

## Mapping of green areas in Rio de Janeiro City

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### Introduction

The work presented is the result of research about the mapping of green areas in Rio de Janeiro city, the main aim of which was to verify the distinct process of occupation of these areas for housing and the preservationist environmental legislation that applies to them. The presupposition that guided the research was that a shantytown situated on a hill and preservation of greenery might not be such incompatible factors as generally attributed in the public view and reflected in the action of public authorities.

The research results refer to a city district that, although covering a relatively small area, possesses great landscape and heritage potential. It is occupied by homes considered upper middle class and two shantytowns: Babilônia and Chapéu Mangueira, both situated within an Area of Environmental Preservation (APA). Another set of results is drawn from a large shantytown complex in Rio de Janeiro city, built in an Area of Environmental Preservation and Recuperation (APARU), located in the Serra da Misericórdia mountain massif, which lies within the Parque Estadual Pedra Branca (state park).

As these areas constitute environmental protection in an urban context, investigation is justified if there are: 1) socio-environmental friction in the forms of occupation and preservation of the green areas practised by residents, as much the shantytown dwellers as those denominated formal; and 2) differences between these forms due to territorial and economic location.

In view of the urbanization process encountered in Brazilian cities, the action of the State must be brought into the debate, specifically with regard to the environmental policies, as the formulator and inspector of action and measures applied to areas of environmental preservation and urban recuperation occupied by settlements.

In general, the urbanization conditions of Brazilian cities reveal a picture of precariousness in various sectors of urban life: insufficient housing, lack of adequate infrastructure, growth of informal areas, occupation of environmental risk areas and protected green areas, among others.

There is awareness that the aforementioned difficulties do not affect the citizens equally, the greatest burden being borne by the poor. Along with this, there is a disequilibrium in housing standards, infrastructure and provision of services in the various urban areas, which entails processes with a high level of social and spatial segregation.

#### Justification

Occupation in Rio de Janeiro city faces the geographical complexity of the terrain, marked by the existence of three major coastal mountain massifs: Tijuca, Pedra Branca and Mendanha. It is in these that the major green areas of the municipality are found. In the central part of the suburbs lies the Serra da Misericórdia mountains, on which lies Complexo do Alemão, one of the largest shantytown conglomerations in Rio de Janeiro.

The latter is characterized by an extremely high population density, as a consequence of its history of occupation, originating from the working class settlement there due to the proximity in the past to factories and the availability of rail transport, allowing greater mobility and accessibility.

Regarding the densification aspect, a more attentive examination of this area of the city is justified. The presence of the mountainous topography has allowed the survival of a green remnant, a major factor in environmental quality in cities. If, on the one hand, the green areas are vital parts of the urban environment, on the other, their rampant occupation may become an environmental problem, which is directly related to the physical conditions of the site and its forms of appropriation.

Besides the natural conditions, we must consider the legal mechanisms that determine the types of use and occupation of the environmental areas, delimiting them for preservation. We focused on the action of the State in order to ascertain whether the proposals/plans to deal with the relation between occupation and preservation in the Serra da Misericórdia Park were being implemented. It was of particular interest to us to investigate how action of the public authorities was being performed, and to point out any difficulties faced by the residents and the State itself. The Sistema Nacional de Unidades de Conservação [National System of Conservation Units] considers it important to enlist social participation in the management of the units through local councils. Here it is supposed that there exists predisposition for involvement in preservation matters on the part of the population.

Based on knowledge acquired through the research experience in the Complexo do Alemão, the selection of another occupation in a green area that would characterize an opposite situation, hitherto not observed, but equally submitted to the environmental legislation, was the reason for us to highlight the shantytowns in the Leme district. The principal differences among the shantytowns refer to size, location, the surroundings and the public investments made.

#### Methodology

This study used data gathered from secondary official sources, such as the Rio de Janeiro City Hall site and the IBGE Census in order to portray the urban infrastructure of the shantytowns and the demographic profile of the shantytown areas and surroundings. It surveyed the environmental legislation to investigate the meaning, in terms of possibilities and limitations, of living in areas of environmental protection. From the institutional point of view, it investigated the role of the Fort situated on Morro do Leme (hill) and its relation with the residents. It made use of iconographic resources, such as cartography and photos, to visually express the link between built-up and green areas. Research was conducted regarding State action and that of NGOs in relation to the plans and projects implemented in the selected research areas.