Approach to the analysis of the climate crisis from the perspective of Transition Design. Case study Sumapaz, Colombia.

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The climate crisis the planet is facing requires a systemic vision that invites us to commit ourselves as a species (Capra, 1998). For decades, warnings have been issued about the limits of planetary resources, such as the accumulation of greenhouse gases, water pollution, melting glaciers, rising sea levels, species extinction, food emergencies, droughts, climate migrations, among other challenges. Nevertheless, the actions have not been effective and the evidence of this is the accelerated loss of biological diversity and the change in the planet's climate, problems linked to unsustainable economic models such as neo-liberal globalization. The technological progress of the last two centuries has made it possible to change the world and improve people's lives. The consequences of global warming are frightening and Latin America is suffering changes associated with the exploitation of natural resources and hydrocarbons, the melting of tropical glaciers, and the destruction of Amazonian forests, which systemically affect each country (Castro, 2018). In Colombia, the Institute of Hydrology, Meteorology and Environmental Studies- IDEAM (Ideam, 2023) warns that the country is in a situation of vulnerability to the effects of climate change, where food security will be affected, since some foods are more sensitive to climate variations such as cassava, potatoes, corn, beans, rice, bananas, among others. Another consequence of the increase in temperature will be the disappearance of glaciers, reduction of water in cities, and an increase in temperature in regions such as the Pacific, the Amazon and Orinoco (Ministerio de Ambiente y Desarrollo Sostenible, 2023). It is addressed in the Sumapaz area a rural locality to the south of the capital of Colombia, Bogotá where one of the largest water reserves in Colombia is located and which is currently facing the effects of the climate crisis.

The purpose of this paper is to share the progress of the first phase of the doctoral research: Adaptive governance models for the management of climate change scenarios in the locality of Sumapaz, Bogotá, Colombia. The hypothesis of the research is that the resolution of conflicts linked to climate change scenarios and the strengthening of ecosystem services in urban edge areas require holistic solutions. Transition Design, which contains in itself social innovation, the creation of nature-based solutions, and the recognition of the local knowledge of the community, has the potential to create new collaborations and unexpected combinations between the diverse actors of the territory that contribute to strengthening the participatory capacities of the community, allowing to address conflicts linked to the climate crisis. The research question is related to the need to contribute to strengthening the participatory capacities of organised environmental communities living in urban fringe areas in order to overcome socio-spatial inequalities linked to conflict scenarios associated with the effects of the climate crisis. The general objective is to analyse, in the context of climate change scenarios, governance processes in the management of the territory of communities living in urban fringe areas, in order to

propose new models of adaptive governance that lead to new approaches to conflict resolution in the perspective of adaptation and improvement of public policies related to the climate crisis.

This first stage, which is presented in this paper, describe an analysis of the theoretical framework and the relationships between design and the emerging concepts associated with a more conscious design, linked to ethics and responsibility towards nature, the climate crisis, the most vulnerable communities and the way in which these concepts are contributing to the search for solutions to adapt communities to the climate crisis. It also presents an analysis of actions to address the climate crisis in Latin America, in the face of the turbulent times we are currently experiencing. Likewise, it delves into the Sumapaz area as a case study and the review of environmental, socioeconomic, governance, vulnerability and adaptation indicators. And finally, through qualitative research, thirteen interviews with different social actors in the Sumapaz area are analysed, which, in the light of the Transitions Design, aims to explore the connections between academic knowledge, community knowledge and experimental knowledge.

The research is carried out in the Sumapaz area, Bogotá, Colombia, and takes as its starting point the case study from a qualitative methodological approach. The central epistemological reference is the Transition Design (Irwin, 2020) proposed by Arturo Escobar and Terry Irwin, who proposes a new practice in design research that starts from social transitions to face a more sustainable future (Escobar, 2017).

The methodology is structured in three moments:

The first moment corresponds to the narrative literature review and puts forward a theoretical framework based on two key concepts: climate change and design. It also proposes an analysis of the connections between these concepts in the light of emerging reflections that have emerged in recent years. Search descriptors related to the climate crisis and design are proposed. The descriptors are the following: ‘Climate change AND Sumapaz’, “Climate crisis AND Sumapaz”, “Climate change AND Colombia”, “Design”, “Social design”, among others. The descriptors will be used in databases such as Scopus, Elsevier, Google Scholar and journal repositories (Dialnet, Scielo) and Redalyc. For the analysis of data and information, the MAXQDA software for coding and description of qualitative variables will be used.

The second scope addresses the Sumapaz area as a case study, based on a physical, socio-economic and organizational diagnosis. In addition, in order to assess the effectiveness of adaptive governance and the level of preparedness and response of the community and the ecosystem to climate change, a series of indicators are proposed under this dimension: environmental, socioeconomic, governance, resilience, adaptation, ecosystem services. These indicators contribute to improve existing tools to analyse climate change scenarios, and can also help to assess policies, environmental impacts, vulnerability or mitigation of climate change in Sumapaz.

During the third moment, semi-structured interviews will be carried out as a primary source to identify the organisational processes, the protection of ecosystem services and the actions undertaken by the actors of interest in the Sumapaz community, such as social leaders. These questions are associated with the motivations that led them to defend their territory, family aspects, articulation with other actors for the defence of the territory, and actions to confront the climate crisis. The selection criteria include: participation in community training in favour of nature, political advocacy in the territory, integration in organisations or groups, development of actions for the conservation of ecosystems and monitoring of public policies implemented by the public and private sectors. Subsequently, the coding of these interviews will make it possible to explore local experiences and knowledge of community leadership.

The results show that climate change not only affects global socio-environmental systems, but also deepens socio-spatial inequalities, especially in regions with high levels of poverty. Natural disasters resulting from climate change have a greater impact on the most vulnerable populations, both because of their exposure to extreme events and because of the economic burden of recovery. This reinforces cycles of inequality and exclusion, highlighting the need for adaptation and mitigation policies that take into account the socio-economic particularities of each territory.

The purpose is to explore the connections between the concepts of climate crisis and design, in order to suggest and expand research in design applied to local contexts. It also seeks to deepen the notion of Transition Design and expand its scope towards models of adaptive governance that contribute to generating regenerative solutions for communities living in areas vulnerable to climate change, especially in the areas of influence of water sources in the Sumapaz area.

Speculatively, one could conclude that the study conducted in Sumapaz could set a precedent for the development of adaptive governance models in other regions with similar characteristics. The application of environmental, socio-economic and resilience indicators not only allows for a diagnosis of the current situation, but also facilitates the formulation of strategies to strengthen community response and ecosystem sustainability in the face of climate change. In this sense, it is possible that the findings obtained will contribute to improving adaptive capacity both at the local level and in the design of more effective public policies to address climate challenges at the regional and national levels.

The Sumapaz area is distinguished by its high level of community participation and diversity of organizational processes, which have been deeply linked to a political struggle for the territory for more than fifty years. The community organizations identified in the territory reflect a strong interest in promoting citizen participation, with the aim of protecting nature and resisting the occupation of the territory by external actors. Despite being historically affected by the conflict, Sumapaz is projected as a favourable space for new scenarios of participation that contribute to peacebuilding.

Finally, the semi-structured interviews with the social leaders will allow us to contrast the documentary information, while providing a deeper insight into the motivations behind the associative processes and the strategies they are implementing to mitigate the impacts of

the climate crisis. Finally, it is crucial to note that effective articulation between government institutions and the Sumapaz community could strengthen development plans, without neglecting the demands and needs of the community.

In this sense, the findings that will be presented not only contribute to the knowledge on governance and community resilience in Sumapaz, although also demonstrate the importance of an integrative approach that links local communities with government institutions. Combining traditional knowledge with a new approach based on Transition Design can be key to addressing complex socio-environmental and climate issues and challenges, ensuring that development strategies are sustainable and respond to the realities of the territory and the 21st century.

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