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## **Climate Change and Planning: the Risk of Aggravating Socio-Spatial Exclusion**

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### Statement of the problem

Throughout its evolution, urban planning has assimilated environmental thinking and the concept of sustainability. Now, climate change is affecting all human activities and, as should be expected, is also affecting the spatial planning in both theories and practices. At first, planning has incorporated the concepts of mitigation and adaptation, moving forward, then, to the notion of urban resilience. More recently, planners begin to understand that, like the environmental issue, the climate issue is also, in its essence, a social issue, inseparable from equity and social justice.

The intensification of extreme weather events and the acceleration of global climate change add urgency to the environmental debate, bringing challenges and opportunities that require a temporal and geographic cross-scale approach to coordinate global and local actions over several generations. Climate change, and the adaptations resulting therefrom, tend to reinforce the concentration of wealth and power, alienating local populations and increasing their vulnerability. In a stratified world, with asymmetrical power systems, the lack of understanding of the consequences of mitigation and adaptation to climate change may inadvertently reproduce or deepen the damage they aim to fix. So that interventions can be locally relevant, adaptation and climate mitigation should promote environmental justice in the form of rights and representation - empowerment of local people.

We noticed with concern that, frequently, the actions to adapt to climate change adopted in our cities are actually increasing the risk they should reduce. In addition to consuming scarce public and private resources, and a precious time of reaction, these bad adaptations cause, tragically, a false sense of security that only increases the danger to which the population is exposed.

The cities, which should provide security and opportunity, are transformed into traps with immense potential for disaster, especially for the low-income population - one that is at maximum environmental risk as due both to the occupation of risk areas, and for their lower response capacity to disasters.

### Objectives

This study aims to analyze the evolution of recent urban planning practices under the influence of the climate change debate, and investigate the manner in which planning structures, the planning legislation and urban projects are being affected by the occurrence of more serious and frequent environmental disasters.

## Methodology

As methodological procedures, we adopted literature review; research of planning and civil defense structures, with interviews and data collection on websites, publications, projects and legislation; and data collection on the press coverage of recent disasters. The territorial scope of the research was restricted to the major cities of the southern and southeastern states of Brazil: Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Rio de Janeiro, Minas Gerais and Espírito Santo.

## Main Results and Contributions

In the surveyed cities, water has been a major concern, either by its scarcity in periods of prolonged drought; or for its excess, causing floods and landslides. New planning practices should be adopted to live with this scenario. The main results of the research were that there is a remarkable breakthrough in the perception of climate change in public administrations, but much more focused on disaster response and reconstruction than on prevention with urban planning. There's a whole new regulatory framework on climate change and on risk reduction and disaster, but little dialogue with the urban legislation. The structures of the civil defenses were strengthened, improving disaster response capacity, but, with rare exceptions, urban resilience and prevention of disasters don't emerge, yet, as a strong guidelines in urban planning. On the contrary, the reconstruction works, carried out with public funds and without bidding processes and environmental licensing, in the exception regime of the state of public calamity, tend to disregard the Master Plans and prepare a trap for the next disaster. The human action must accept that there are limits to the development and respect the carrying capacity of the natural environment.

Our contribution to the discussion of this issue is to strengthen the alert to the need to act preventively through urban planning to mitigate climate change; to adapt cities to the inevitable effects of climate change and to prevent climate change from generating more exclusion and socio-spatial segregation. Mitigation may be sought by reducing the emission of greenhouse generator gases (eg with multifunctional zoning which reduces displacement and with priority to public transport and non-motorized modes) and the increase in wooded areas. Adaptation can take place with the removal of occupation of risk areas, with the preservation of vulnerable areas (slopes, hilltops, valley bottoms), and avoiding maladaptation works that increase the risk that they should reduce. And to prevent climate change from generating social exclusion, it is necessary to reduce the vulnerability of low-income population and not ignoring them as interlocutors in decision-making processes.