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Planning and Urbanization in Climate Change Scenarios


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Editorial

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Climate change and associated extreme events have become one of the most recurring issues of contemporaneity, generating new demands that affect society in different ways - either materially or immaterially. In this regard, there is an increasing commitment from areas of knowledge (MORAES *et al.*, 2020) on what the future paths of these effects are, especially in complex socio-environmental conditions. Science must assume an interdisciplinary paradigm to achieve capacity considering climate change scenarios and its uncertainty. This trend reflects the researchers' concern about contemporary environmental and climate issues, and also responds for the new data and study perspectives. Thus, new scopes and dimensions of the research go beyond the *hard science and soft science* division and continue to observe: the human dimension and the energy of the atmosphere; from palaeoclimatology to economics; oceanographic and biometeorological sciences; social sciences and applied social sciences (INCLINE, 2020).

Parallel to the scientific and epistemological development, the climate change topic involves multi-level agendas that transcend the creation of the Intergovernmental Panel on Climate Change (IPCC) and its reports, as well as national, regional and local climate policies. This is the case, for instance, of the Sustainable Development Goals (SDGs) targets related to metropolitan environment and the climate change (MOMM *et al.*, 2020). However, significant changes in environmental and development policies are underway in different parts of the world. They combine the reduction of the role of the state - *neoliberal turn* (METZGER, 2018) - and the flexibilization of policies, as it is the case in Brazil, which result in disagreements (as for foreign trade and trading agreements) and worsening rates (e.g. deforestation). Despite the negative shift in public policies, there is pressure from groups and sectors, linked to both the environmental movement and the green economy (international funds), demanding and questioning such measures that result in worsening environmental and vulnerability conditions.

Climate change impacts on the urban environment in the anthropocene¹ result in a cascade effect in different territorialities and infrastructure systems, such as the water supply, sanitation, energy, mobility and transport sectors. The vulnerability of different sectors towards climate change varies according to the resilience and adaptability of these systems as much as territories where they are located (CANIL, LAMPIS and SANTOS, 2020). Especially in cities in the Global South, such as Brazil and other Latin America countries, the impacts of climate variability exacerbate the pressure over systems that are already inadequate for a larger part of the population, such as access to basic sanitation and transportation services, and that on several other issues resulted from extensive urbanization (LAMPIS, *et al.*, 2020; TORRES, JACOBI and LEONEL, 2020;).

1 - Some authors will question the term "Anthropocene" in relation to its serious discontinuities and place it as a limit event instead of a epoch / period, and thus re-signify it in *Capitaloceno* (MOORE, 2016), *Plantationoceno* and *Chthuluceno* (HARAWAY, 2016).

The vulnerability of Brazilian metropolises is marked by an urbanization model that is socially excluding and negligent towards ecological systems and the wide population. As highlighted by Travassos *et al.* (2020), when analyzing the deaths occurred between 2016 and 2019 in the São Paulo Macrometropolis, heavy rains in a short period of time continue to be responsible for many deaths due to the lack of infrastructure or the presence of inadequate infrastructure. Fatalities also occur due to the existence of buildings in areas susceptible to floods and landslides. In these situations, existing government structures have not been sufficient to prevent deaths. The unsustainable pattern of this context is characterized by the prevailing process of expansion and occupation of intra-urban spaces, marked by the growth of urban precariousness and differentiated access to public investments.

In situations like floodings, one of the most recurrent and devastating types of disasters in Brazil, problems generated after an event expose the ineffectiveness of land use and occupation planning, the unpreparedness of the authorities and the lack of a prevention *ethos* in society. Also, disordered urban growth is one of the main factors for the intensification of extreme events, as observed in Silva Dias *et al.* (2013). Scenarios for the coming decades show an even worse situation, with a higher number of storms responding to urban territorial expansion (BENDER *et al.*, 2019). Thus, the analytical components of a socio-environmental reality are identified, characterized by the fragility in the response capacity of societies with fewer resources, as well as the lack of intersectoral actions.

The permanent tension that operates between the public interest, an essential value for planning (MORONI, 2018), and private interests has been set as one of the most complex aspects for the formulation of environmental policies focused on the urban space, wherein the issue of land use and occupation stands out. The scenario of disaster risk management interposes the urgency of considering the increase in the occurrence and intensity of extreme events to the vulnerability of populations in risk areas. This demand advances in preventive and, mainly, participatory management for planning and environmental governance of the risks of natural disasters that make it possible to develop the adaptive capacity of contemporary societies.

In this regard, planning and governance as a field of knowledge and practice (including theories, approaches, methods and techniques) are strained to produce responses to the demands of the climate agenda (MOMM, KINJO and FREY, 2020). This multilevel agenda is led by a global network to assist in making necessary decisions and actions in the ecosystem and social welfare spheres. It is a search for answers that meet the emerging and specific demands of each region since the question is no longer what is happening or why; it is, rather, what can we expect if current trends continue, and what can we do to decelerate or mitigate them?

Given this scenario, the articles selected from the so-called **urbanization, planning and climate change**, discuss theoretical and methodological approaches, as well as cases that relate these themes in an interdisciplinary, intersectoral, multilevel and cross-scale

approach. They also discuss experiences and approaches that consider the interaction between science and the practice of planning and governance as well as communication strategies for decision-makers and society in general.

The article **Identification of the Energy System of the São Paulo Macrometropolis: first step towards local action in Climate Change**, by *Flávia Mendes de Almeida Collaço, Raiana Schirmer Soares, João Marcos Mott Pavanelli, Lira Luz Benites-Lazaro, Guilherme Massignan Berejuk, Andrea Lampis* and *Célio Bermann*, review the issue of energy supply and demand and also investigate the use of energy resources from some sources considered renewable (photovoltaic, hydroelectric and biogas) in the São Paulo Macrometropolis (MMP). The work used 12 years length of data on energy consumption and CO₂ emissions resulting from 174 municipalities in MMP and besides quantifying the demand and generation of energy, the work makes an important discussion about the energy potential not yet in use in MMP, highlighting the need to reconcile the different types of planning and policies related to the energy system.

The problem of soil waterproofing and its impact on the generation of heat islands was discussed in the article **Relations between urban subsoil and climate change in different neighborhoods in Rio de Janeiro**, by *Emmanuela Lopes de Oliveira* and *Mara Telles Salles*. The work addresses an issue that, in general, is neglected when talking about climate change, as it contributes in a not very evident way to the heat and humidity flows on the surface, both responsible for the surface and atmosphere heating. The study focused on three stretches of neighborhoods in the city of Rio de Janeiro, in which the impermeable areas and reduced vegetation were identified through satellite images on Google Maps.

The concept of spatial justice, relevant to the debate on planning and climate change, is the variable of analysis in the article **Cambio climático y justicia espacial en la planificación costera de Cuba y Brasil**. Prepared by the authors *Celene Milanés Batista, Ofelia Pérez Montero, Claudio Fabian Szlafsztein* and *Márcia Aparecida da Silva Pimentel* from universities in Brazil, Colombia and Cuba. The work applies a qualitative methodology through the technique of content analysis in physical planning instruments of the coastal zone from environmental justice indicators. In addition to the case studies, the proposed theoretical-methodological approach represents a contribution to comparative studies based on indicators related to spatial planning and climate change. For that, based on a documentary and publications analysis, the following indicators were used: “territorial limits, uses of space, coastal conflicts, environmental participation, public participation, urban insecurity, climatic migration and social exclusion.”

The context in which the article **Rio de Janeiro and climate crisis: governance, interactivity and discursive construction on Twitter** by *Francisca Rodrigues de Andrade* is located is the rains of April 2019 in Rio de Janeiro, as an extreme climatic event, in depending on the amount of rainfall registered, as

well as the adverse effects on the lives of communities. The article starts from the hypothesis that the speeches produced on Twitter translate not only the perception of influencing users about extreme weather events; but also, the population's power to participate in strengthening governance networks. For the author, such perspectives allow for some analytical possibilities, based on the combination of theoretical and methodological elements, articulated from the perspective of environmental governance.

The last article in the volume deals with **Water security, metropolitan supply and climate change: considerations on the case of Rio de Janeiro** by *Rosa Maria Formiga-Johnsson* and *Ana Lucia Britto*. The theme of water security is an emerging one for planning and governance in a climate change scenario as there are numerous impacts on the quality and quantity of water and its consequences, especially in densely urbanized areas, as is the case study for the article. The researchers adapted and applied an analytical scheme of qualitative water security assessment to the 'Guandu System', based on previous research, bibliographic review, official documents and interviews.

To conclude a year of intense work and commitment to the dissemination of quality scientific production, this editorial also presents the latest **Original Articles** corresponding to the **Annual Volume 2020** of the journal *Ambiente & Sociedade*. At the beginning of this section, in the article: **Health Impact Assessment and the Relationship with the Environment: an Integrative Review**, authors *Simone Cristine dos Santos Nothhaft*, *Nunzia Linzalone* and *Maria Assunta Busato* analyze the production in the scientific literature on Health Impact Assessment related to the environment. They identified that there is a movement towards the inclusion of Health Impact Assessment and Environmental Impact Assessment, with the institutionalization of this integration considering that the Environmental Impact Assessment already has its legal basis consolidated.

The authors *Davison Márcio Silva de Assis*, *Ana Cláudia Caldeira Tavares Martins*, *Norma Ely Santos Beltrão* and *Priscila Sanjuan de Medeiros Sarmento*, in the article: **Environmental perception in traditional communities: a study in the Marine Extractive Reserve of Source, Pará, Brazil**, sought to quantify the level of environmental perception in the communities of one specific Conservation Unit, applying structured surveys on the 5-point Likert scale. The results revealed that the scores in the analyzed categories are high (above 9), indicating a high level of environmental perception.

In order to assess the impacts of ozone pollution, the authors *Júlio Barboza Chiquetto*, *Rita Yuri Ynoue*, *Sergio Alejandro Ibarra-Espinosa*, *Flávia Noronha Dutra Ribeiro*, *William Cabral-Miranda* and *Maria Elisa Siqueira Silva*, simulated three scenarios of vehicular restriction policies with model WRF / Chem. The results indicated a reduction of $20 \mu\text{g.m}^{-3}$ with the urban toll at maximum averages of 8h, and six overtaking of the air quality standard was avoided. The study is con-

solidated in the article: **Ozone Pollution and Urban Mobility Scenarios in the Megacity of São Paulo.**

The authors *Cristiane Kerches da Silva Leite and Lígia Gonçalves De Lócco*, in the research article **Actors, epistemic communities and political change: analysis of the solid waste policy in Guarulhos (SP)**, sought to articulate analytical categories of public policy analysis to discuss the political role of a network of actors from the solid waste epistemic community in changing politics in the municipality of Guarulhos. They verified a process of shifting the image of the solid waste policy, through the action of transferring and learning from specialists acting as political actors.

Derived from an experience of fieldwork and reflecting on the socio-territorial dynamics that involve the struggles of different actors, the authors *María de los Ángeles Guevara and Edma Silva Moreira*, in the article: **Socio-environmental conflicts, the struggle for land and territory in southeastern Pará**, show that the agrarian issue constitutes the basis on which other conflicts are built and branched. They and can be described as socio-environmental conflicts. Resistance to the processes of deterritorialization of peasant and traditional populations redefine the role of social actors in the struggle for territory.

In the article **Sustainable Development: a narcissistic strategy to face the environmental crisis?**, the authors *Adriano Kasiorowski de Araujo and Gabriela Marques Di Giulio* explore the institutionalization of the SD discourse and its consequences as a symbolic articulation that agencies subjectivity and social practices. It is framed as a strategy that is structured in a discourse that denies finitude, based on the efficiency and technological development that prevents from the end of resources. This strategy can, ultimately, leave the ballasts of human and environmental exhaustion.

Based on a critical discussion on the situation of water and sewage services, the division of power and the regulatory framework, authors *Ruth Ferreira Ramos, Klaus Frey, Aldenísio Moraes Correia, Lidiane Alonso Paixão dos Anjos and Ana Lia Leonel* conclude that, from a historic inequality in access to sanitation, it is urgent to reflect on the necessary institutional changes, for more resilient, fair and democratic political practices. In the article: **Environmental sanitation in the São Paulo Macrometropolis: perspectives for multilevel governance.**

Considering the fiscal-economic instruments as a mechanism to promote the improvement of waste management, the article: **Municipal management of construction waste: influence of landfill disposal rate**, by *Laís Peixoto Rosado, Carmenlucia Santos and Giordano Penteado*, analyzes the influence increase on disposal rate, considering a municipal management system. The results indicate that the proposed scenario for 2030 (350% increase in the rate compared to 2017) has the lowest environmental impacts, indicating potential benefits from such instruments.

In the article: **Local Ecological Knowledge of artisanal fishermen about catfish and fishing legislation: a necessary dialogue**, the authors *Sammer Maranhão Chagas Gilio-Dias, Rodrigo Machado, Tatiana Mota Miranda and Rumi Regina Kubo* sought to understand the LEK of artisanal fishermen from the Northern Coastline RS on the ecology and taxonomy of the catfish of the Ariidae family, seeking to relate it to the creation of the current fishing laws. They have discovered that the knowledge of fishermen about catfish can be an important tool in the participatory management of their fishing.

Finally, the authors *Sandra Damiani, Sílvia Maria Ferreira Guimarães, Maria Tereza Leite Montalvão and Carlos José Sousa Passos*, in the article: **“Chão e Céu only stayed: Dendeiculture and Socio-environmental Impacts on Tembé Territory in the Amazon**, analyze the socio-environmental impacts perceived by Tembé, municipality of Tomé-Açu (PA) on the expansion of palm oil cultivation at a large scale. Their findings indicate that the conversion of the territory to monoculture has generated socio-environmental changes that have negatively affected the Tembé’s way of life and the capacity for socio-cultural reproduction.

As a final remark in **Volume 23 of the Revista Ambiente & Sociedade**, we want to thank all of our editorial team, reviewers, authors and readers for the constant support to our work, despite the adverse scenario that we have faced due to the Covid-19 pandemic since the beginning of the year. This strengthens and encourages us to renew our commitment for the following year, to continue promoting and disseminating the development of science with quality and competence.

We wish you all a good reading!

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