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SUSTAINABILITY

FUTURE NEEDS

SOLUTIONS

SOCIAL INCLUSION

*I would like to thank
IPLA and the University,
of Borås, specially
professor Hans Bjork*

Overview

Presentation

- University of São Paulo at a glance
- São Paulo – History and Spatial Development
- Solid Waste and Urban Poverty
- Solid Waste and Social Inclusion of Collectors
- The contribution of the university



*South
America*

Brazil

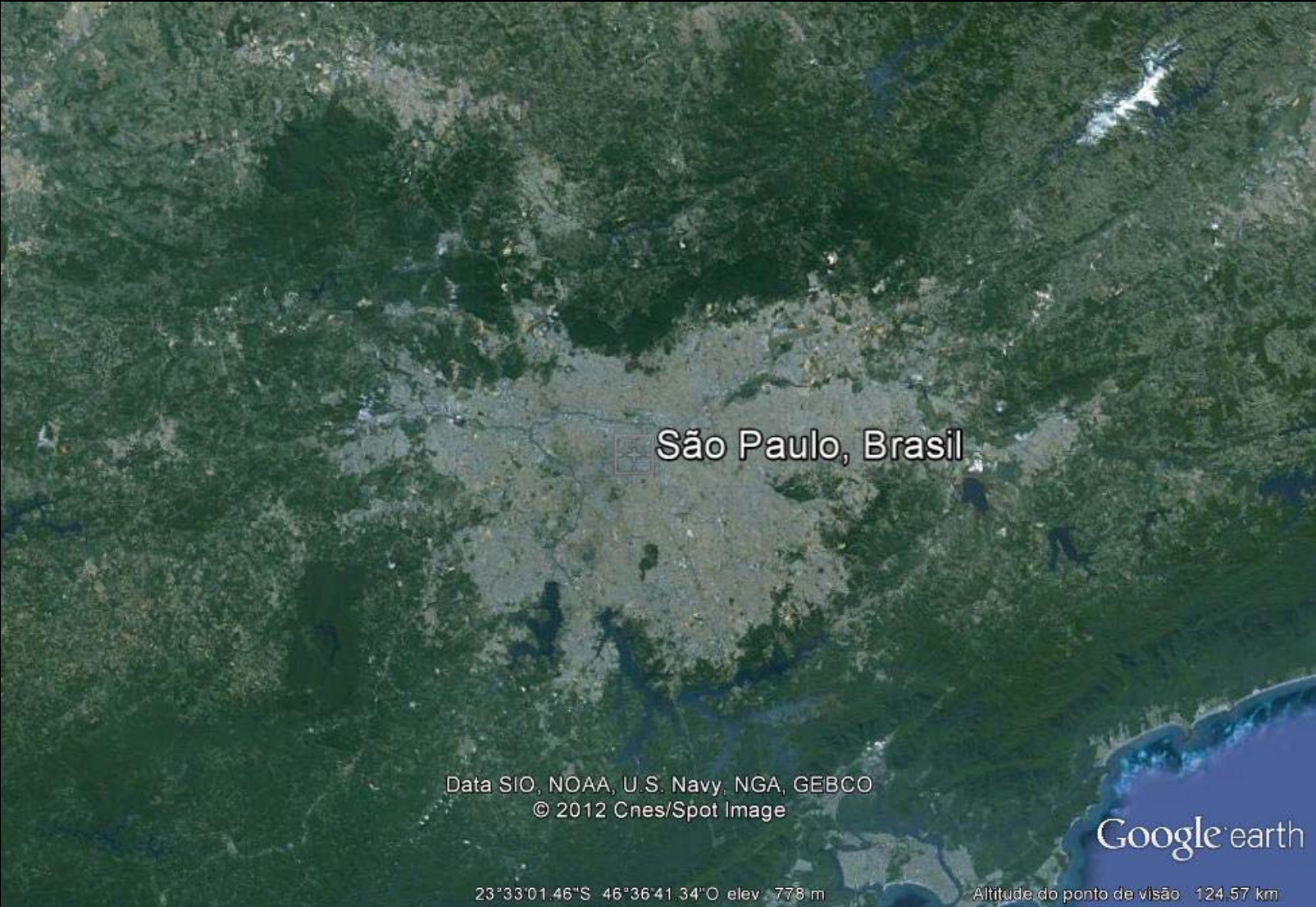
*São Paulo
Metropolitan
Region*

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2012 Cnes/Spot Image

Google earth

14°46'31.18"S 56°16'32.62"O elev 231 m

Altitude do ponto de visão 7782.13 km



São Paulo, Brasil

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2012 Cnes/Spot Image

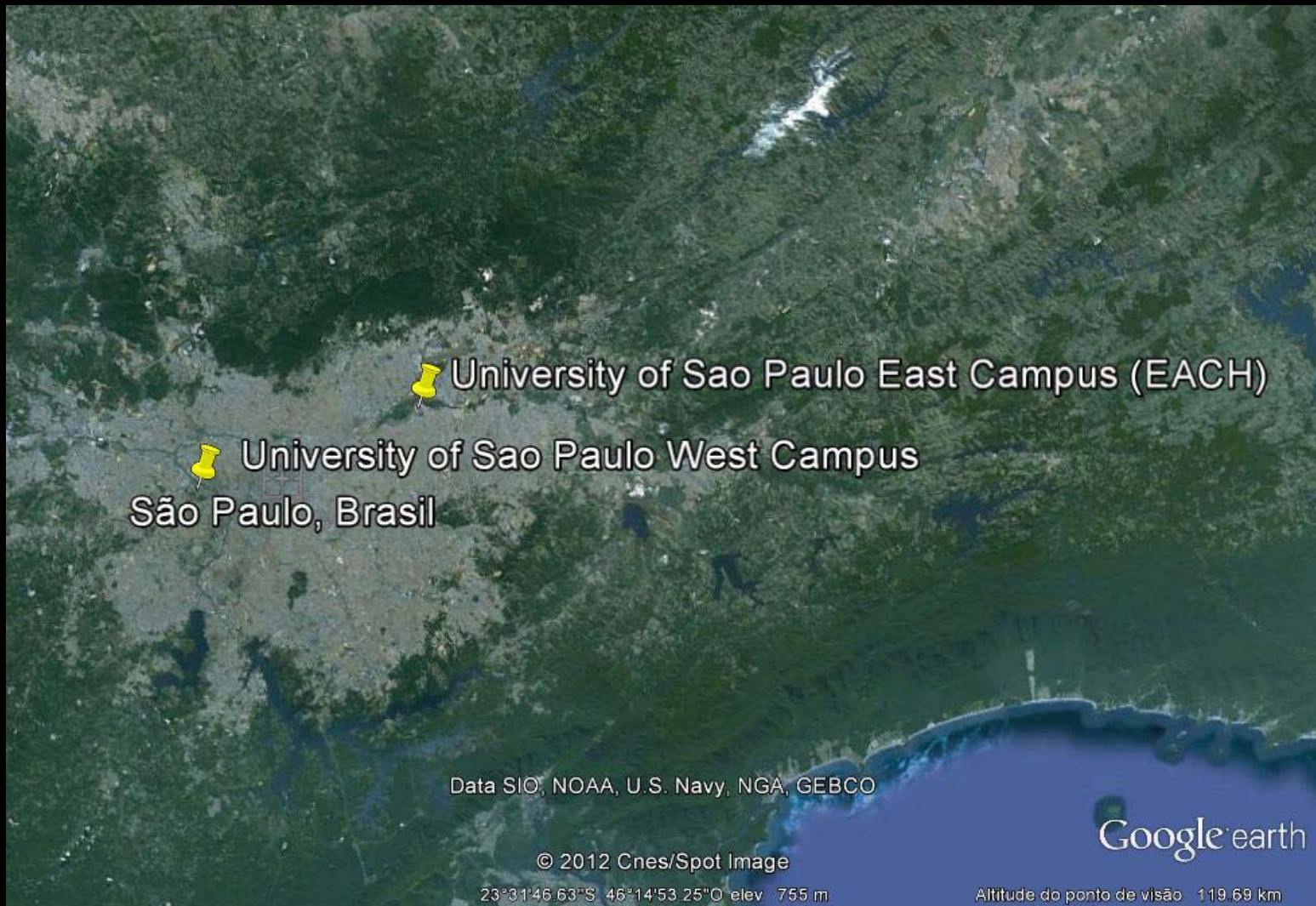
Google earth

23°33'01.46"S 46°36'41.34"O elev. 778 m

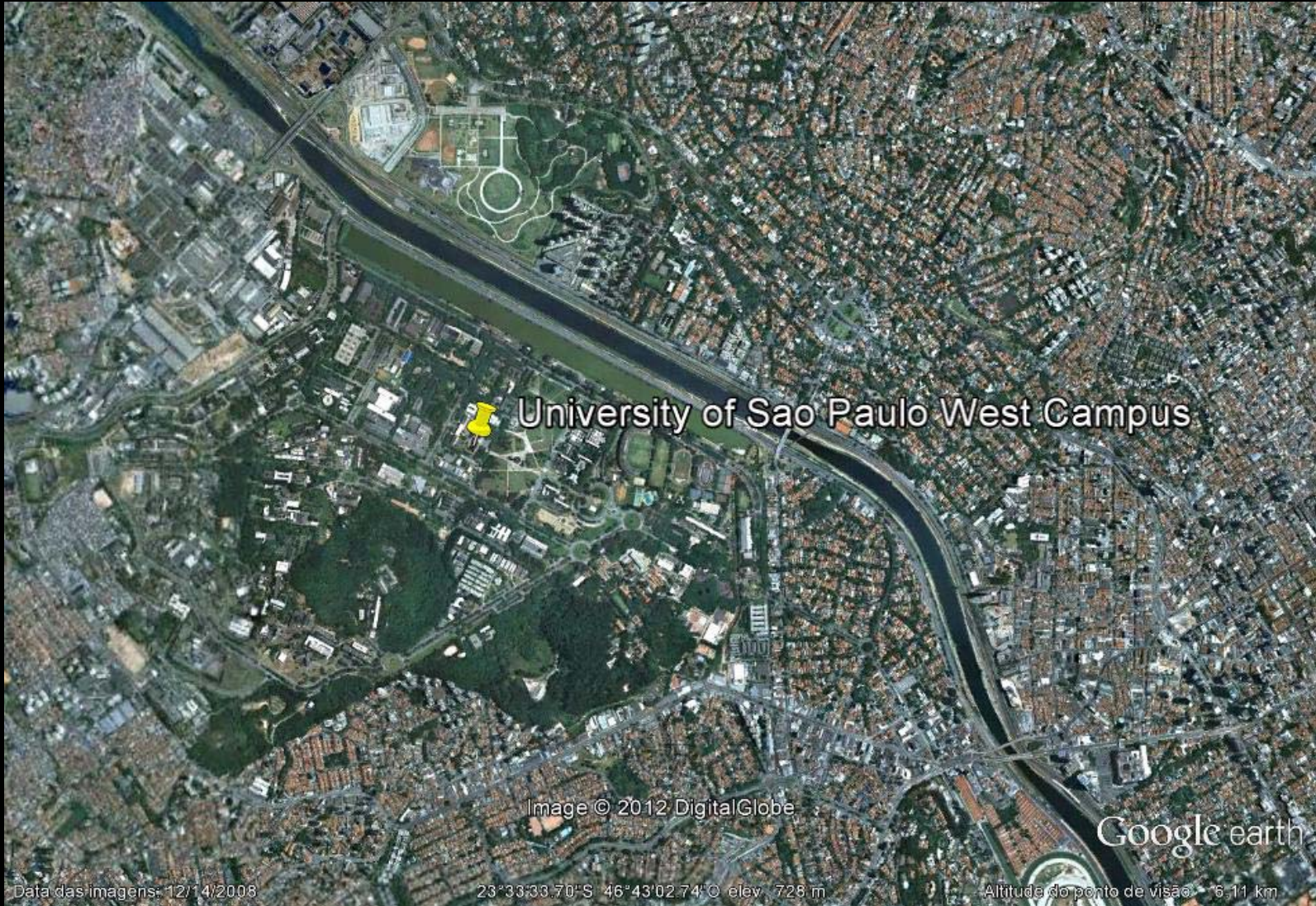
Altitude do ponto de visão 124,57 km



São Paulo City Central Area



University of São Paulo Campus (West and East Regions)



University of Sao Paulo West Campus

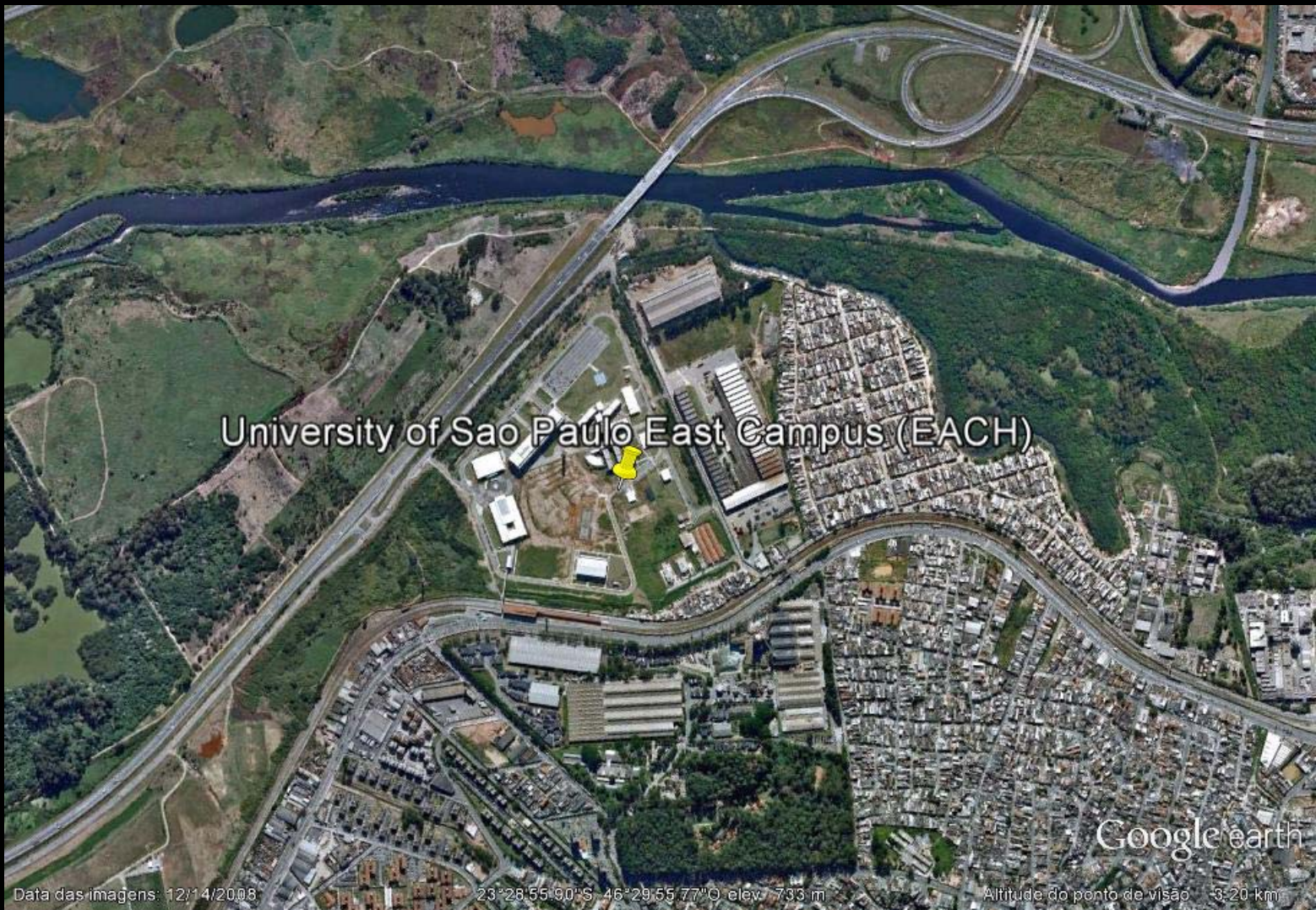
Image © 2012 DigitalGlobe

Google earth

Data das imagens: 12/14/2008

23°33'33.70"S 46°43'02.74"O elev. 728 m

Altitude do ponto de visão: 6.11 km



University of Sao Paulo East Campus (EACH)

Google earth

Data das imagens: 12/14/2008

23°28'55.90" S 46°29'55.77" O elev. 733 m

Altitude do ponto de visão: 3.20 km



Ribeirão Preto



Pirassununga



São Carlos



*Medicine Institute
São Paulo*



São Paulo



Paulista Museum - São Paulo



Piracicaba



Bauru



Lorena

USP in numbers



University of São Paulo in numbers

- *Advanced center for research, education and community services.*
- *11 campi (city of São Paulo (4) and other cities).*
 - *82 units.*
- *88,261 students: undergraduate, graduate and specialization.*
 - *5,732 professors.*
 - *15,341 administrative employees.*
 - *239 undergraduate programs.*
 - *Graduate programs*



Public university, founded in 1934

SÃO PAULO:
HISTORY AND
SPATIAL
DEVELOPMENT

January 25,

1554 –

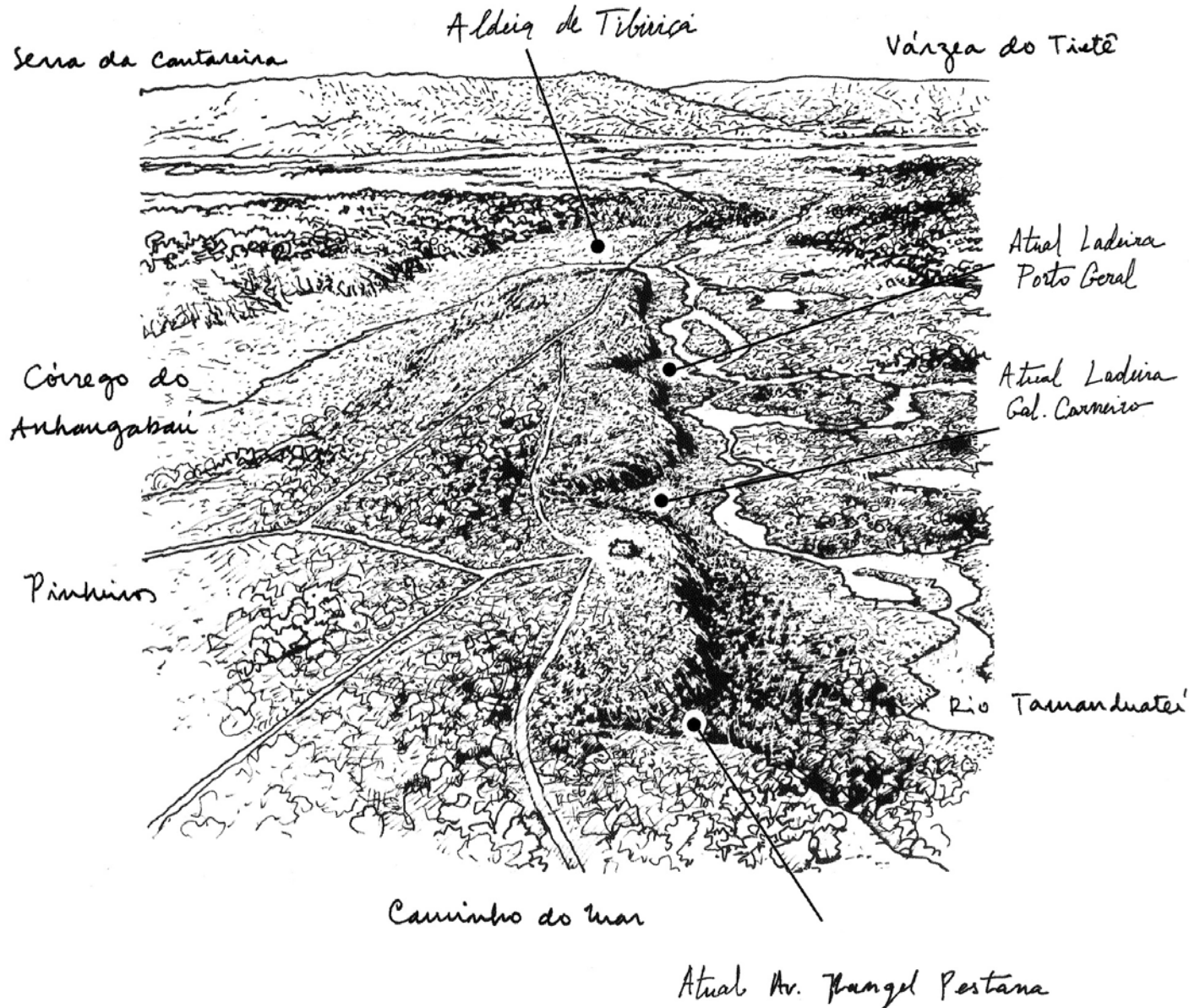
Jesuit priests

school for the
local indigenous
tribes and

they

called it

São Paulo





2004

At the end of the XIXth = less than 70.000 inhabitants

2000 = the main Brazilian and South American metropolis with 10,4 milhões de habitantes.

São Paulo City is:

- prosperous and unequal
- dynamic and fragmented
- diverse and segregated
- formal and informal
- informality generates difficulties for the improvement of life conditions

São Paulo City

Numbers and Data

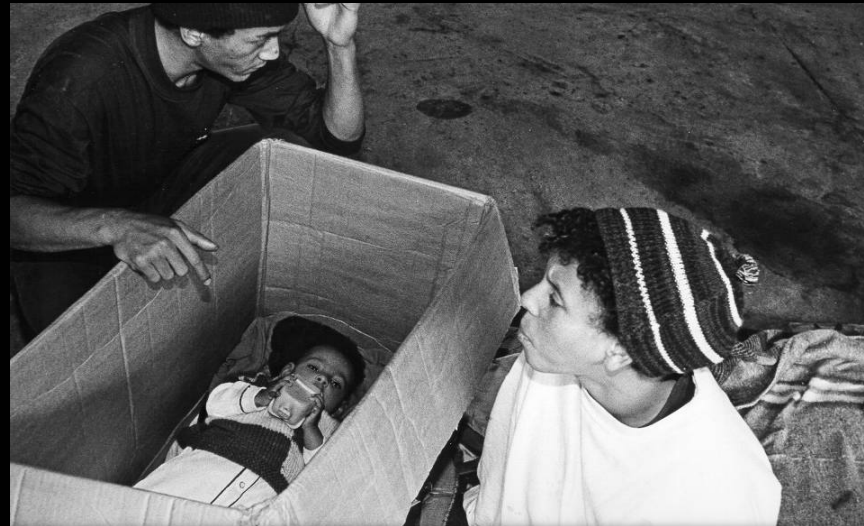
São Paulo City: Numbers

- *Urban Area = 1,968 km²*
- *Estimated population of 11,037,593 residents within an area of 1,523 km²*
- *São Paulo is the most populous city in the Americas*
- *Center of the heavily urbanized São Paulo Metropolitan Area, with an estimated 19,889,559 people in 2009 over 7,944 square kilometers*



Solid Waste and Urban Poverty

São Paulo: formal and informal



São Paulo: homelessness



Homelessness and urban poverty

Homeless
person

+

Favelas

+

Low
income



Homelessness and urban poverty



Catação: It is a self created economy that reuses the trash and leftovers of Sao Paulo and other cities of Brazil. Recyclable material collecting sometimes reaches or surpasses the minimum wage

*urban excavation:
re-attributing value to the garbage*

discarded products and materials

housing

objects

*informal
economy
catação*

*favelas
homeless
informal habita*

*vernacular
design*

coops



urban
excavation
access to
the market
of leftovers
downtown areas

garbage
collecting
system = *catação*
self created
economy

income
producing
system/
overcoming
poverty

material's
product's
return
expedition

environmental
public
service



Waste for Life

catadores/collectors

- they know many things about the city
- where is located the available material to be collected?
- which residents are supportive? which are not?
- what are the best routes to avoid traffic?

coops: overcoming poverty

***collecting for
religious
Celebration 70's***

***80s
COOPAMARE
ASMARE***



***1992
National Forum***

***1998 – 2008
Lixo Cidadania***



***2001
National
Movement***



***2005
First
Collector Factory***

***2010
12.305 Law
2/8/2010***

★★★★★
"EXHILARATING
JOLT OF ENERGY!"
NOTHING
MOVES
LIKE
Disney
NEWSIES
ON BROADWAY

RODGERS + HAMMERSTEIN'S
CINDERELLA
ON BROADWAY
THE TONY AWARDS-WINNING MUSICAL
REIMAGINES THE STORY OF FAIRYTALE
CinderellaOnBroadway.com

Disney

FOREVER

USPA
U.S. POLO ASSN.
SINCE 1920

MAC

DIGITAL
CAMERAS & COMPUTERS
Apple Canon Sony



THE CONTRIBUTION OF THE UNIVERSITY

To rethink how waste is managed using an integrated view;

To create new methods and technology for waste management;

To examine how waste policies can be implemented through the

Partnership between the public sector + private sector + society

Being a Design Professor – I am trying to boost among students a perspective of design, considering the minimization of the use of resources, as well as the transformation of excess

Also To inspire new generation with new patterns

DESIGN AND THE BRAZILIAN SOLID WASTE POLICY






Coordinated by Professor **Maria Cecília Loschiavo dos Santos**, the project is formed by a multidisciplinary team of researchers that studies solutions to the problem of waste in various areas of knowledge.

Currently funded by **CNPq - The National Council for Scientific and Technological Development**, the project researches into the relationship between design and the

PNRS - LAW No. 12.305/10 POLÍTICA NACIONAL DE RESÍDUOS SÓLIDOS NSWP - NATIONAL SOLID WASTE POLICY

Specific objectives of this research are:

-  **To identify the contribution of design theory to sustainability within the context of the NSWP;**
-  **To conceive instruments that insert the design and designer in the implementation of the NSWP;**
-  **To study the relationship between design and consumer behavior.**

Keywords: product design, sustainability, solid waste, national solid waste policy, waste pickers



EDUCATION

BACHELOR, GRADUATE COURSES

ASP 479 DESIGN FOR SUSTAINABILITY

Faculty of Architecture and Urbanism

Responsible Professor:

Full Professor Dr. Maria Cecília Loschiavo dos Santos

Description:

The topic of design for sustainability is of extraordinary importance in the contemporary agenda of both the design studies and research as well as of the industrial design culture. It is a decisive design practice for the development of new products. In this context it is relevant to introduce the students systematically to the so called "clean products" methodologies.

ICA 5166 SOLID WASTE AND ITS SOCIAL AND ENVIRONMENTAL IMPACTS

PROCAM - Graduate Program in Environmental Science

University of São Paulo, Brazil

Responsible Professor:

Prof. Dr. Maria Cecília Loschiavo dos Santos

Prof. Dr. Sílmaria Gonçalves Dias

Assistant professor:

Dr. Sonia Berger Mercedes

Objectives:

- To disseminate concepts and systematic information about municipal solid waste and its social and environmental impacts from an interdisciplinary and intersectoral view;
- To discuss the relationship between design, product chain, waste prevention, disposal and management, as well as public policy;
- To discuss the processes and technological innovation for the reduction and treatment of municipal solid waste;
- To present experiences, case studies and management projects related to waste recovery;
- To discuss the problem of waste in the context of contemporary theories of environmental justice.

RESEARCH PROJECTS

BACHELOR, MASTER AND PHD

MARIA CECÍLIA LOSCHIAVO, Advisor Professor

Ana Augusta Lopes de Moraes Construction and Demolition Waste: generation and management in Brazil. 2012. Monograph. Bachelor in Architecture and Urbanism, Faculty of Architecture and Urbanism of the USP.

Denise Alves Janovic Design and Construction of solid waste. 2012. Undergraduate research, student in Architecture and Urbanism, Faculty of Architecture and Urbanism of the USP, the National Council for Scientific and Technological Development. (in progress)

Julia Maria Carvalho Gomes Study on the process of formation of the cooperative network of waste pickers at Paraíba Valley - State of São Paulo. 2013. Dissertation, MSc in Environmental Science, PROCAM - Graduate Program in Environmental Science.

Ingrid Moura Wanderley The design of the object. Creative interactions in contemporary production of artifacts. In 2013. Thesis. Ph.D. in Architecture and Urbanism, Faculty of Architecture and Urbanism University of São Paulo, Foundation for Research Support of the State of São Paulo.

Livia Gasparelli Cavalcante Constructive materials, complexity and sustainability: an analysis of the relationship between specification and sustainable construction materials. 2013. Dissertation. Masters in Environmental Science, PROCAM - Graduate Program in Environmental Science.

Lucia Moraes Lucena Waste Electrical and Electronic Equipment in a University campus: the USP case study 2010-2013. Thesis. Ph.D. in Environmental Science, PROCAM - Graduate Program in Environmental Science. (in progress)

Marcelo Ambrósio Disposal of waste gypsum in a ceramic industry at Campo Largo (PE). An analysis of the impact on the environment. 2013-2015. Dissertation, MSc in Environmental Science, PROCAM - Graduate Program in Environmental Science. (in progress)

Rafael Galvão Gianesella Design and solid waste removal. 2011-2013. Dissertation, MSc in Environmental Science, PROCAM - Graduate Program in Environmental Science. (in progress)

Rosana A. Vasques Cultural diversity and Design of products and services around shared use. 2011-2014. Thesis. Ph.D. in Architecture and Urbanism, Faculty of Architecture and Urbanism University of São Paulo. (in progress)

Sylmaria Franceline Lopes Gonçalves Dias Culture as a perspective of their integration in the field of recycling industry 2009. Thesis. Ph.D. in Environmental Science, PROCAM - Graduate Program in Environmental Science.

PostDoctoral

Ana Paula Bortoloto Design, consumer behavior and waste prevention: structure and implications for the National Solid Waste Policy Law (12305/2010). 2012. PROCAM - Graduate Program in Environmental Science. (in progress)

Lucia Helena Xavier Waste Electrical and Electronic Equipment (WEEE). 2012. Faculty of Architecture and Urbanism of the USP, the National Council for Scientific and Technological Development.

SYLMARIA GONÇALVES DIAS, Advisor Professor

Teresa Pinheiro Villac Barzi Sustainable procurement as a tool of waste prevention and social inclusion. Graduate Program in Environmental Science (Master). University of São Paulo, 2013-2015. (in progress)

Paula Navarro Canelhas, Larissa B. Silva Recycling of EPDs (Hydrocellulose), environmental innovation: a case study of Cooperative Waste Pickers in Arujá (COOP). Monograph, Undergraduation in Environmental Management, University of São Paulo, 2012-2013.

Tullio Garbin, Almo Pio Media and environment: a study of plastic bags. Monograph, Undergraduation in Environmental Management, University of São Paulo, 2012.

Virginia Praganá Waste Electrical and Electronic Equipment (WEEE) and the inclusion of waste pickers: comparative analysis of recovery centers in São Paulo. Monograph, Undergraduation in Environmental Management, University of São Paulo, 2012-2013.

Adriana Silva Ferreira Logistics and the National Solid Waste Policy: A case study of Sacramento Jangal. Monograph, Undergraduation in Environmental Management, University of São Paulo, 2012.

Lucas Tiso, Caio Souza Ribeiro Construction and Demolition Waste and the National Solid Waste Policy. Monograph, Undergraduation in Environmental Management, University of São Paulo, 2012-2013.

WWW.USP.BR/RESIDUOS

But we need to reach all educational levels, from Childhood to Graduate students, including their families and communities;

We need to promote capacity building courses on municipal solid waste;

We need to promote sustainability courses for NGOs, collectors, collectors cooperatives, aiming to empower them for a stronger participation in all levels – local, regional and national – of The process of waste management.

In Brazil now is a time of transition

*within the new law
12.305/2010,*

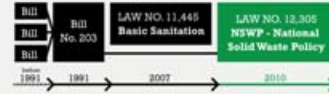
old ways of dealing with waste are still used,

But

*new parameters are forcing us to change our daily
life practices*

WASTE LEGISLATION IN BRAZIL: SOLUTION OR CONFUSION?

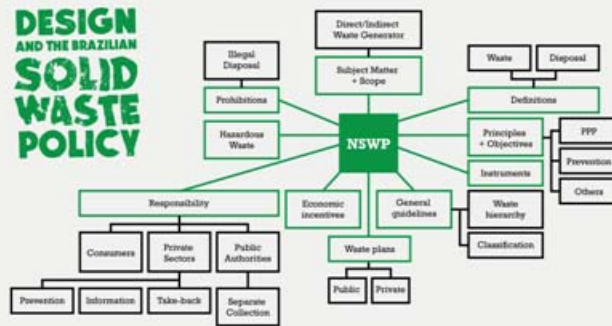
HISTORICAL BACKGROUND: A SHORT NOTICE



CURRENT SCENARIO: LEGISLATIVE CHAOS



OVERVIEW OF THE NSWP: WHAT DOES THE LAW SAY?



CONSUMER WASTE: SHARED RESPONSIBILITY FOR THE LIFECYCLE OF PRODUCTS



We need to look at the future needs of our society

Key point –

*waste is a rich issue, with many
dimensions and we need*

Substantial methodological contribution

*To boost waste management without banning out the
Presence of the collectors that have created this
economy for survival*

SUSTAINABILITY = TO SUSTAIN = TO KEEP



FUTURE NEEDS /SOLUTIONS

SEEKING FOR ALTERNATIVES

CITY LOGISTICS

MAKING THE CITY BE EFFICIENT

decrease the mass consumption

