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Civil society participation in building resilient cities: Ipiranga neighbourhood, city of São Paulo, Brazil

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Abstract

This article describes the actions of civil society to face the consequences associated with torrential rains and floods that occur in Ipiranga neighbourhood, the city of São Paulo, Brazil. These are constituted by processes of waterproofing surfaces, degradation and extinction of natural resources and insufficient housing policies to serve the low-income population who are forced to occupy flooded areas or slopes, Brazilian cities have low resilience capacity or, are unable to resist, to absorb, to adapt and to recover efficiently after extreme events. Despite adhering to the 2030 Agenda goals and providing for Strategic Master Plan (Act No. 16.050/2014) guidelines for the development of public policies for the preservation of environmental heritage, its performance without facing the risk to life and the loss of material goods of the population caused by the floods is slow. Anticipating the solution of problems not addressed by the local government, a local community, the participative counsellor of Municipal Council for the Environment, Sustainable Development and Culture of Peace and Subprefecture Ipiranga create a pilot project for rain gardens with the objective of containing floods in the region. It is a redefinition of the form taken by the road system through the inclusion of permeable areas over residual areas existing on streets and sidewalks. The study takes place at Garcia Velho Square located in Vila São José and is an example of community participation in dealing with sustainable practices. The research is carried out through the reading and analysis of the legislation and urban regulation, visits and participation in the place with the actions of the population besides the confrontation of the theoretical questions that support the method and the instruments that are subsidizing this stage of work.

Keyword: Resilient Cities, Civil Society, 2030 Agenda, Climate Extremes

Introduction

The human activities intensified urban expansion process in cities. Therefore, ecosystems have undergone sweeping changes in natural processes with the pollution of water sources, deforestation of green areas, reduction of biodiversity, waste disposal and local temperature rise. The absence of urban planning provided the occupation of protected areas for housing on slopes and floodplains. The excessive growth of impermeable areas in São Paulo makes it difficult for water to infiltrate the urban soil, increases surface runoff and causes flooding in risk areas. The Ipiranga neighbourhood is located in the southeast region of the city of São Paulo and it has problems with urban drainage, which causes flooding in points close to water courses. The vulnerability of these spaces generates inconvenience to the local population that has flooded buildings, diseases transmitted by polluted water and loss of human life.

The Garcia Velho Square is part of a network of public open spaces in Ipiranga and it has a participatory action to address environmental issues related to urban drainage, solid waste disposal, expansion of

vegetation cover and biodiversity preservation. The purpose of the study is to reveal the actions developed by the community in accordance with the objectives of sustainable development and social participation with the Municipal Council for the Environment, Sustainable Development and Culture of Peace of the Subprefecture Ipiranga to articulate the implementation of a project in a residual area.

Background

According to Herzog (2013: p. 79) 'cities are socio-ecological systems, with complex adaptive cycles'. Green infrastructure makes cities sustainable when they transform impermeable spaces into a multifunctional system incorporating socio-ecological: planting trees and vegetation, preserving pollinators and decomposing insects, composting organic materials, producing organic foods, harvesting rainwater, community integration, among others.

Resilient cities

Ecology conceptualizes 'resilience' as the capacity of a system to absorb impacts and conserve ecosystem functions from variations in the environment (Herzog 2013). In this way, cities seek to preserve the urban environment from vulnerabilities to climate change caused by human actions that impact the diversity of the natural system.

Civil society participation

In accordance with Dagnino (2004) social participation follows the reconfiguration of civil society with emphasis on volunteer work and social responsibility. The Federal Constitution of 1988 ensures the formation of management councils at the state and municipal levels. Organized civil society corresponds to groups of citizens whose objective is to oversee public policies. Therefore, participatory councils serve as democratic spaces with the election of representatives who contribute to the formulation of projects, proposals and inspection of Government plans.

Conforming to Benedict and McMahon (2006) green infrastructure initiatives are successful when participants are engaged. That way, they believe in community work and involve as many people as possible to plan the tasks.

Methodology

The research consists of a literature review and analysis of urban planning instruments in the city of São Paulo: Strategic Master Plan and complementary plans, as well as photographic records *in loco* resulting from sustainable practices in the studied location.

The Ipiranga neighbourhood is one of the oldest places in the city and tells the story of the Independence of Brazil through the symbolic gesture of D. Pedro I on September 7th 1822, on the banks of Ipiranga Brook. Currently, the Independence Park is located in an extensive green area that preserves the heritage of the

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Ipiranga Museum, *Casa do Grito* and Independence Monument. Close to Independence Park is Garcia Velho Square in Vila São José, Ipiranga district, between as Oliveira Melo Street, Peaçaba Street and Conde Vicente de Azevedo Street (Figure 1). A part of the neighbourhood that concentrates predominantly residential use with low commercial and institutional offers.



Figure 1. Location map of the Subprefecture Ipiranga.

The square belongs to the public administration of the Subprefecture Ipiranga, which is responsible for the care of the 75,00 m² area. A small space that houses several species of vegetation, such as *Ficus benjamina*, *Plinia cauliflora, Schefflera arboricola, Selenicereus undatus, Cosmos sulphureus Cav.*, among others. In addition, it attracts native stingless bees and birds that carry out seed dispersal and flower pollination: *Tetragonisca angustula, Trigona spinipes, Pitangus sulphuratus, Psittacara leucophthalmus*, etc.

The Traffic Engineering Company of São Paulo uses horizontal signage to organize the flow of vehicles and pedestrians in São Paulo City from concrete prisms. The road system around the square presents a geometric problem for organizing traffic, as Peaçaba and Oliveira Melo Streets converge on the intersection with Conde Vicente de Azevedo Street. Both sides of the road have residual areas on the asphalt as shown in Figure 2.



Figure 2. Impermeable area near the square.

The Strategic Master Plan (SMP) is a the main urban planning tool in the city of São Paulo (Act No. 16.050/2014) which orders urban planning for the following years considering territorial, social, economic and environmental aspects. According to Art. 6th, the SMP stipulates that 'in ordering and controlling land use, excessive or inadequate soil waterproofing must be avoided' and in accordance with Art. 214th that 'micro-drainage equipment should be encouraged'.

Surface runoff accommodates the transposition of rainwater over the urban soil surface. The displacement occurs according to the relationship of topography and climate action on the open space system, that is, rainfall intensity and slope of the road system. It is observed that the site has a slope equal to or greater than 7,30% on Conde Vicente de Azevedo Street (Geosampa 2021) which conditions the collection of rainwater from the gutters for the conventional system of urban drainage by pipes, as shown in Figure 3. The surplus flows to low areas of Ipiranga Brook, as a circumstance, the creation of flooding points on Doutor Ricardo Jafet Avenue and Estado's Avenue.



Figure 3. Rain runoff in October 25th, 2020.

Currently, community actions are present in different segments of society. A social right that encourages the formation of citizenship and a sense of community. Residents and neighbours to the square organized themselves to work on sustainable actions as a way to contain the irregular disposal of waste deposited on the impermeable area of the road. The initiative began work in October 2020 with actions for composting, preserving stingless bees, planting vegetation and recycling materials. The zeal action triggered weekly meetings, on weekends, with the residents separating organic materials to bury on the square's flowerbeds, as well as sweeping the foliage of the trees to overlap the deposited organic waste (Figure 4). In addition to taking care of the soil, they regularly water the plants to stimulate the growth of flowers and fruits, as well as planting new species from Atlantic Forest and Cerrado biome. Another initiative aimed at preserving and encouraging participants to learn was the distribution and installation of 'bait hives' in the trees to capture swarms of native stingless bees.

Irregular garbage disposal near the square raised awareness of recyclable materials by volunteers for separation and disposal in specialized posts. The materials collected by the group are aluminium bottle caps and cans, aluminium umbrella support, polystyrene packaging, medicine packaging and glass bottle.

The meetings focus on environmental education and discussion of sustainable alternatives for the space (Figure 5). A joint articulation between the square's participants, Ipiranga's environmental counsellors, administrative technicians from the Ipiranga district and supporters of the initiatives.



Figure 4. Foliage sweeping for compost.



Figure 5. People meeting to discuss environmental activities.

The Municipal Council for the Environment, Sustainable Development and Culture of Peace has a participative and consultative disposition linked to the Municipal Secretariat for Green and the Environment pursuant to Act No. 14.887/2009. It is structured by sixteen members representing organized civil society elected by direct vote. In addition, the group receives the nomination of eight members of the Municipal Public Power, with mandatory representation from the Secretariats: of Green and the

Environment; of the Regional Subprefecture; of Human Rights and Citizenship; and Sports, Leisure and Recreation. It is in charge of the attributions of prepositions and recommendations for plans, programs and projects (São Paulo 2009).

Representatives of the Regional Council for the Environment, Sustainable Development and Culture of Peace of Subprefecture Ipiranga and urban planning technicians from the Government of São Paulo City prepared a Pilot Project for Rain Gardens for the region, which includes a project to implement a residual landscaped area near Garcia Velho Square (Figure 6).



Figure 6. Landscape project - Square floor plan.

In 2015 the 2030 Agenda was created as a global action plan by the United Nations (UN) to meet sustainable development commitments in the period 2016-2030. It's structured into 17 Sustainable Development Goals (SDGs) that involve governments, institutions and civil society organized around of prosperity and universal peace (United Nations Development Programme 2021). The actions promoted at Garcia Velho Square meet sustainable objectives described by 2030 Agenda related to goal 11 - Sustainable cities and communities - universal access to safe, inclusive and accessible public green spaces for all; goal 13 - Climate action - awareness of mitigation actions, adaptation, impact reduction and early warning of climate change; Goal 17 - Partnerships for the goals - encouraging civil society's public and private partnerships to carry out fundraising strategies.

Results and Discussions

Garcia Velho Square demonstrates the articulation and involvement of the community in occupying public space through sustainable composting actions, preserving stingless bees, planting vegetation and recycling. The research contributes to community engagement and care for the common good, reaching aspects correlated to the Sustainable Development Goals (SDGs) of United Nations (UN) for territorial transformation for a resilient city. The sense of belonging and social participation of the Environment Council highlights social and environmental issues for the development of public policies. Furthermore, the elaboration of project to requalify the residual space in a garden area helps to mitigate the consequences of climatic events related to floods.

Conclusions

Social participation in the discussion of issues related to the environment is increasingly frequent, taking into account the effects caused by climate actions in cities. This study suggests that organized civil society groups mobilize sustainable practices to mitigate the problems caused by rains. The social participation of lpiranga environmental's counsellors, employees representing the Subprefecture lpiranga and the neighbourhood contribute to public policies for the articulation of environmental actions in confronting the effects of climate change. Garcia Velho Square is an example of local action where the people occupy and take care of public space. In addition, they claim for green spaces with the expansion of the impermeable area on the road system to become permeable.

References

- 1. Benedict, M. A. and McMahon, E. T. (2006) *Green infrastructure: linking landscapes and communities* (Island Press, Washington).
- 2. Dagnino, E. 2004, Sociedade civil, participação e cidadania: de que estamos falando?, In: Mato, D. *Políticas de ciudananía y sociedad civil en tiempos de globalización,* Caracas: Faces, Universidad Central de Venezuela. pp. 95-110.
- Environmental Act 2009, no 14.887/2009, São Paulo: Diário Oficial do Município de São Paulo, Available from: https://www.imprensaoficial.com.br/DO/BuscaDO2001Documento_11_4.aspx?link=/2009/diario%2520oficial %2520cidade%2520de%2520sao%2520paulo/janeiro/16/pag_0005_9V6MH3CKH8MR2eBD78CJ24F51IL.pdf&p agina=5&data=16/01/2009&caderno=Di%C3%A1rio%20Oficial%20Cidade%20de%20S%C3%A3o%20Paulo&pagi naordenacao=10005 (Accessed: 08th August 2021)
- 4. Geosampa (2021) *Sistema de consulta do mapa digital da cidade de são paulo*. Available from: http://geosampa.prefeitura.sp.gov.br/PaginasPublicas/_SBC.aspx (Accessed: 13th August 2021).
- 5. Herzog, C. P. (2013) Cidade para todos: (re) aprendendo a conviver com a natureza (Mauad X, Rio de Janeiro).
- 6. *Plano Diretor Estratégico do Município de São Paulo Act 2014*, no 16.050/2014, São Paulo: Diário Oficial do Município de São Paulo, Available from: https://gestaourbana.prefeitura.sp.gov.br/arquivos/PDE-Suplemento-DOC/PDE SUPLEMENTO-DOC.pdf (Accessed: 19th August 2021)
- 7. United Nations Development Programme (2021). *The SDGs in action*. Available from: https://www.undp.org/sustainable-development-goals (Accessed: 04th August 2021).