



URBAN GROWTH, VULNERABILITY AND ADAPTATION: SOCIAL AND ECOLOGICAL DIMENSIONS OF CLIMATE CHANGE ON THE COAST OF SÃO PAULO

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Collaborating institutions: Embrapa Satellite Monitoring, Brazilian Agricultural Research Corporation (Embrapa); Federal University of São Carlos (UFSCar); Geological Institute of São Paulo (IG), Department of Environment of the State of São Paulo (SMA); Indiana University and Associate Faculty Earth System Governance (IHDP); Institute for Technological Research (EPT).

THE KEY QUESTION AND OBJECTIVES

The key question is how demographic and social dynamics interact with the ecological dynamics of forest cover to produce a region of high environmental vulnerability in a context of global climate change on the coast of São Paulo, Brazil.

This project proposes a polycentric and interdisciplinary approach at various levels with active oversight of local, regional, and national stakeholders to addressing the complex problems of climate change caused by greenhouse gas emissions.

The main specific objectives are identify, describe, map and analyze: 1) In view of social and environmental vulnerability, the dynamic social, political, demographic and environmental in study area, aiming to identify and map their key challenges - both from the standpoint of ecological characterization with a focus on biodiversity, and also on human dimensions of sustainability, such as environmental conflicts in the region, and political-institutional responses to the problem; 2) In view of social and political adaptations, the patterns of : land use and land cover; production and consumption of natural resources; mortality by groups of cause.; experience of municipal governments in harmonizing economic growth, social justice and environmental protection at the local level, seeking to identify them; conflicts (local, regional and global actors and arenas) concerning the irregular settlements on the Serra do Mar State Park; human activities related to urban sprawl

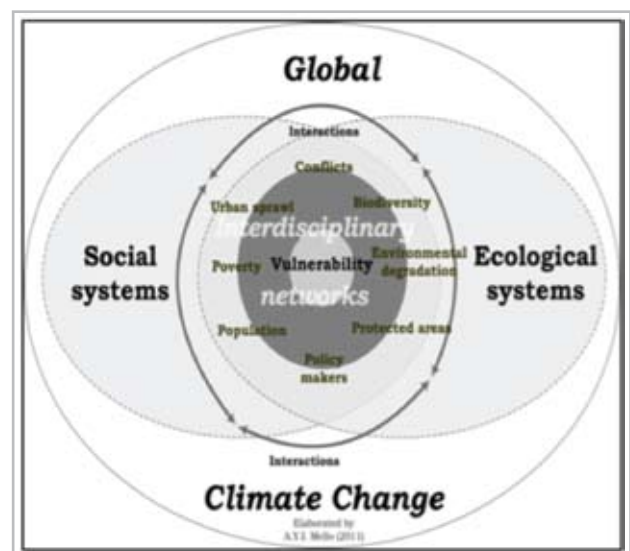
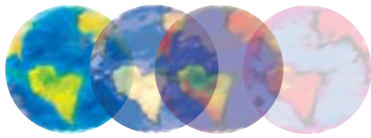


Figure 1. Conceptual framework

and growing infrastructure needs have already affected adjacent forest areas in terms of floristic composition, when compared with similar forest in other areas of the Northern Coast of São Paulo, and whether air pollution and deposition of nitrogen compounds produced by the Gas Processing Plant under construction will enhance plants' growth rate.



CURRENT RESULTS

Consolidation of data from Census 2000 in a georeferenced database. Data on notifiable diseases on the basis of Datasus; Data Transmitted Diseases Water and Food (TDWF) historical records of the epidemiological surveillance.

Role of local governments in areas with effects on climate change. Political-institutional strategies (federal, regional and local). Political-Institutional structure in coastal cities of the State of São Paulo. Environmental legislation in the coastal cities of the State of São Paulo. Estimation of human occupation on the shoreline in urban areas in the north coast of São Paulo.

Survey and identification in the north coast: social actors and institutional decision-making arenas, patterns of interaction and action strategies; main centers of scientific expertise acting in direct and indirect environmental arenas in the region; patterns of land management, legal instruments (State Park, National Park, Master Plans in the city of Ubatuba, integrating factors and disintegration of social groups in decision making; civil associations and executed projects; thick description of the videos of the public hearing portion of the Marine Mussel Project; dynamic process of defining environmental risks and impacts of the Gas Treatment Unit Caraguatatuba.)

Definition of two focus groups to discuss climate change and risks.

Based on census tracts and areas of consideration, we analyzed the distribution of population, people with incomes of up to two minimum wages, water and sewer service and garbage collection to Caraguatatuba and Santos on the coast of São Paulo, also different types risk and vulnerability (landslides, flooding, shoreline distance).

Obtaining data of the physical environment in institutions such as IPT and Civil Defense.

Phytosociological inventory and summer sample of tree ecophysiology parameter in lowland tropical atlantic moist forest in Caraguatatuba.

Definition of indicators and vulnerability maps for coastal areas, identifying the variables that make up the regional scenario of urban sprawl and environmental changes.

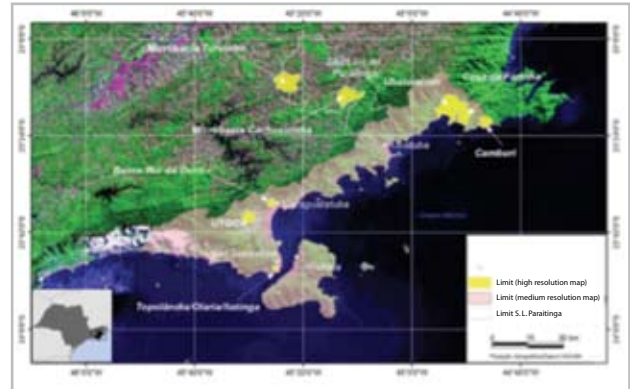


Figure 1. Mapping coverage and use of land

RELATED PUBLICATIONS

Ferreira L, Martins R, Barbi F, Ferreira L, Mello L, Matenhauer A, Oliveira de Souza F. 2011. Governing climate change in Brazilian Coastal cities: risks and strategies. *Journal of US-China Public Administration*, ISSN 1548-6591, USA. **8(1)**: 51-65.

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Seixas SRC, Barbosa RV, Renk M, Asmus GF, de Mello AYI. 2010. Global environmental change and health: a preliminary approach about Caraguatatuba county, North Coast of São Paulo. *Teoria & Pesquisa*. **XIX, n. 1**.

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