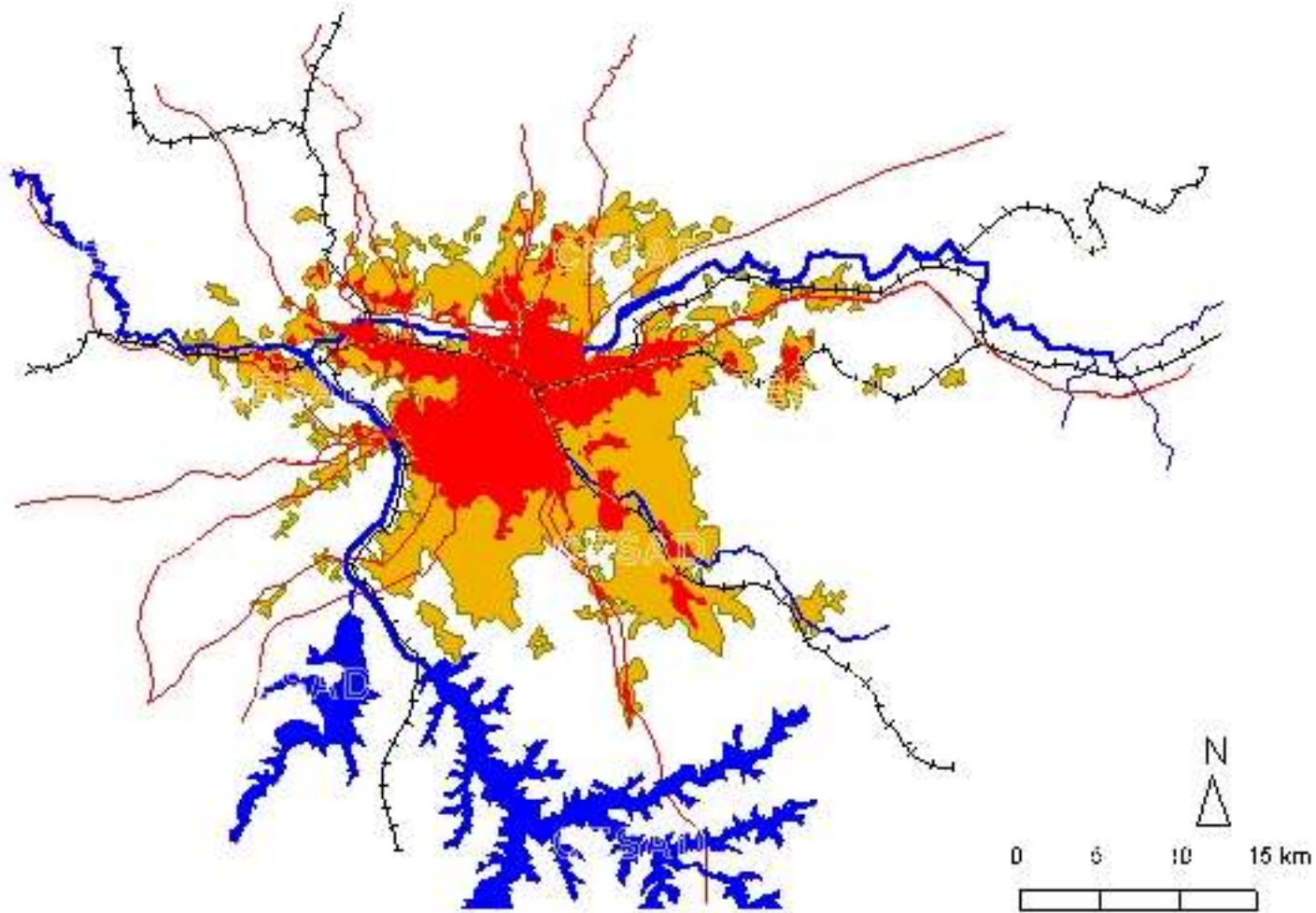
1905-1914



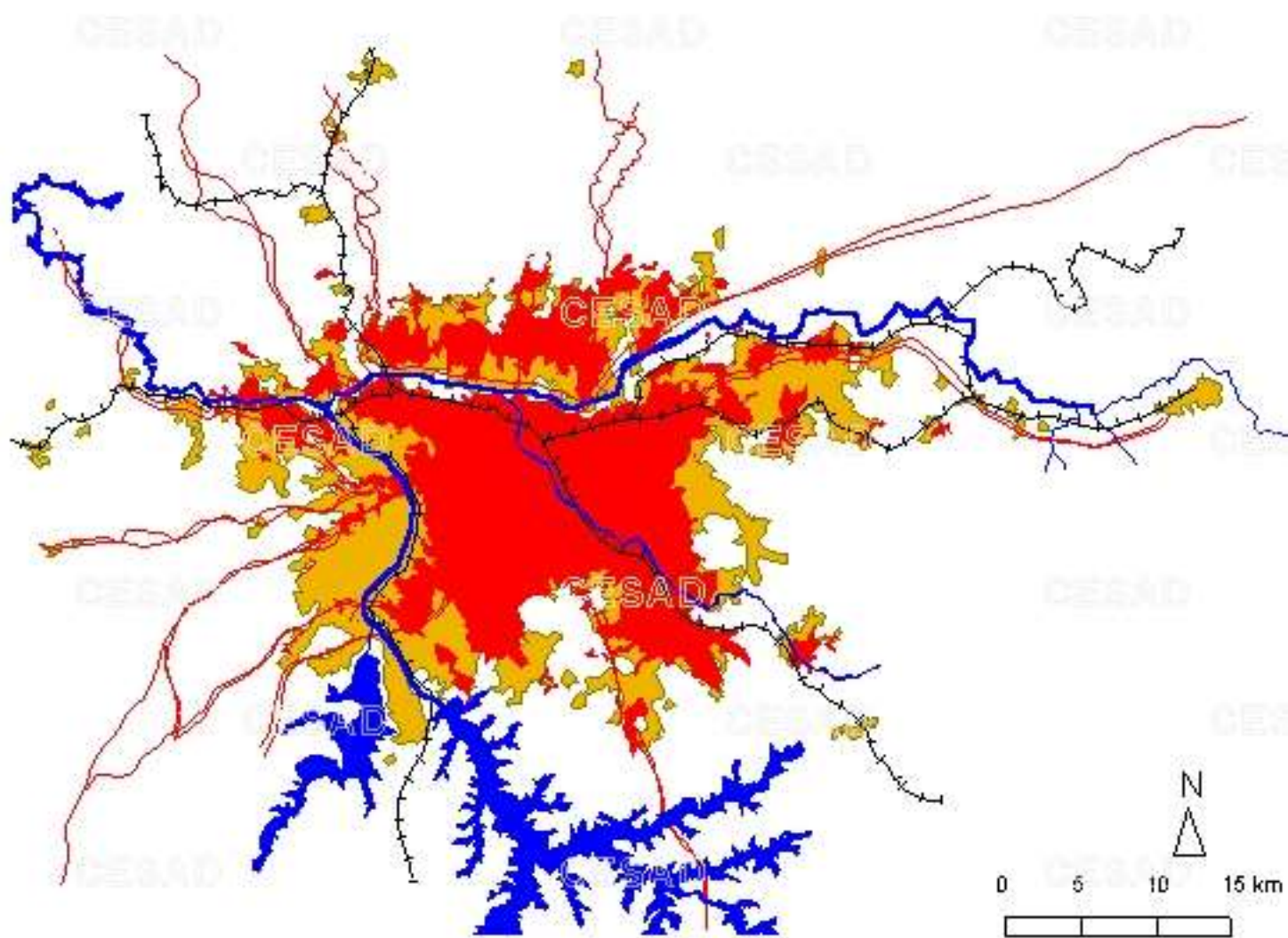
1914-1930



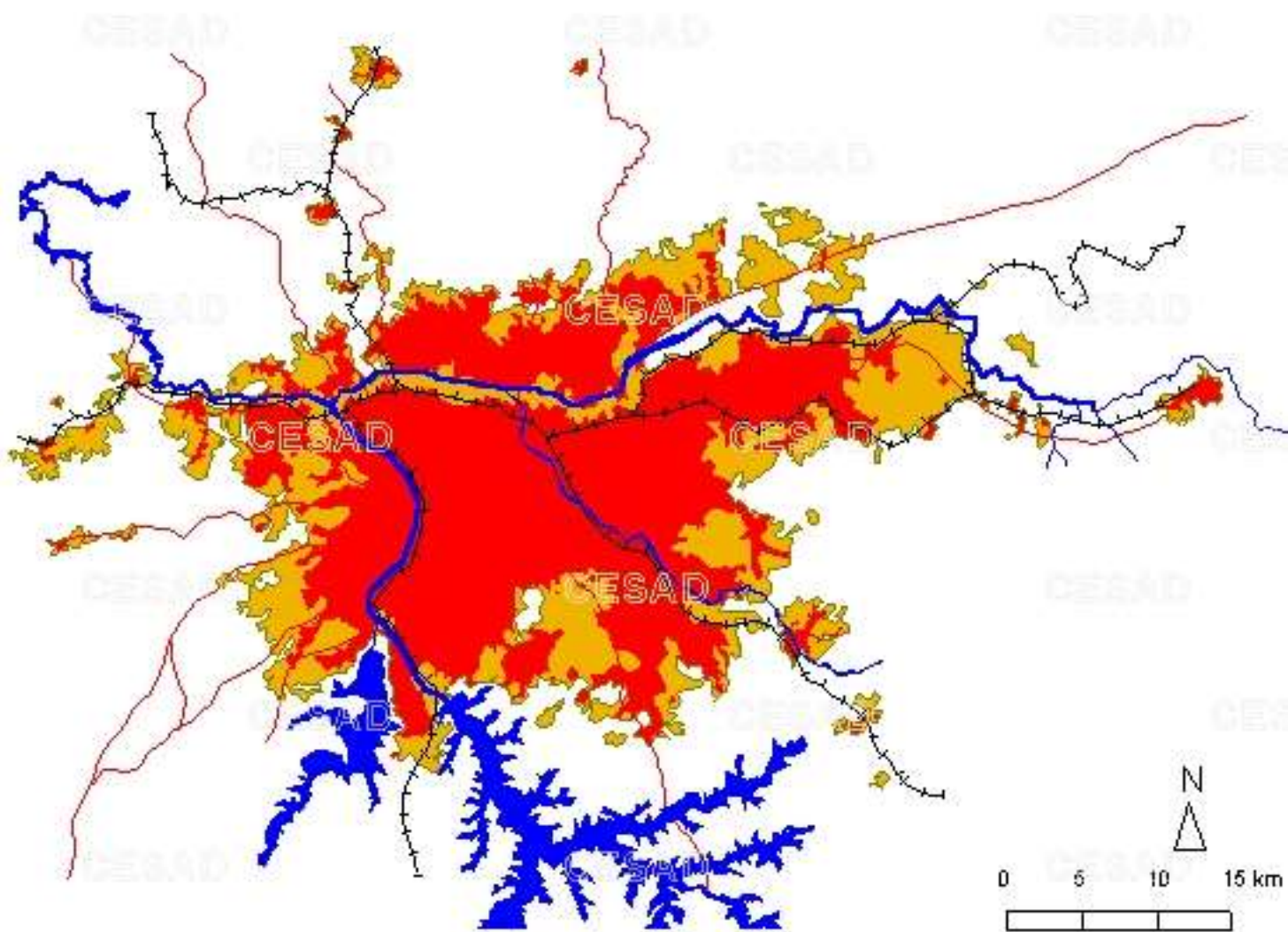
1930-1952



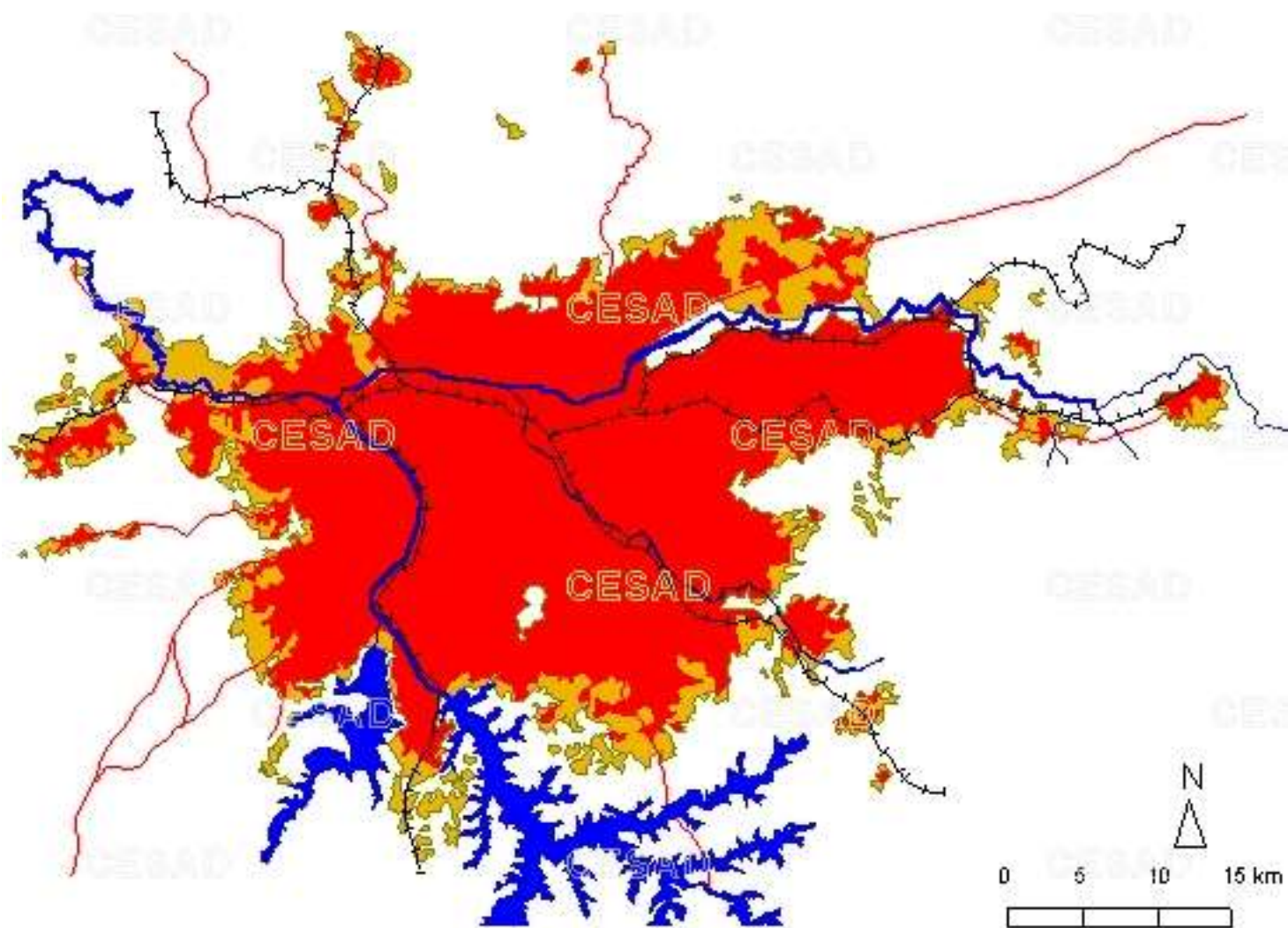
1952-1962



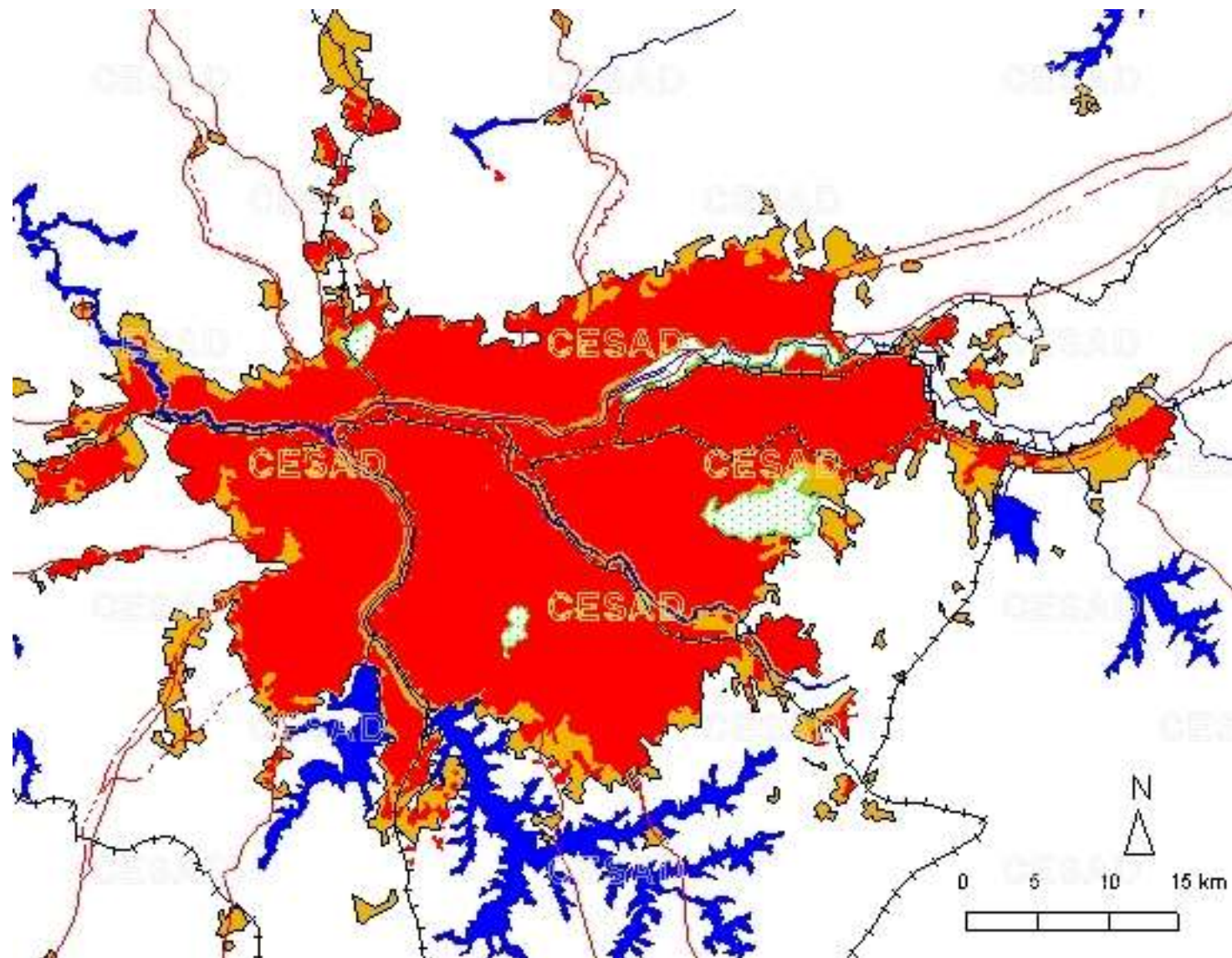
1962-1972



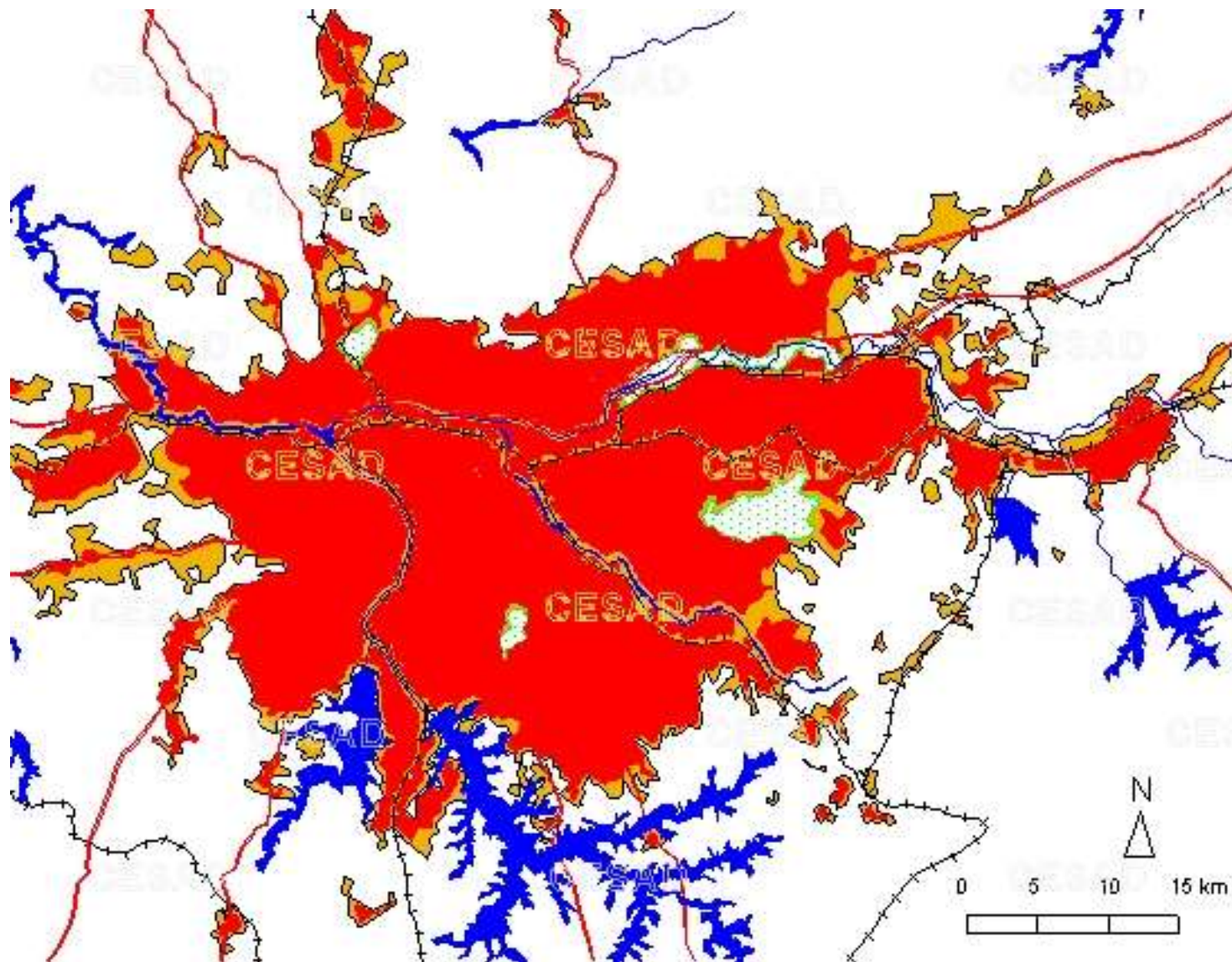
1972-1983



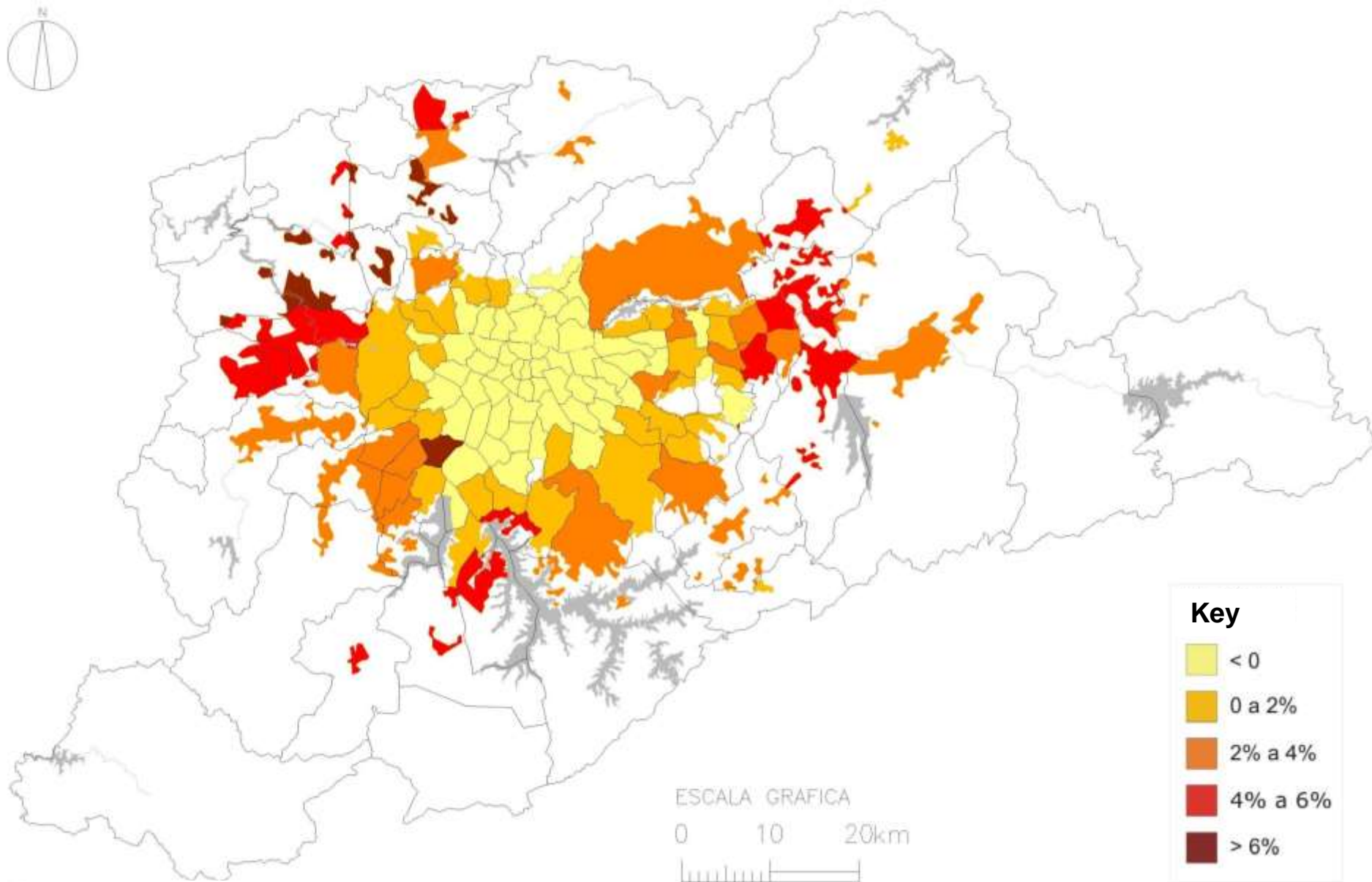
1983-1995



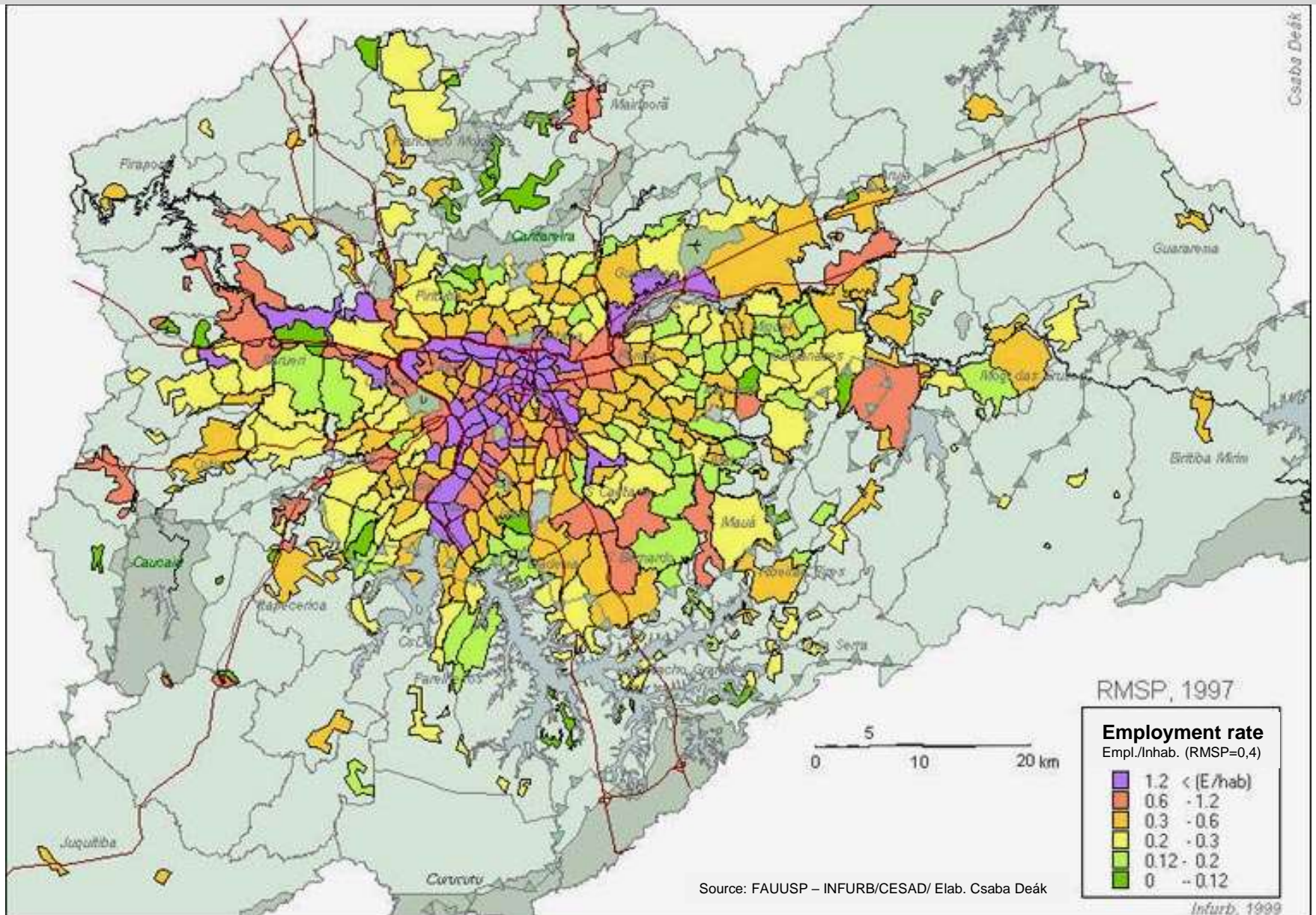
1995-2001



São Paulo metropolitan area Annual population growth geometrical rates per district – 1991-2000

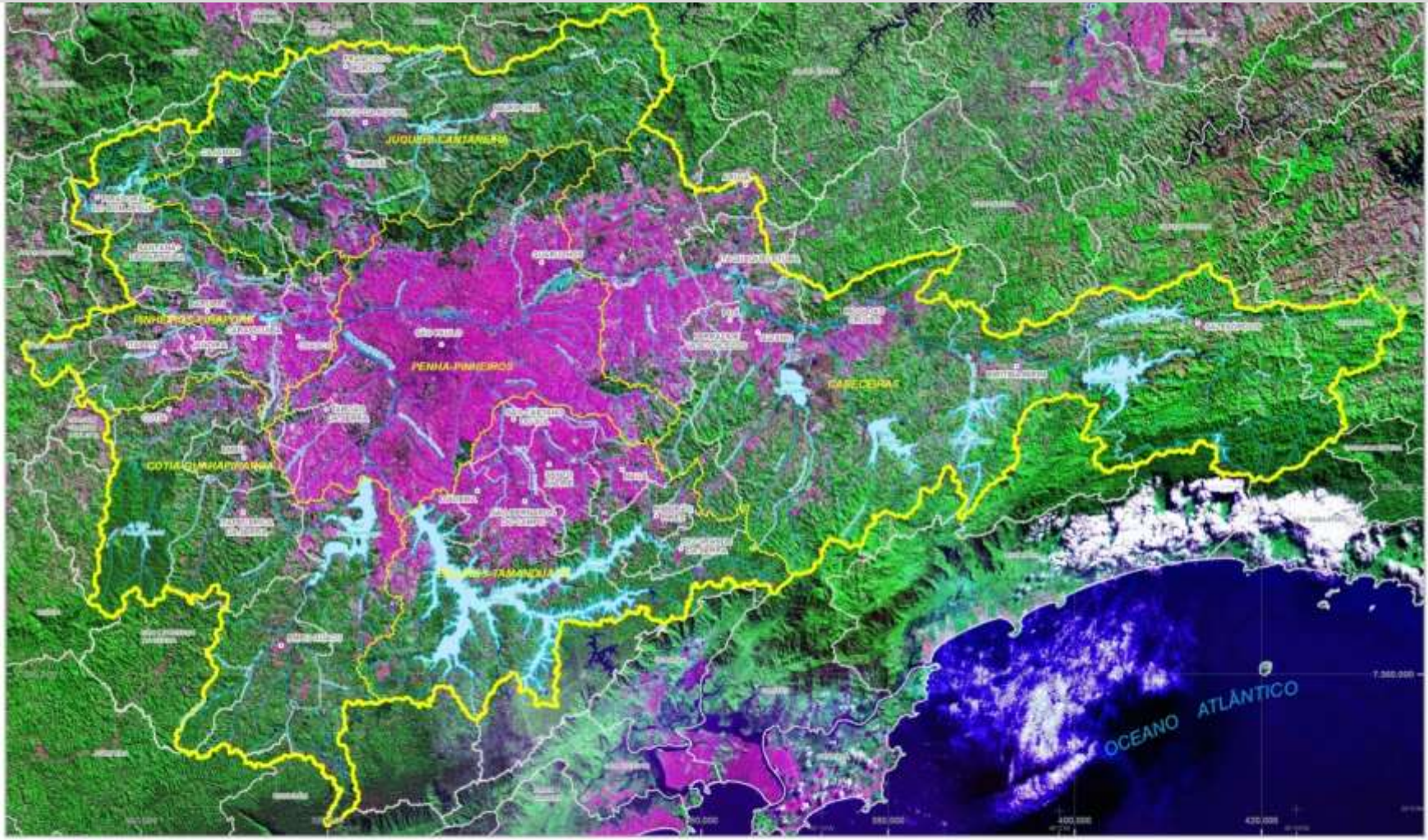


São Paulo metropolitan area Employment space distribution– 1997



São Paulo metropolitan area urban sprawl and environment

São Paulo metropolitan area
 Urban sprawl and environment
 Urban area vs. Upper Tietê river basin



- CONVENÇÕES**
- Rio
 - Corpo d'água
 - Círculo Municipal
 - Seta de Município
 - Seta de Região Hidrográfica do Alto Tietê
 - Seta de Sub-região Hidrográfica

FONTE:
 Base Cartográfica e Regiões Hidrográficas: Emplasa (Mapa de Uso e Ocupação do Solo, 2002).
 Imagens: Geocover - NASA, 2000.
 Linhas das Regiões Hidrográficas estabelecidas a partir da altimetria e hidrografia do Base Cartográfica Indicial.

SISTEMA DE PROJEÇÃO UTM
 Origem da grade métrica UTM: Equador e Meridiano 48° W (Dr. iniciadas no coordenadas de 10.000 e 500 Km respectivamente)
 DATUM HORIZONTAL: Corrego Alegre

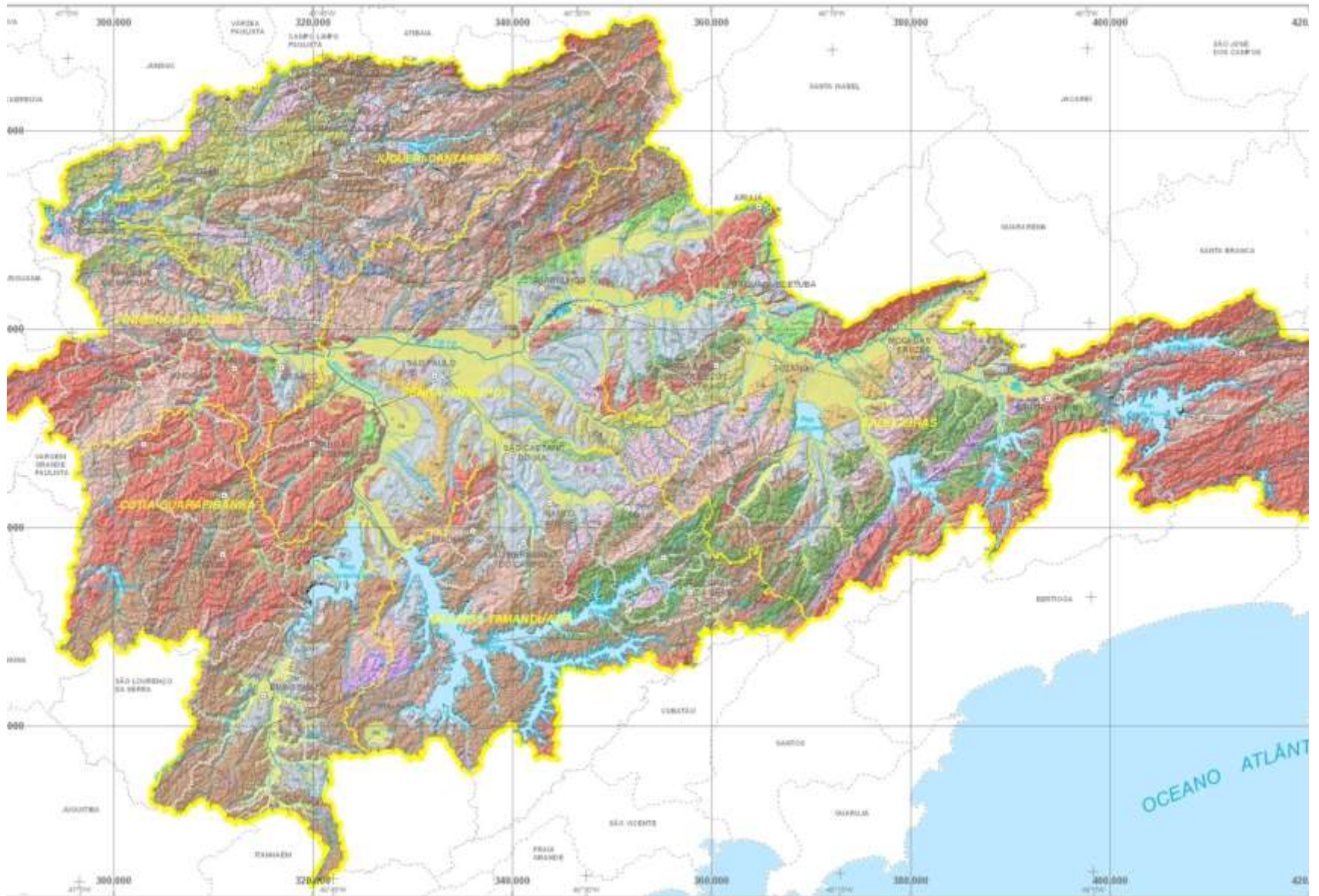
Escala: 1:400.000
 0 2.5 5 10 15 20 Km



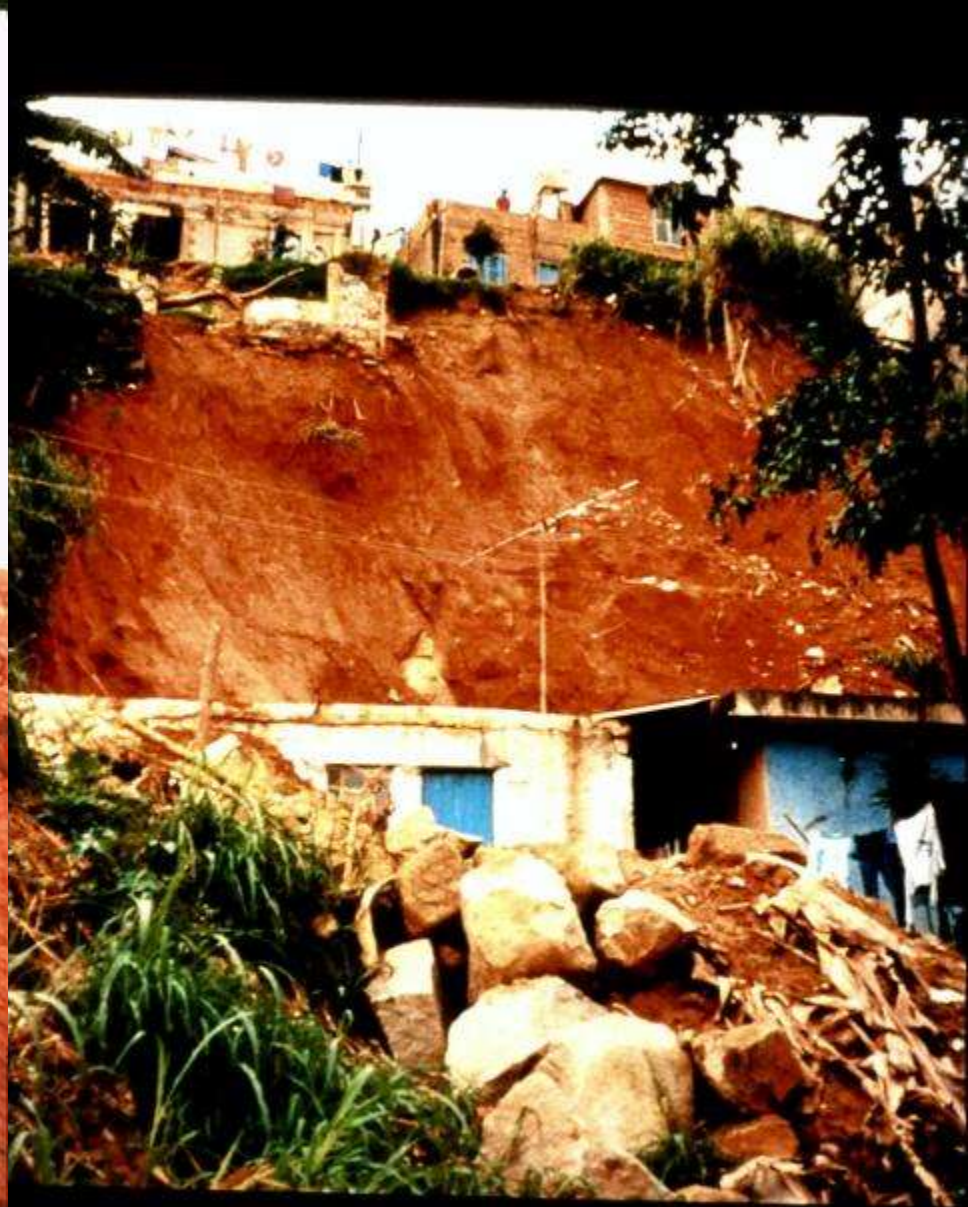
LEGENDA - BACIA HIDROGRÁFICA DO ALTO TIETÊ
 SUB-REGIÕES HIDROGRÁFICAS

Mapa 2.1.1

São Paulo metropolitan area
Urban sprawl and environment
Geologic map of Upper Tietê river basin

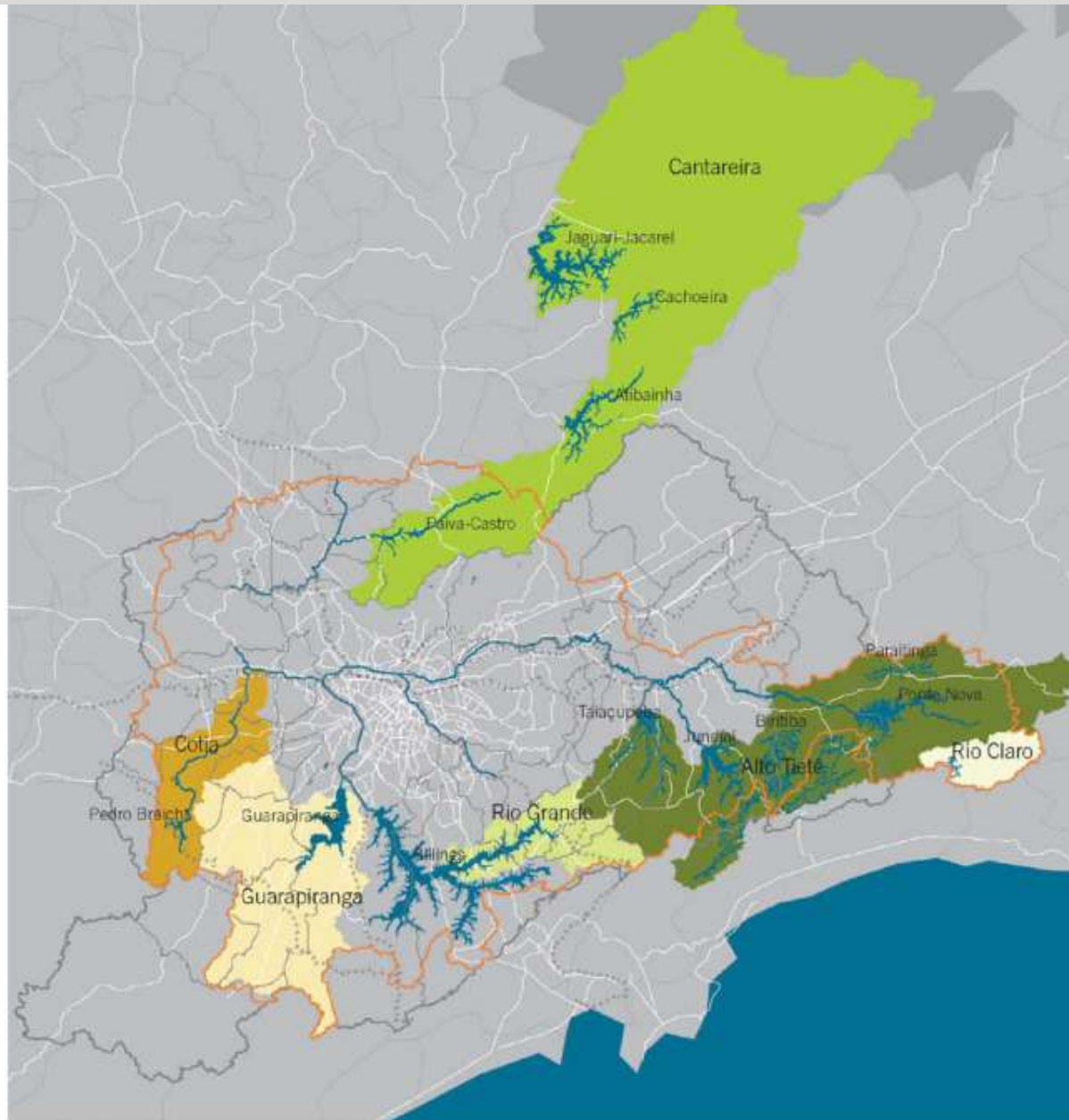








São Paulo metropolitan area Water sources and water producing systems



Public supply reservoirs

- Existing
- Proposed

Water supply systems (flows in m³/s in 1999)

- Alto Tietê (7,21 m³/s)
- Cantareira (33,12 m³/s)
- Cotia (2,29 m³/s)
- Guarapiranga (12,46 m³/s)
- Rio Claro (3,8 m³/s)
- Rio Grande (4,15 m³/s)
- Vazão Total (63,03 m³/s)**

Upper Tietê river basin limits

Main road system

■ Rivers, reservoirs & Ocean

São Paulo Metropolitan Area (RMSP) limits

Railroads

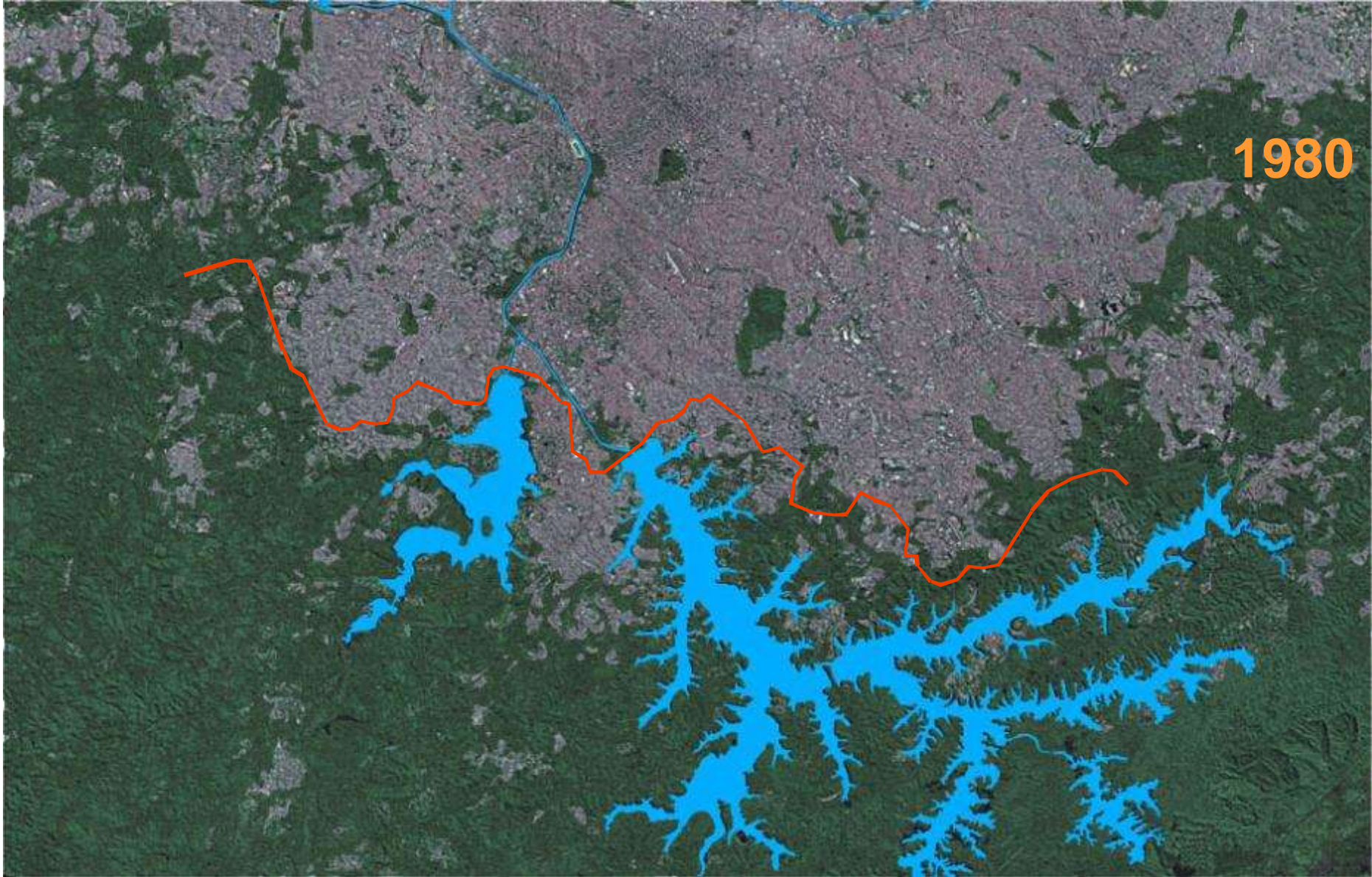
RMSP municipalities

FONTE:
Laboratório de Urbanismo da Metrópole - LUME

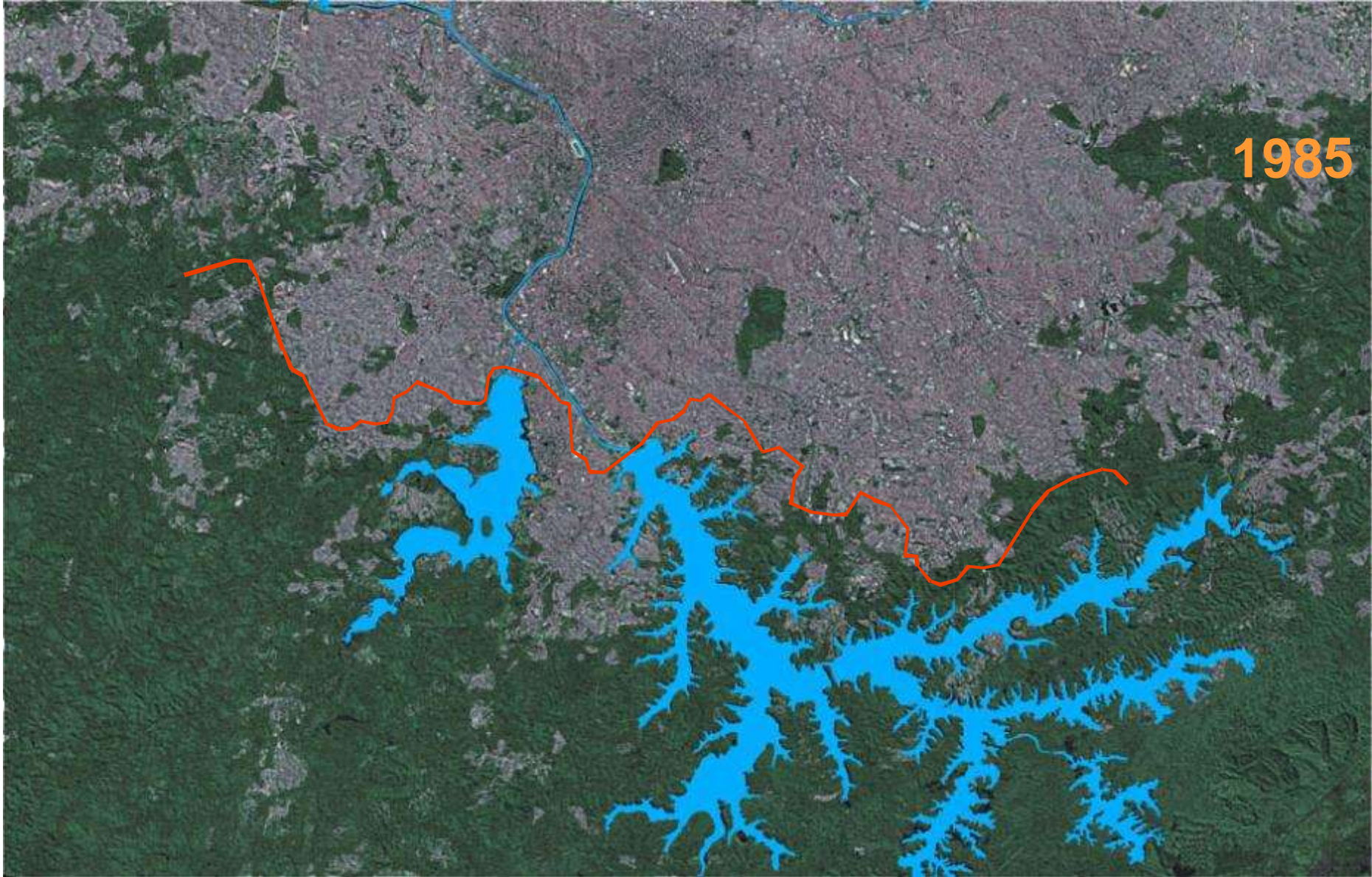
FONTE BÁSICAS:
divisão administrativa: LOGIT, s.d.; SÃO PAULO (ESTADO); EMPILASA, 1996;
sistema viário principal: LOGIT, s.d.; MAPCGRAPHY, 1996; OFPM 2000; SÃO
PAULO (ESTADO); STM, DERSA, PROTRAN, 2002;
Navegação: SÃO PAULO (ESTADO); STM, 1994; OFPM 2000;
Mapa: SÃO PAULO (ESTADO); EMPILASA, 1994; LOGIT, s.d.; LUME, 2002;
repositório de saneamento: SÃO PAULO (ESTADO); SMA, CETESB, 1999;
SÃO PAULO (ESTADO); EMPILASA, 1994; SÃO PAULO (ESTADO); SMA, 2001;
SÃO PAULO (ESTADO); FUR, 1995; SÃO PAULO; SMA, 1997; SFR, 2000;
sistemas produtivos: SÃO PAULO (ESTADO); SMA, CETESB, 1999; SÃO
PAULO (ESTADO); SMA, 2002; SÃO PAULO (ESTADO); FUR, 1994;
Tudo de Alto Tietê: SÃO PAULO (ESTADO); FURP, 1999.



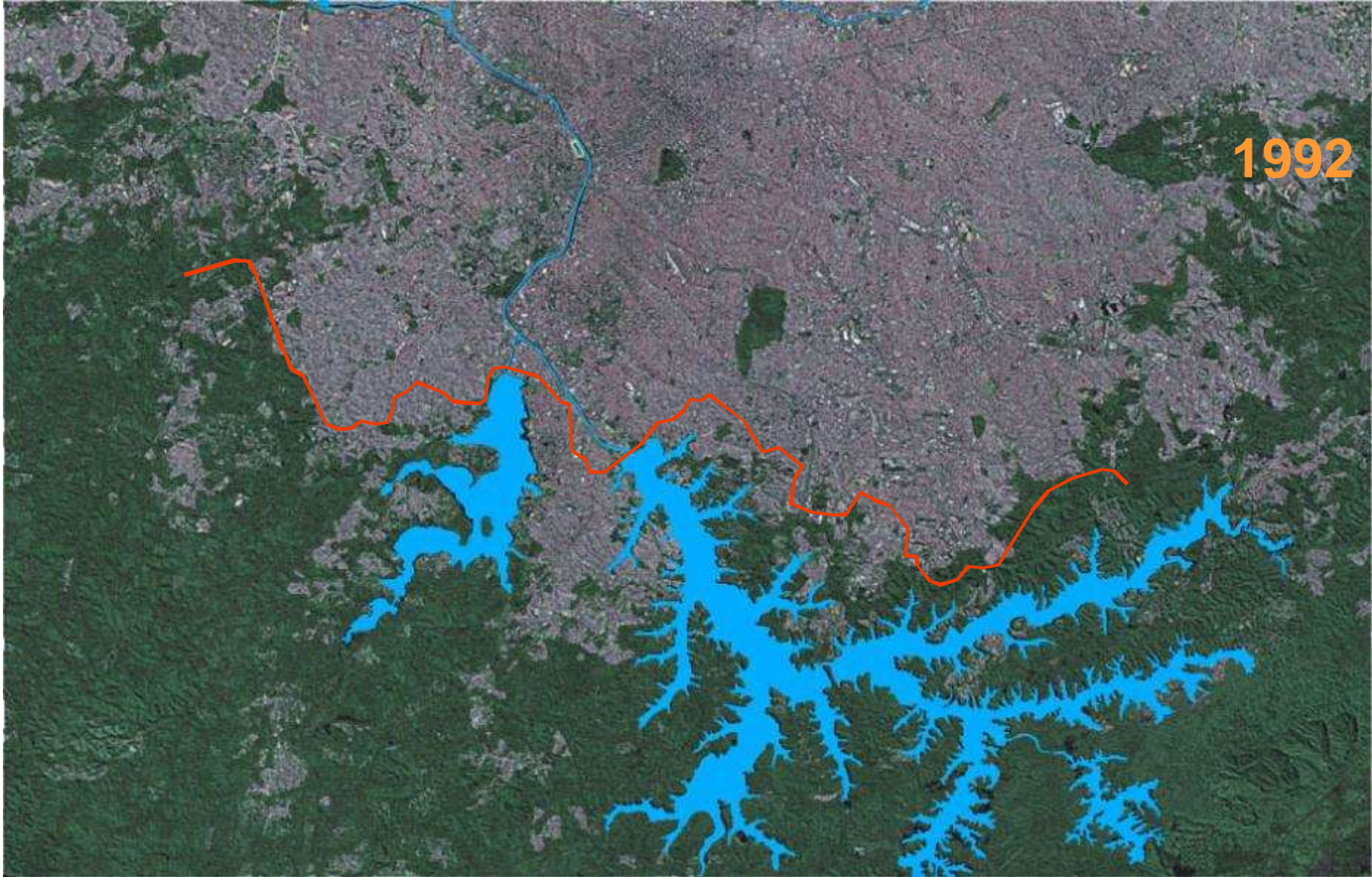
1980



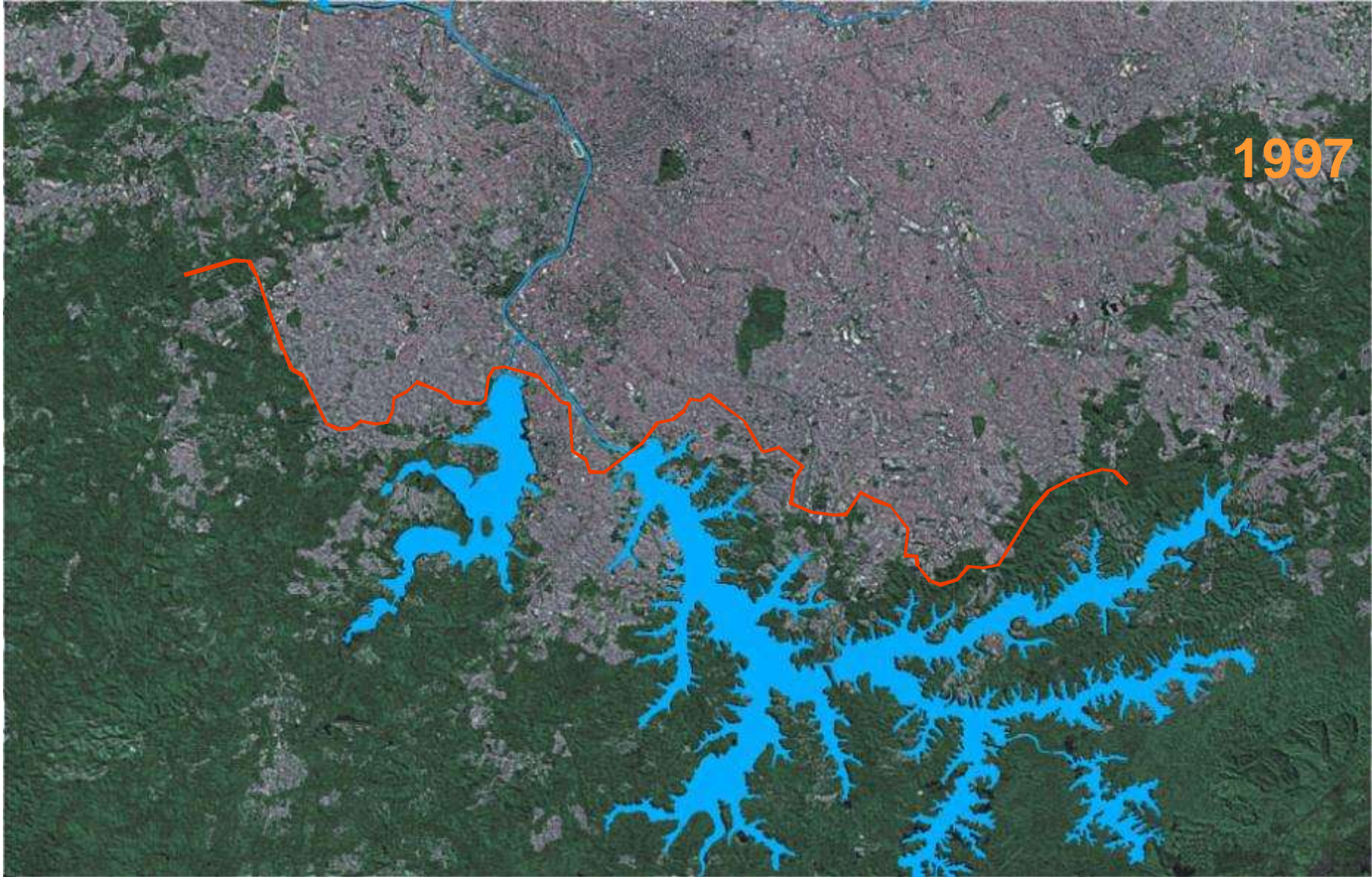
1985



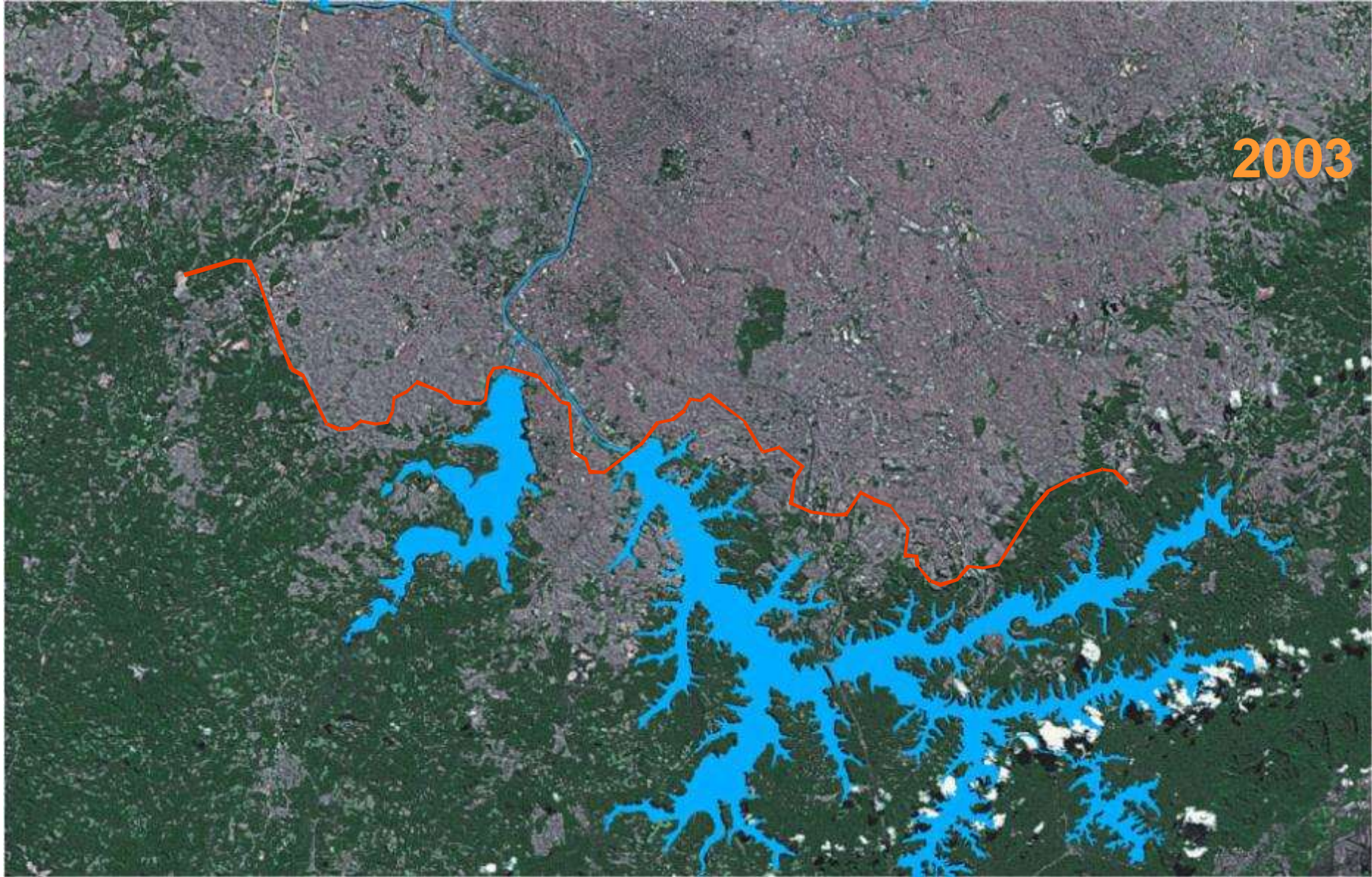
1992

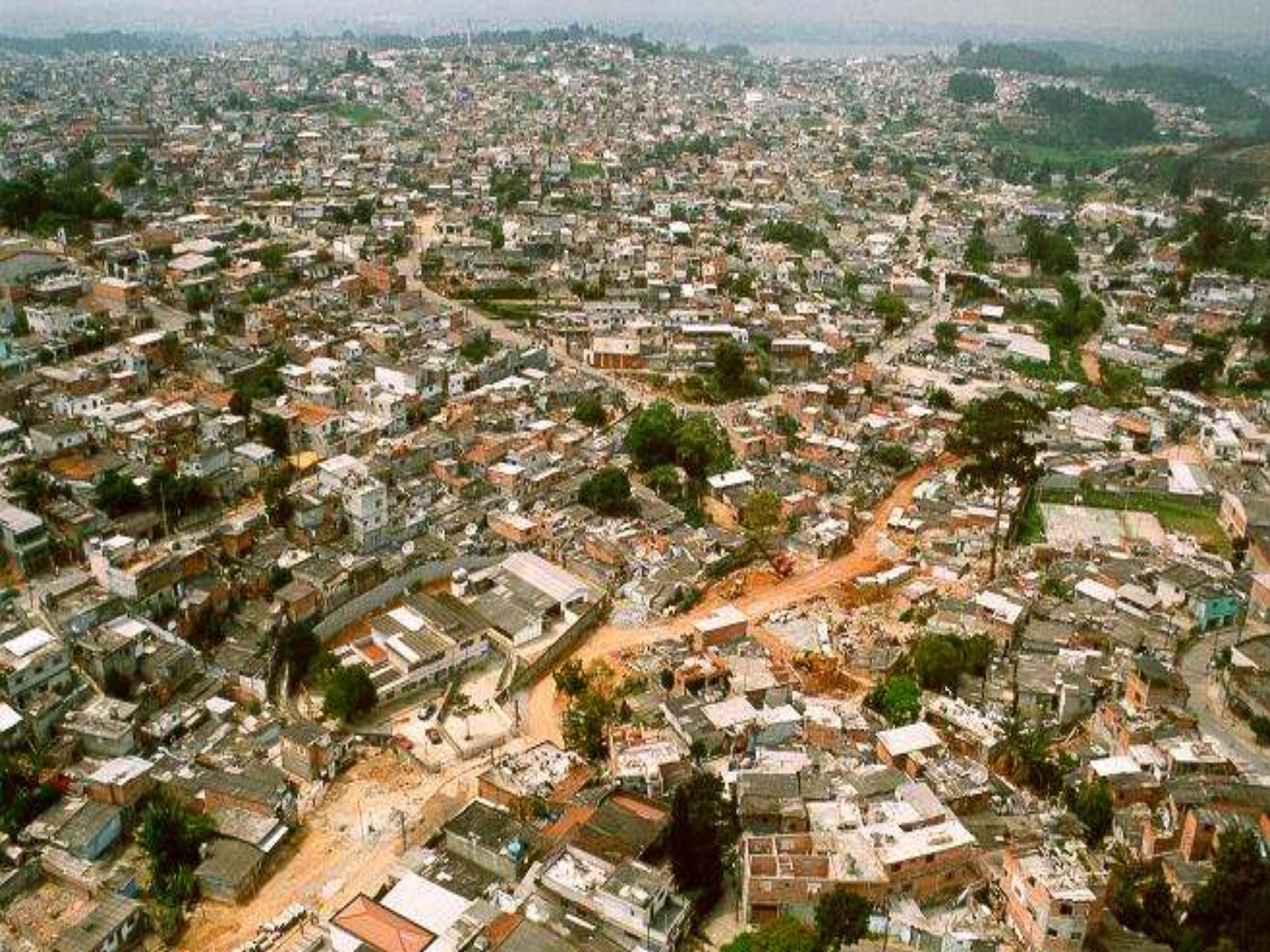


1997



2003





Chácara Santa Maria – Land uses 1994



Chácara Santa Maria – Land uses 2000



Programa Mananciais
Municipality of São Paulo actions and works

Program's record

PROGRAMA MANANCIAIS	PHASE 1	PHASE 2	PHASE 3
Time period	1994 - 2007	2008 - 2012	2013 - ongoing
Water basins	Guarapiranga Reservoir	Guarapiranga and Billings reservoirs	Guarapiranga and Billings reservoirs
Beneficiary families	24.146	75.071	48.624
Number of upgraded settlements	140	83	63
Completed housing units	1.571 ¹	1.795 ²	0
Ongoing housing units works	0	3.860 ³	0
Investment (Brazilian currency)	R\$ 214 million	R\$ 1,2 billion	R\$ 2,8 billion
Date	agosto/1995	abril/2008	outubro/2012
Investment (USD)	US\$\$ 225,3 million	US\$ 571,4 million	US\$ 1,38 billion

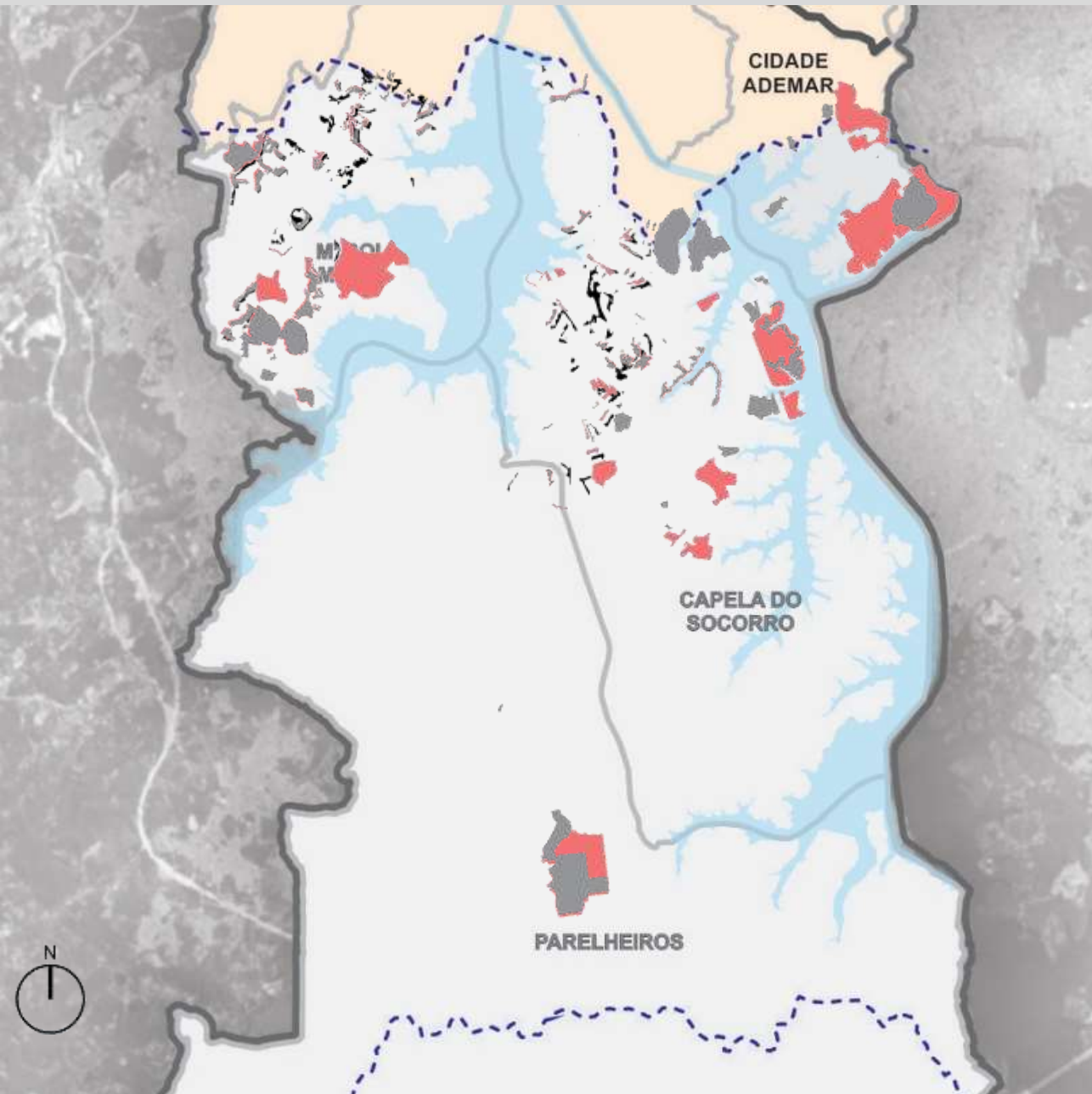
Notes:

¹ Celso dos Santos housing estate (160 housing units); Pascoal Melantonio housing estate (102 h.u.); IV Centenário housing estate (266 h.u.) and others inside upgraded settlements;

² Mata Virgem (407 h.u.); Pq. Novo Santo Amaro V (200 h.u.); e América do Sul (1.188 h.u.) estates;

³ Espanha estate (3.860 u.h.).

Upper Tietê water sources urban and environmental sanitation PROGRAMA MANANCIAIS

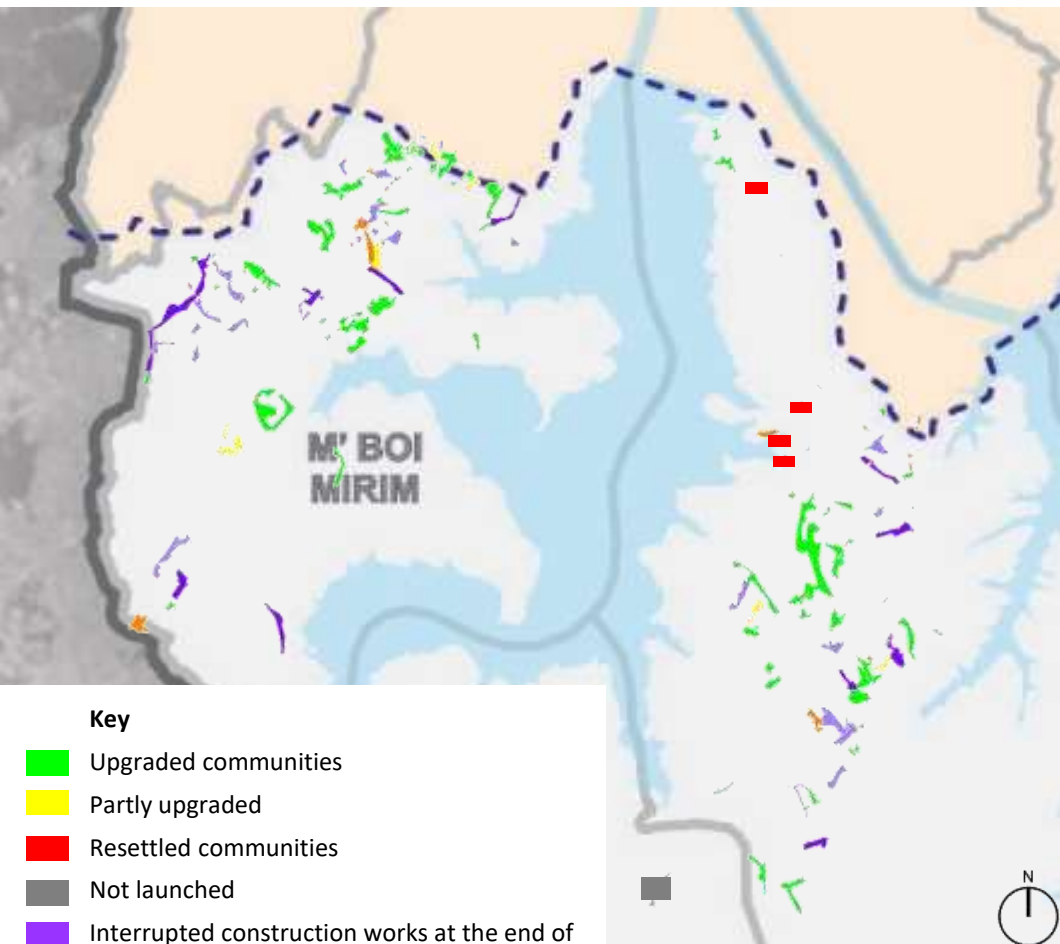


PROGRAMA MANANCIAIS

Key

- **Phase 1 – 1994-2007**
(BIRD funded, a.k.a. Guarapiranga basin environmental sanitation program)
- **Phase 2 – 2008-2012**
(Federal and São Paulo State funded)
- **Phase 3 – 2013-ongoing**
(Currently only São Paulo City funded)

PROGRAMA MANANCIAIS – Phase 1 – “Guarapiranga Program” – 1994-2007



Key

- Upgraded communities
- Partly upgraded
- Resettled communities
- Not launched
- Interrupted construction works at the end of Phase 1 (to be completed at Phase 2)
- Not launched construction works (to begin at Phase 2)
- Partly upgraded (to be completed at Phase 2)

FASE 1 - Overview	Nº OF AREAS	Nº OF FAMILIES
Upgraded communities	74	12.504
Resettled communities	4	162
Partly upgraded	8	1.172
Not launched	2	178
Interrupted works at the end of Phase 1 (to be completed at Phase 2)	13	4.090
Not launched works (to begin at Phase 2)	30	4.586
Partly upgraded (to be completed at Phase 2)	9	1.454
TOTAL	140	24.146

Phase 1 areas postponed to Phase 2	52	10.130
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Upper Tietê water sources urban and environmental sanitation
PROGRAMA MANANCIAS – Phase 1 – Programa Guarapiranga
Parque Amélia Community upgrade



Upper Tietê water sources urban and environmental sanitation
PROGRAMA MANANCIAS – Phase 1 – Programa Guarapiranga

Parque Novo Santo Amaro VII

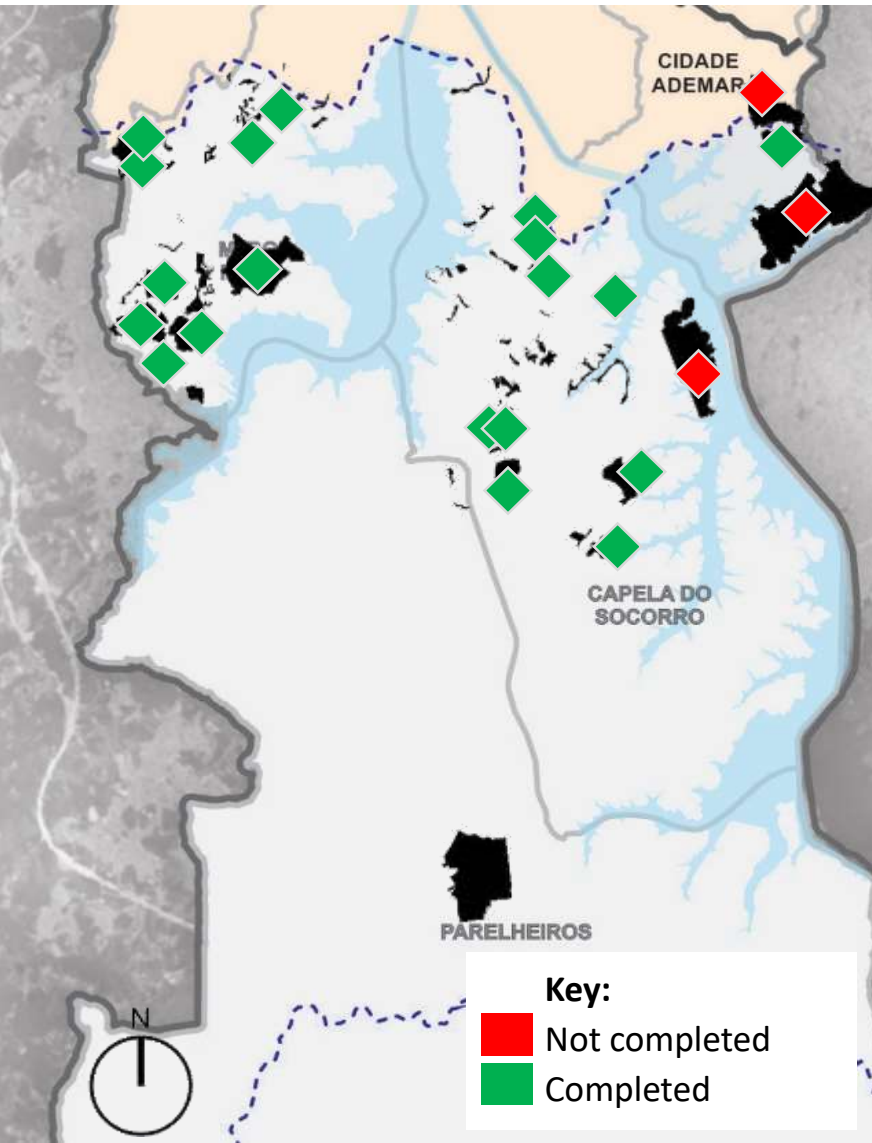


Before works



After works

PROGRAMA MANANCIAIS – Phase 2 / PAC 1



BILLINGS

Nº	Settlement	Beneficiary families
19	CIDADE JÚLIA	5459
20	NOVA PANTANAL	1725
21	JD ELD / MATA VIRGEM	8389
22	CANTINHO DO CÉU	10644
23	JD. TOCA	450
24	CHÁCARA DO CONDE II	642
25	JD. NOVO MARILDA	2646
26	JD. NORONHA	2900
TOTAL BILLINGS		34.561

GUARAPIRANGA

Nº	Settlement	Beneficiary families
1	VINTE	594
2	DEZENOVE	636
3	VILA RUBI	476
4	JD. ICARAÍ II E III	482
5	JD. ICARAÍ I	241
6	JD. HERCULANO	177
7	ALTO DA RIVIERA B	195
8	PQ. N STO A V / LUZ S	389
9	PQ. N S A VII	255
10	JARARÁ II	129
11	CIDADE IPAVA / VILA JACI	6228
12	BOULEVARD DA PAZ	3282
13	PQ. DAS CEREJEIRAS	728
14	JD. CAP / SANTA BÁRBARA	477
15	ANGELO TARSINI	326
16	CAVALO BRANCO	1000
17	CARDEAL ROSSI	100
18	ARIZONA	2400
TOTAL GUARAPIRANGA		24.753

(*) **PAC 1** = first stage of Federal “Growth acceleration program”

PROGRAMA MANANCAIAIS – Phase 2 / PAC 1

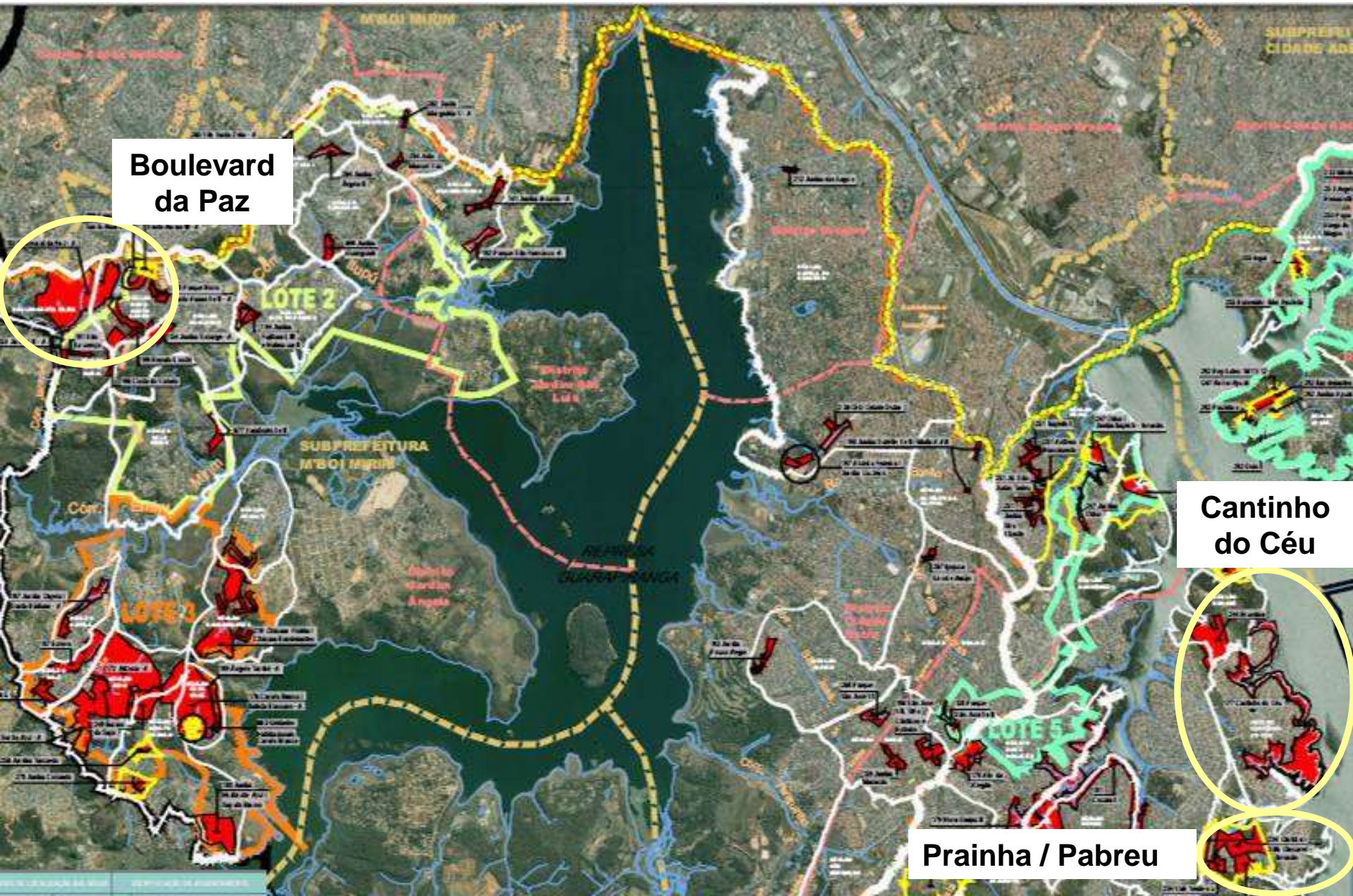
PHASE 2 - OVERVIEW	GUARAPIRANGA				BILLINGS				TOTAL					
	PAC 1		Not PAC		PAC 1		Not PAC		PAC 1		Not PAC		TOTAL	
	nº of areas	nº of fam.	nº of areas	nº of fam.	nº of areas	nº of fam.	nº of areas	nº of fam.	nº of areas	nº of fam.	nº of areas	nº of fam.	nº of areas	nº of fam.
Ongoing	0	0	0	0	3	24.512	0	0	3	24.512	0	0	3	24.512
Upgraded	11	10.306	10	2.695	3	1.499	0	0	14	11.805	10	2.695	24	14.500
Partly upgraded	1	195	0	0	3	7.271	2	2.898	4	7.466	2	2.898	6	10.364
Nor launched	0	0	13	2.005	0	0	0	0	0	0	13	2.005	13	2.005
Not launched works (to begin at Phase 3)	0	0	19	6.515	0	0	0	0	0	0	19	6.515	19	6.515
Partly upgraded (to be completed at Phase 3)	6	7.614	8	1.256	0	0	4	8.712	6	7.614	12	9.968	18	17.582
TOTAL	18	18.115	50	12.471	9	33.282	6	11.610	27	51.397	56	24.081	83	75.478

Phase 2 areas postponed to Phase 3

37

24.097

Phase 2 cases - location



Boulevard da Paz

Cantinho do Céu

Prainha / Pabreu

Prainha / Pabreu



Limits



Urban upgrade Pabreu / Prainha works

Sewage system

Drainage system

Street paving

Sewage pumping station

Contractor: Planova – Finished july/2015.



PABREU/PRAINHA
Sewage punping station



PABREU/PRAINHA - Rua Santa Paula

Before



After



Cantinho do Céu



Cantinho do Céu – Land uses 1954



Cantinho do Céu – limits and work sectors



Complexo Cantinho do Céu

Basic conception general figures

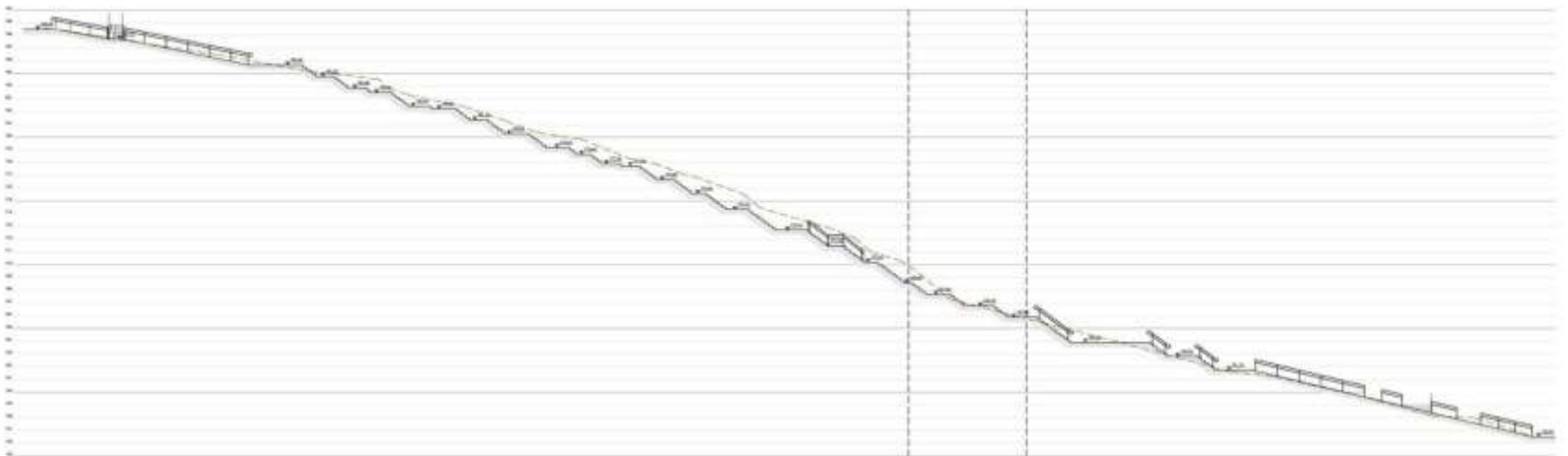
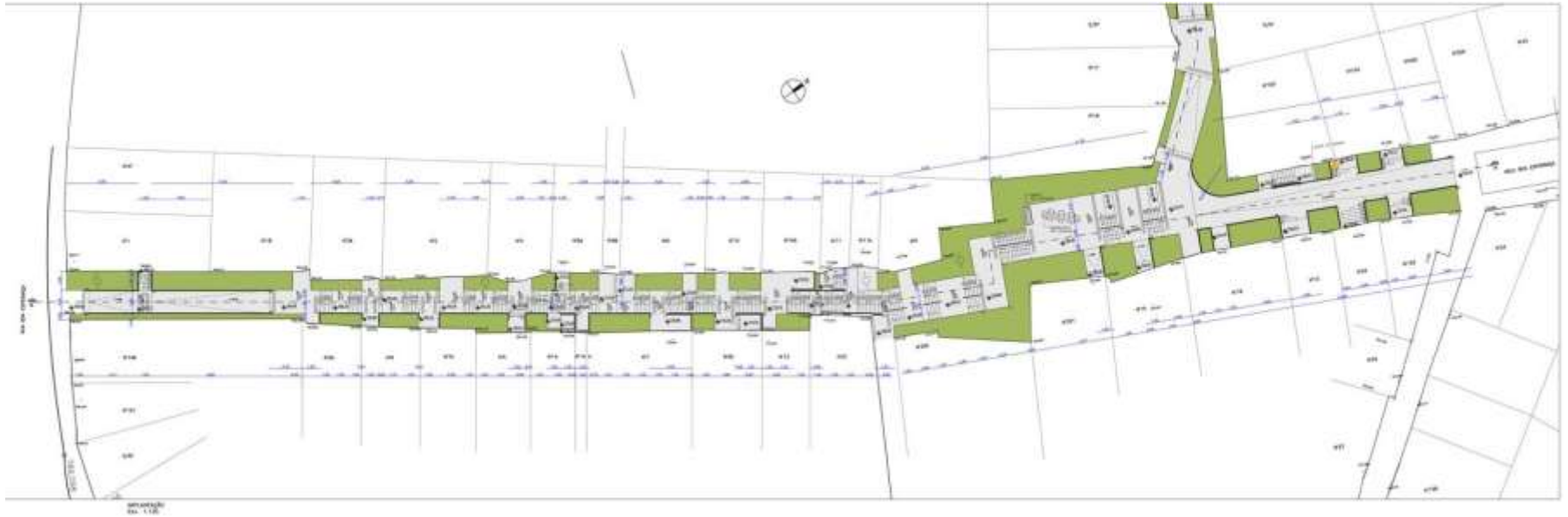


Area	1.543.761,00 m²
Families	10.841
Resettlement	2.483
Paving	115.130,00 m²
Drainage system	5.330,00 m
Water supply system	3.253,00 m
Sewage system	2.901,00 m
Geotechnical consolidation	1.780,00 m²
Pedestrian streets and stairs	278,00 m²



Urban Upgrade
pedestrian stairs

Urban upgrade - pedestrian stairs



Urban upgrade - amenities



Detailed design Park







Urban works



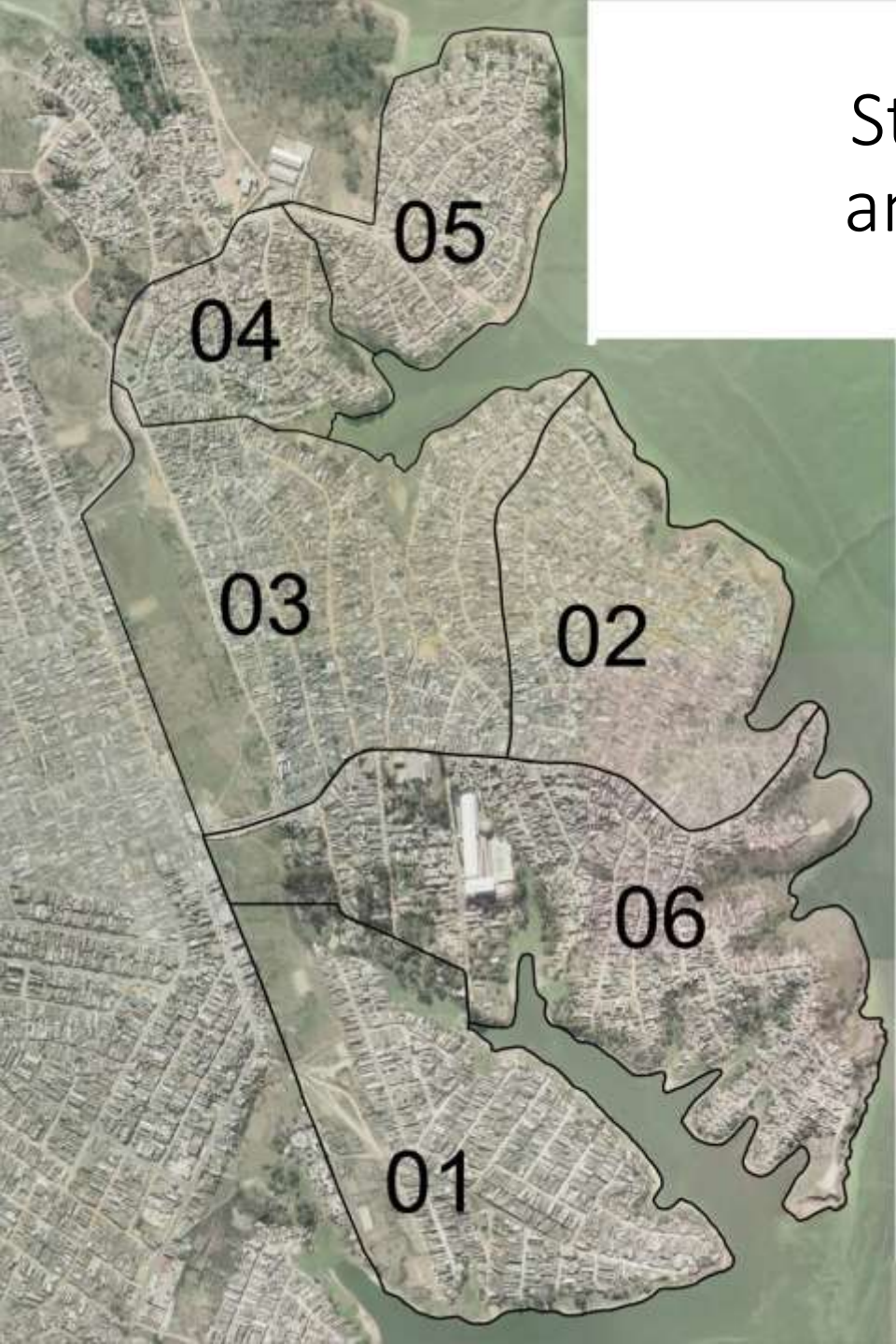


Finished works - Park

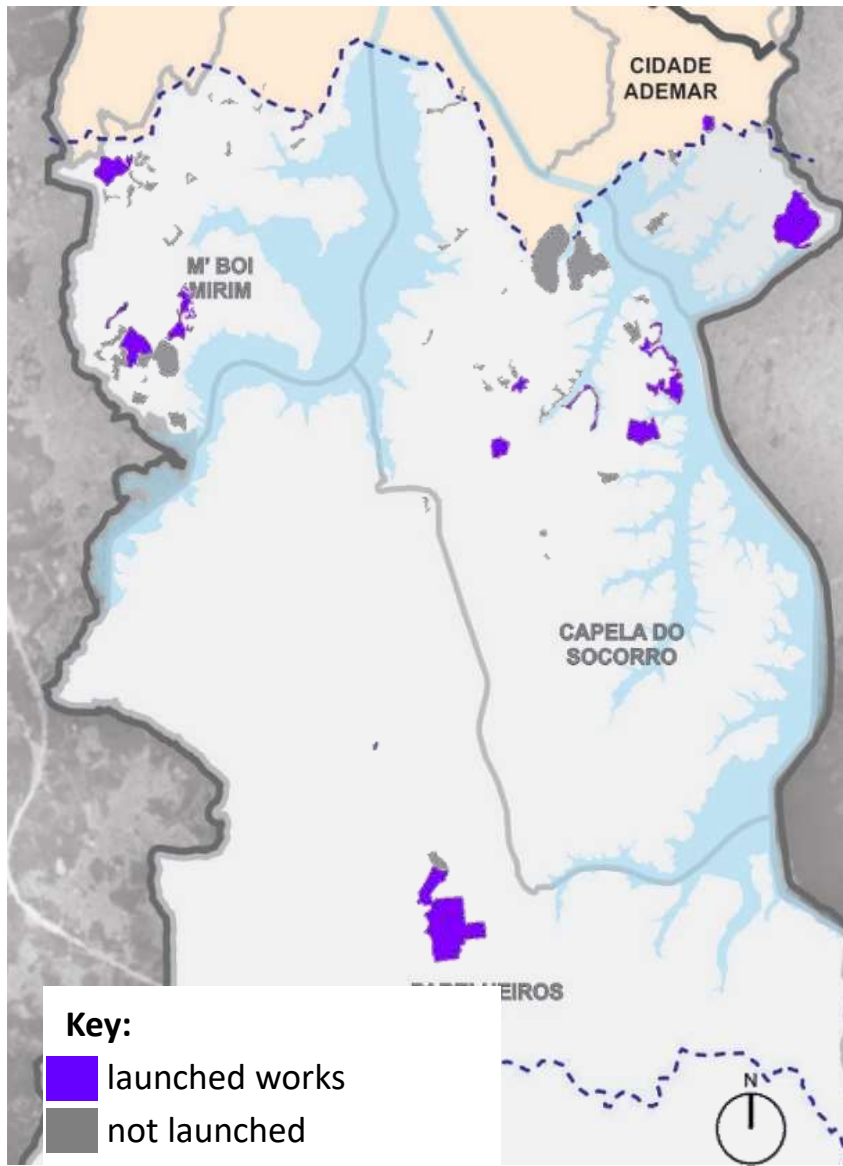




Stages for detailed design
and construction works in
Phase 3



PROGRAMA MANANCIAIS – Phase 3



Package	Nº of areas per Package ("Lote")	Settlements with ongoing works	Beneficiary families	Built housing units	Resettled families
1	1	Boulevard da Paz	3.872	2.713	1.159
2	17	Jardim Arnaldo - A	2.394	2.282	112
3	13	Jardim Capela / Santa Bárbara - A	2.052	1.790	262
		Arizona - A	3.050	1.793	1.257
		Jardim Tancredo	496	463	33
4	13	Alto da Alegria	2.593	1.950	643
5	8	Jardim Eldorado / Mata Virgem - Setor 1	5.174	4.651	523
6	4	Cocaia I	5.433	4.245	1.188
7	04	Cantinho do Céu - Etapa 2 - Trecho1	7.202	6.277	925
8	06	UNIFAG - Vargem Grande e Novo Silveira/Chácara Boa Esperança	5.746	4.509	1.237
	64		38.012	30.673	7.339

MANANCIAIS PHASE 3

Ranking criteria

- Risk areas, including those listed at 1998's State Decree ruled **Water sources environmental recovery emergency plan** ("Plano Emergencial")
- Areas in which court ruling demands environmental and/or risk remediation
- Phase 2 remaining areas

TOTAL FIGURES:

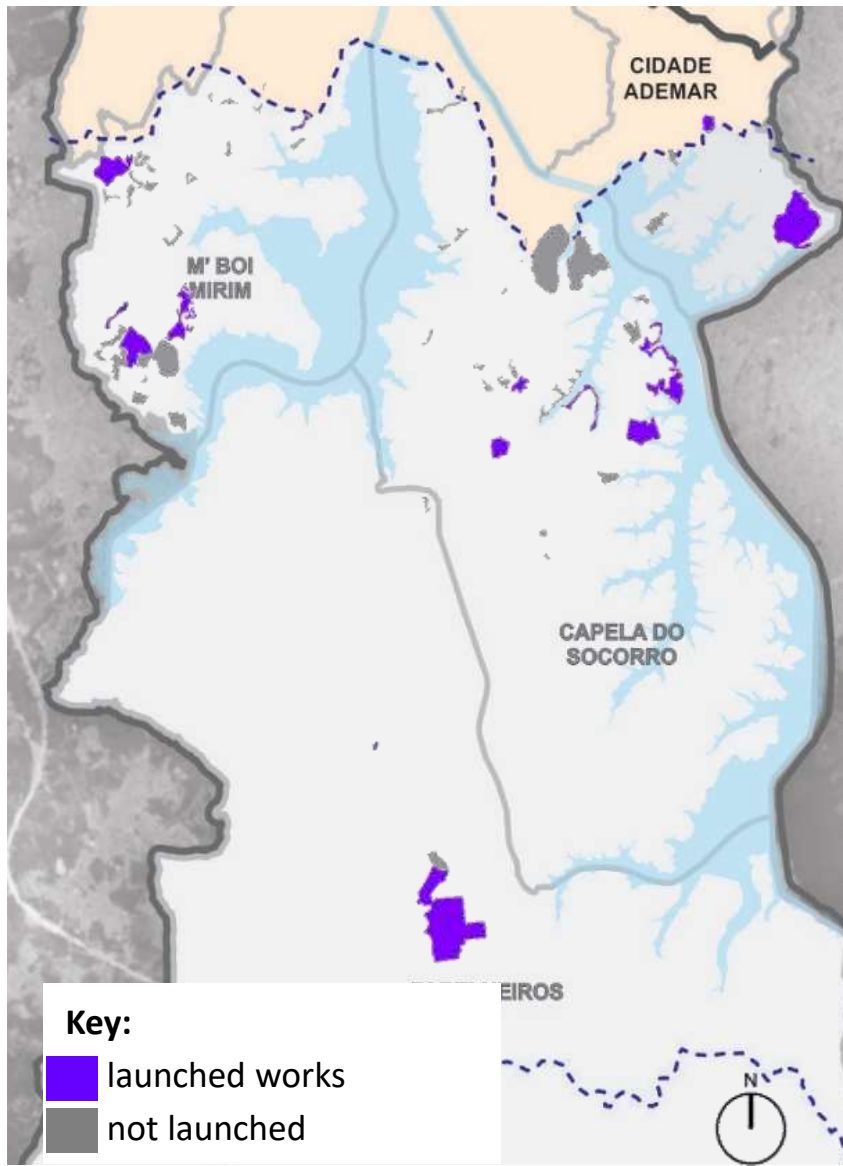
Contracted construction work = 8 packages covering 64 areas

Priority at PAC 2(*) = 23 areas

(*) PAC 2 = Federal "Growth Acceleration Program", canceled in 2017

PROGRAMA MANANCIAIS – Phase 3 / São Paulo City funded

Launched / ongoing construction works



GUARAPIRANGA

Nº	Settlement	Beneficiary families
1	BOULEVARD DA PAZ	3282
2	JARDIM ARNALDO - A	656
3	CHÁCARA FLÓRIDA/BAND	1000
4	JD CAPELA/STA BARB - A	477
5	ARIZONA-A	2524
6	JARDIM ROSCHEL	52
7	ALTO DA ALEGRIA	918
TOTAL GUARAPIRANGA		8.909

BILLINGS

Nº	Settlement	Beneficiary families
8	JD ELDORADO/MATA VIR	3260
9	A REMAZ/ MISS V/P G M	653
10	COCAIA I	1475
11	CANTINHO DO CÉU	5271
12	UNIFAG - VARGEM GDE	4097
TOTAL BILLINGS		14.756

MANANCIAIS

ongoing actions and works

MANANCIAIS

Construction works

PAC MANANCIAIS – PAC 1

Scope: Federal government funded precarious settlement upgrade at Billings e Guarapiranga basins, in São Paulo city, regarding “Programa Moradia Digna, Ação de Apoio a Urbanização de Assentamentos Precários” – integrated housing and urban infrastructure works, landhold regularization and social and environmental inclusion actions.

Beneficiary families: 44.343

Works goal: 5.340 housing units and infrastructure upgrade benefiting 44.343 families.

Investimento: R\$ 445.486.455,52 (PO + BDI)

PAC MANANCIAIS – PAC 1 – Ongoing construction works - BILLINGS

CIDADE JÚLIA SETTLEMENT

Scope:

Geotechnical consolidation, water supply, drainage and sewage systems, stream channeling, paving, road system and urban amenities. Housing units for internal resettlement

Contract status Closed / ended

Beginning/end of works Aug-08/aug-14

Construction works completion Part

beneficiary families 5,499

By urban upgrade 4,689

Resettled 770

New housing units 5

Housing financial aid 193

Financial compensation / others 572

Destination for families in housing financial aid “Espanha” housing estate

Existing court decision yes

To be continued at Phase 3 Yes – included in Area 253



Pedra sobre Pedra slope – before works



Pedra sobre Pedra slope – after works

PAC MANANCIAIS – PAC 1 – Ongoing construction works - BILLINGS

CANTINHO DO CÉU/GAIVOTAS SETTLEMENT

Scope:

Geotechnical consolidation, water supply, drainage and sewage systems, stream channeling, paving, road system and urban amenities.
Housing units for internal resettlement

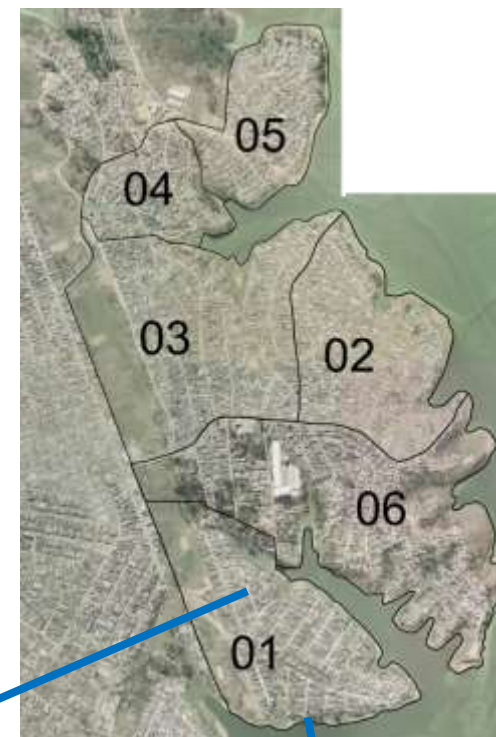
Contract status	Closed / ended
Beginning/end of works	Aug-08/aug-14
Construction works completion	Part
beneficiary families	Not available
By urban upgrade	
Resettled	
New housing units	
Housing financial aid	
Financial compensation / others	
Destination for families in housing financial aid	“Espanha” housing estate
Existing court decision	yes
To be continued at Phase 3	Yes



Rua Gaivota do Lago (Aug/08)



Rua Gaivota do Lago (Jun/09)



Pq Linear Park– Stage 1-Parte 5 (Nov/10)



Linear Park – Stage 1-Part 5 (Jun/11)

PAC MANANCIAIS – PAC 1 – Ongoing construction works - BILLINGS

JD ELDORADO / MATA VIRGEM SETTLEMENT

Scope:

Geotechnical consolidation, water supply, drainage and sewage systems, stream channeling, paving, road system and urban amenities. Housing units for internal resettlement

Contract status	Closed / ended
Beginning/end of works	Jun-08/Nov-12
Construction works completion	Part
beneficiary families	8,389
By urban upgrade	7,306
Resettled	1,083
New housing units	179
Housing financial aid	464
Financial compensation / others	372
Destination for families in housing financial aid	“Espanha” housing estate
Existing court decision	yes
To be continued at Phase 3	yes



Av. Alda - before works



Av. Alda - after works

PAC MANANCIAIS – PAC 1 – closed works – BILLINGS

CHÁCARA DO CONDE II Housing Estate

Scope:

Geotechnical consolidation, stream channeling, paving, road system and urban amenities. Housing units (Housing complex) not concluded / excluded from the scope.

Contract status	Closed / ended
Beginning/end of works	Jun-08/Nov-12
Construction works completion	Part
beneficiary families	642
By urban upgrade	618
Resettled	24
New housing units	0
Housing financial aid	21
Financial compensation / others	3
Destination for families in housing financial aid	“America do Sul” housing estate
Existing court decision	no
To be continued at Phase 3	no



**Linear Park –
Reimberg Cocaia
– before works**



**Linear Park –
Reimberg Cocaia
– after works**

JARDIM CAPELA / SANTA BÁRBARA SETTLEMENT

Scope:

Geotechnical consolidation, water supply, drainage and sewage systems, stream channeling, paving, road system and urban amenities.

Contract status	Closed / ended
Beginning/end of works	Set-08/set-17
Construction works completion	Part
beneficiary families	477
By urban upgrade	477
Resettled	0
New housing units	0
Housing financial aid	0
Financial compensation / others	0
Existing court decision	no
To be continued at Phase 3	yes



Rua Sena
Silva – before
works



Rua Sena
Silva – after
works

ARIZONA SETTLEMENT

Scope:

Geotechnical consolidation, water supply, drainage and sewage systems, stream channeling, paving, road system and urban amenities.

Contract status	Closed / ended
Beginning/end of works	Jun-08/nov-11
Construction works completion	Part
Beneficiary families	2,400
By urban upgrade	2,137
Resettled	263
New housing units	0
Housing financial aid	257
Financial compensation / others	6
Existing court decision	yes
To be continued at Phase 3	yes



Rua Beira Rio – before works



Rua Beira Rio – after works

São Paulo State owned housing company CDHU agreement (nr. 0095/2011) – Housing units provision at GRAJAÚ C and D and 560 of the 1290 units to be built at CHÁCARA DO CONDE housing estate

Scope: Urban upgrade at Jardim Pabreu Prainha settlement (1.055 beneficiary families, already concluded) and 560 housing units construction at Chácara do Conde II estate.

New term: 15/06/2018

Value: R\$ 56.348.450,09
(prices from Aug/2010)

Used: R\$ 18.717.743,31
(at Jardim Pabreu/Prainha, concluded in 2014)

Available:
R\$ 37.630.706,78 (at 2010 prices)
For housing construction at Chácara do Conde II.

PMSP financial counterpart required:
R\$ 30,1 million (at 2010 prices)



HOUSING UNITS PHASE 2 – PAC 1

5.654					
CDHU Developments PAC 1					
Development	Basin	Administration region	Federal program	Housing Units	Status
CAPÃO REDONDO D	Out of water sources protected areas	M'BOI MIRIM	PAC 1	650	Out of scope
CAPÃO REDONDO E	Out of water sources protected areas	M'BOI MIRIM	PAC 1	118	ca. 50% of construction works completed
CAPÃO REDONDO I	Out of water sources protected areas	M'BOI MIRIM	PAC 1	60	ca. 40% of construction works completed
JARDIM ANGELA A	GUARAPIRANGA	M'BOI MIRIM	PAC 1	328	Out of scope
GRAJAÚ B	GUARAPIRANGA	CAPELA DO SOCORRO	PAC 1	517	Out of scope - invaded
CIDADE ADEMAR C	BILLINGS	CIDADE ADEMAR	PAC 1	96	ca. 70% of construction works completed
TOTAL				1.769	
				Housing units out of scope	1.495
				Remaining housing units	274

Public – private partnership housing units production

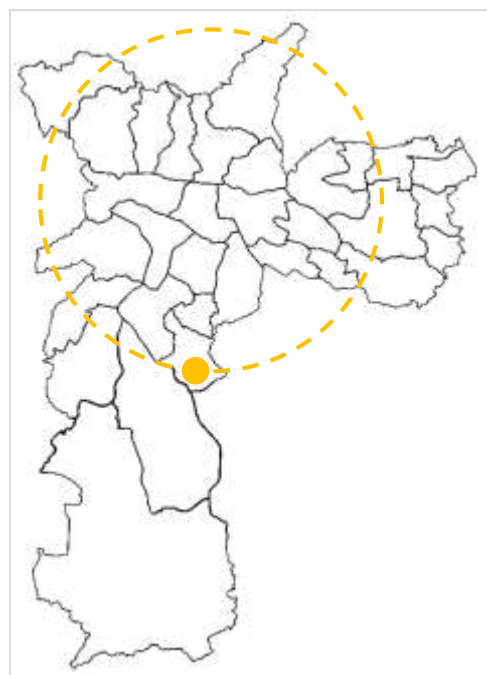
“Espanha” housing estate



- 3.860 housing units;
- 193 buildings(Ground floor + 4) / 14 condos;
- 84 comercial plots of land.

Location:

- Cidade Ademar administration region
- Distrito Pedreira District
- Balneário São Francisco, Jardim Bandeirante and Jardim Apurá neighborhoods



Public – private partnership housing units production

“Espanha” housing estate



Mananciais PHASE 3 PMSP CURRENT CONTRACTS

Vok package	Basin	Nº of AREAS	Nº of families	Contractor
1	Guarapiranga	1	3.282	Consórcio Villanova / Construcap
2	Guarapiranga	17	3.791	EIT Engenharia
3	Guarapiranga	13	12.367	Consórcio Camargo Corrêa / Planova
4	Guarapiranga	13	4.220	Galvão engenhria
Subtotal 1		44	23.660	
5	Billings	8	7.238	Consórcio Carioca / Passarelli
6	Billings	4	3.983	Consórcio Gomes Lourenço / FM Rodrigues
7	Billings	6	8.786	Consórcio Construbase / Engeform
8	Billings	2	4.957	Consórcio OAS / Via
Subtotal 2		20	24.964	
TOTAL		64	48.624	

PROGRAMA MANANCAIAIS – Phase 3

Status

PHASE 3 - Overview	TOTAL		GUARAPIRANGA		BILLINGS	
	TOTAL					
	nº of areas	nº of fam.	nº of areas	nº of fam.	nº of areas	nº of fam.
Design + construction works + resettlement	10	18.568	6	7.909	4	10.659
Design + construction works	2	5.097	1	1.000	1	4.097
Design + resettlement	7	9.000	6	7.632	1	1.368
Design only	20	6.279	13	2.680	7	3.599
Resettlement only	3	3.148	2	1.443	1	1.705
No action launched	21	6.532	15	2.996	6	3.536
TOTAL	63	48.624	43	23.660	20	24.964

Landholding regularization

- land tenure situation analysis at 28 areas / ca. 57.960 families.
- urban conditions analysis at 7 areas / ca. 1.121families.
- elaboration of Term of Reference for landhold regularization technical support services
- map bases overlay (land structure X Programa Mananciais' intervention areas).

Program stage	AREAS		Landhold regularization launched	Environmental permits	Areas with court decisions demanding regularization
	Nº of areas	Nº of families			
PHASE 2	26	55.917	26	8	05
PHASE 3	02	2.043	02	-	02
TOTAL	28	57.960	28	8	07

Social Work

- Elaboration and execution of Social Work Plan for all intervention areas
- follow-up with beneficiary families (dwellers at upgrading communities, resettled and receiving housing money help) before, during and after construction works.

