



Climate change, risks, and adaptation: handling the challenges at the local level

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Summary

- Background
- Interdisciplinary, empirical research – megacity, climate change, risks and adaptation (case study – São Paulo, Brazil)
- Scientific cooperation and results
- Research results
- New perspectives for future studies

Cities and climate change

relevance of scale and interdisciplinary approach in studies aimed at evaluating the climatic impacts to better understand

- the set of new risks and threats that will further exacerbate the adverse situations in urban areas
- the potential and the capacity that cities have to promote adjustments processes to anticipate risks and reduce vulnerabilities

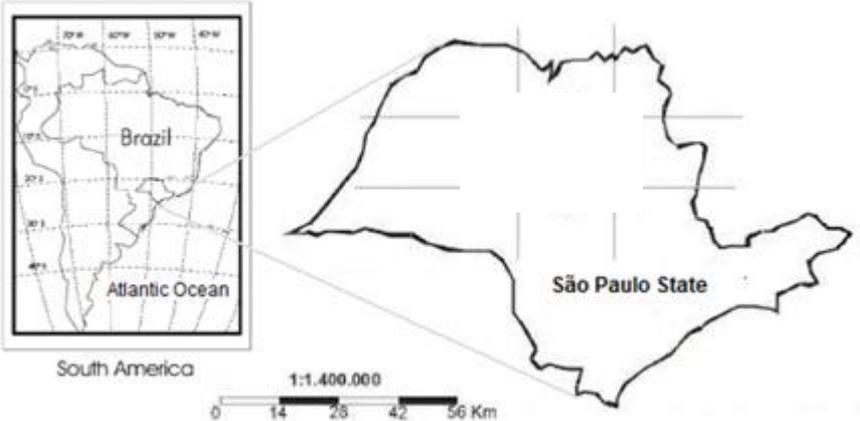


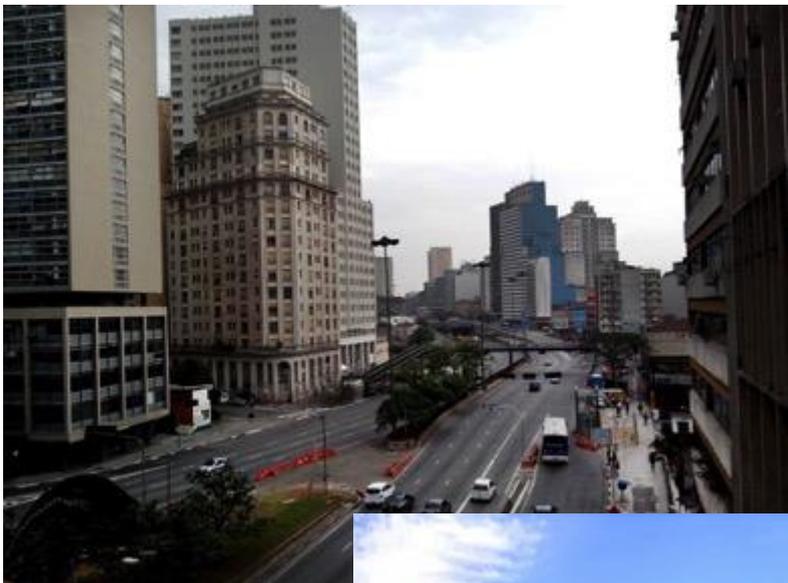
<http://www.igbp.net/>

Megacities

- high population density, inequalities, urban infrastructure
- need for changing the urban development model to address current and future challenges
- articulating actions/strategies to climate change
- lifestyles associated with urbanization - drivers of climate change (IPCC, 2007, 2014)
- more susceptible to risks and severe impacts related to this phenomenon
- cities and local governments – important role in governance of climate change

The megacity of São Paulo, Brazil





Key issues facing São Paulo

Population: 11 million people (IBGE, 2010)

Climate issues may bring a set of environmental hazards that would worsen urban problems

São Paulo - C40 Cities Groups

Municipal Policy on Climate Change since 2009 – goals have not been achieved

Challenge: linking public policies related to climate change to housing policy, sanitation, urban planning, water management, urban mobility

São Paulo: high heterogeneity in terms of different access to resources, levels of poverty and abilities to interact with climate change

Photos: Marcos Akira Watanabe and Maria da Penha Vasconcellos





São Paulo



Interdisciplinary, empirical research

- ✓ How this megacity has been mobilized to deal with climate risks and threats
- ✓ How stakeholders of science, policy and civil society perceive climate risks in the local sphere
- ✓ How contextual factors and some attributes influence the local adaptive capacity



Qualitative methods:

- ✓ literature review
- ✓ documentary research (analysis of public opinion poll, journalistic news, documents about the new Master Plan, socioeconomic data)
- ✓ observation (meetings, technical and scientific events)
- ✓ interviews and meetings with social actors/groups
- ✓ workshop aimed to exchange information on climate science, risks and adaptation with scientists, practitioners, and journalists

Scientific collaboration – USP and U-M (Fapesp)

Brazilian research team: Gabriela M. Di Giulio, Maria P. Vasconcellos, Wagner C. Ribeiro (USP)

American research team: Maria C. Lemos, Scott E. Kalafatis (U-M)

- foster knowledge exchange and experiences
- leverage existing data
- lay the foundation for a collaborative theoretical and methodological framework to analyze climate adaptation in cities

4 missions

- Oct/2014 - Brazil (research meetings, Seminar - Adaptive Capacity and sustainable cities; Workshop on Climate Adaptation in Megacities: reflecting on impacts, demands and responses at the city of São Paulo)
- May/2015 - USA (research meetings, Fourth Global Meeting - ICARUS IV)
- July/2015 - Brazil (research meetings)
- Oct/2015 - USA (research meetings, Urban Vulnerability and Adaptation Writeshop)

Results from collaboration

- Paper - A megacidade de São Paulo e as mudanças climáticas: carência e urgência no tempo e espaço em políticas públicas urbanas, presented at Brazilian Scientific Event Anppas, Brasília
- Paper - Climate change, risks and adaptation in the megacity of São Paulo: a perspective from Humanities, presented at Fourth Global Meeting (ICARUS IV), Illinois, USA
- Paper - Building adaptive capacity in the megacity of São Paulo, Brazil: urgencies, possibilities and challenges, presented at RC21 International Conference, International Sociological Association - ISA, Urbino, Italy
- Book chapter - Megacidades e mudanças climáticas: um enfoque interdisciplinar sobre o município de São Paulo (to be published in 2016)
- Paper - Climate change, risks and adaptation in megacities: the role of local power (to be submitted for a Special Issue - some possibilities of journals)
- Future paper - Dimensões Humanas das Mudanças Climáticas: contribuições das ciências sociais para o debate sobre vulnerabilidade e capacidade adaptativa (to be submitted for Brazilian Journal Estudos Avançados)

Main Research Results

Analytical framework

Adaptation: complex task, considering the uncertainties related to the climatic projections about possible changes in the precipitation and the occurrence/frequency of the extreme events

Economic, institutional and political constraints are stretching the cities' ability to provide basic services and support current populations, infrastructure, and ecosystems

Contextual factors: risk perceptions and impacts of climate-driven extreme events

Attributes: (i) accesses and uses of scientific information in the individual and collective decisions; (ii) economic resources; (iii) technological capacity; (iv) intersections between adaptive actions and sustainable development; (v) synergies between generic capacity and specific capacities; (vi) social capital; (vii) trust in the organizations; (viii) presence of policy entrepreneurs; (ix) processes of participative governance

Policy experimentation: approaches to organizing municipal responses to climate adaptation: mainstreaming approach, and dedicated approach

São Paulo:

Contextual factors

➤ **Risk perceptions – climate change:** myopic view – public opinion recognize climate change impacts; however, even worrying, these impacts compete with other issues (including environmental issues) that put people under more pressure

➤ **Impacts of climate-driven extreme events:** the current water crisis in São Paulo State, with serious repercussions in the megacity of São Paulo, has gained attention from the politicians, the media and the society in general

Fragilities – water governance, lack of information, increased vulnerability, turning point to an amplified debate on climate change (?)



Photos: USP Imagens

São Paulo:

Policy experimentation

Mainstreaming approach: the design and implementation of actions by streamlining them into existing policy; while there are specific interventions in urban socio-technical systems (mobility, housing, green infrastructure) that are designed to respond to the imperatives of mitigating and adapting to climate change in the city, they have not been openly described as “climate change actions”

New Master Plan (2014)

- investments in public transport (with more and better-structured bus and bicycle lanes) – 61% of greenhouse gases emissions are related to transport; mobility is one of the biggest issue
- other proposals: rural zones in the city, payment for environmental services, support to the compact city model, waste management, green areas etc

The United Nations recently recognized the new city plan as an example for the rest of the globe

Photos: Marcos Akira Watanabe



São Paulo:

Attributes

- intersections between adaptive actions and sustainable development
- presence of policy entrepreneurs – important role for new public policies related to socioenvironmental agenda
- accesses and uses of scientific information in decisions – lack of trust and articulation between the academia and the government; diffusion of scientific knowledge
- economic resources and technological capacity – big challenge for a city with high population density, social and economic inequalities, inefficient urban infrastructure
- process of participative governance – how implement innovative policies and strengthen participatory instances



Para além de uma reflexão sobre como a megacidade de São Paulo tem se mobilizado para lidar com os problemas e ameaças que podem ser potencializados pelas mudanças climáticas, o workshop permite também a interação entre os grupos participantes e público, maior articulação entre academia, gestão pública e sociedade e a interação entre pesquisadores de diferentes áreas que têm se debatido sobre questões urbanas, ambientais e climáticas. Em como

- As políticas para preservação requerem normas, clareza e foco
- Atenção aos recursos ambientais
- Repensar o uso predatório do solo
- Em regiões onde a desigualdade é mais severa, os impactos são mais sentidos, as medidas de adaptação

São Paulo cobra revolução, desde que não se mexa em nada, diz Haddad

MÁRIO CÉSAR CARVALHO
DE SÃO PAULO

31/07/2014 @ 01:30



"Cobra-se muito a revolução desde que não se mexa em nada". Foi com uma variação da frase-chave do romance "O Leopardo", de Tomasi di Lampedusa (1896-1957), que o prefeito Fernando Haddad (PT) respondeu à **Folha** se acha a população de São Paulo conservadora. No livro de Lampedusa, nobres aderem ao novo poder para continuar mandando, ideia que é sintetizada na fala de um príncipe ("Para que as coisas permaneçam iguais, é preciso que tudo mude").



Hoje Haddad sanciona o Plano Diretor, com um espírito diferente dos nobres de Lampedusa. O plano pretende mudar a cidade ao aumentar a densidade populacional ao longo das avenidas e destinar um volume inédito de recursos para habitação social. Revolução sem mudança, aliás, não existe, como afirma o prefeito em entrevista que deu junto com o secretário de Desenvolvimento Urbano, o arquiteto Fernando de Mello Franco.



New perspectives for future studies



Research project CiAdapta Cities, Vulnerability and Climate Change: an integrated and interdisciplinary approach to analyze actions and adaptive capacity (funded by CNPq) – dec 2015 – dec 2017

Research project Drivers of Urban Adaptation in the State of São Paulo, Brazil

Thank you!

Many thanks

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Colleagues – Research Project

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