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# Governance and participatory co-construction processes: case Cerro San Eduardo in Guayaquil Gobernanza y procesos de co-construcción participativa, caso Cerro San Eduardo de la ciudad de Guayaquil

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**ABSTRACT** The case of intervention in two communities settled on Cerro San Eduardo in Guayaquil is presented. It started as a community engagement Project from University, with the aim of improving the built and natural environment of its inhabitants. The goal is to enhance the quality of the living spaces under the Social Production of Habitat, applying the Participatory Action Research methodology, seeking to involve them in governance processes and territory strengthening. This has resulted in various proposals for knowledge transmission, growing from the community (from the bottom to the top) to achieve a resilient, visible, and integrated territory aligned with current urban improvement processes. The main outcomes from this participation go from a diagnosis of territory to multiple proposals for urban and architectural systems at the neighborhood scale to improve the communal spaces.

**RESUMEN** Se presenta el caso de intervención en dos comunidades asentadas en el Cerro San Eduardo de la ciudad de Guayaquil; que nació como un proyecto de vinculación con la sociedad desde la Universidad, con el objetivo de mejorar el entorno construido y natural de sus habitantes, con la intención de incrementar la calidad de los espacios donde se vive y se convive bajo la Producción Social del Hábitat, aplicando la metodología de la Investigación-Acción-Participativa, buscando incluirlos en los procesos de gobernanza y fortalecimiento del territorio. Dando como resultados varias propuestas que permitan la transmisión de conocimiento, que nacen desde la comunidad (de abajo hacia arriba) en busca de logar un territorio resiliente, visibilizado e integrado a los procesos de mejoramiento urbano acordes a la realidad actual. Los principales resultados de esta participación van desde diagnóstico del territorio hasta múltiples propuestas de sistemas urbanos y arquitectónicos en escala barrial para el mejoramiento de los espacios comunitarios.

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## 1. Introduction

This article aims to clarify the governance processes and their relationship with participatory co-construction processes, applying Participatory Design, in the case of Cerro San Eduardo in the city of Guayaquil. On this topic, there is abundant information related to successful case studies that demonstrate the direct relationship between governance, the resolution of socio-environmental conflicts, and the ability to create resilient territories.

For this case, we will focus on the polycentric perspective of governance (Whittingham, 2010), which highlights multidisciplinary inclusion (sociology, anthropology, social psychology, and political science). It is a process that involves civil society, the state, and the private sector, encompassing the steps of deciding, executing, and evaluating decisions related to public interest issues. During these steps, power dynamics can be characterized by a mix of cooperation and competition.

Similarly, Whittingham (2010) brings us closer to the definition of governance, showing that it is the execution of political relationships among the actors involved in the processes of deciding, executing, and evaluating public interest issues, where power dynamics are manifested and both formal and informal institutions are included.

Thus, when discussing governance, (UN Volunteers, 2022) indicates that, although there may not be a single conceptualization, what is recognized is the close connection between decision-making processes, involving different actors (private and governmental) and the exercise of power. These state actors are directly related to administration (local or central). State actors include public administration at local and central levels, the legislature, local governments (at all levels of territorial administration), the judiciary, and public security forces, while non-state actors may include non-governmental and religious organizations, traditional structures, community-based groups, and the private sector.

On the other hand, the United Nations (2014) points out that governance recognizes that power exists both inside and outside formal authorities and governmental institutions, and that decisions are made based on complex relationships between various actors with different priorities. Therefore, urban governance is understood as the sum of the different ways in which individuals and institutions (from the public and private sectors) plan and manage the common issues of the city. It is a continuous process through which diverse interests and conflicts can be managed, and collaborative or cooperative actions can be generated. This includes formal institutions, as well as informal agreements and the social capital of citizens.

As we have reviewed, participatory governance is a process of active involvement of society in decision-making through methodologies that include active participation in the design, implementation, and evaluation of actions and public policies. This active role can be associated with participatory co-construction, by generating goods or services in collaboration with citizens, through sharing responsibilities and tasks between the community and the state, with the purpose of unifying efforts to solve problems. In this methodology, constant measurements can be obtained through feedback and continuous evaluation, which aims to contribute to improving the quality of public policies and governance.

On the other hand, the United Nations Development Programme (UNDP, 2020) highlights the benefit of designing by applying the principles of open public policies, exemplifying the case of Mexico in an international development cooperation program. These principles of open public policy design are based on curiosity (to challenge assumptions and test them through experimentation), collaborative and networked work (to bridge the gap between those who draft public policies and those who provide input), and digital involvement (to collect information from other channels through technology). Under this approach, the goal is to shift the paradigm, changing the perspective held during the decision-making process, aiming to achieve a more participatory public policy with a broader vision. Through this experience, the team involved in the design was able to develop people-centred public policies.

Habitat World Map (2017) has associated social production of habitat (SPH) with a people-centred process, which often includes negotiation among all actors (the community, local government, and the private sector). However, it is also a way to solve problems. Like Habitat III (2016), it advocates for this type of intervention to build cities, since it originates from the community.

According to Di Virgilio and Rodríguez (2013), SPH has historically been driven by the poorest sectors and developed because of the persistent disparity between the scope and characteristics of housing production and social demand. This process is included in the various stages of habitation (from land occupations to cooperatives), and it is closely linked to decision-making and the productive process of living, which remains in the hands of the inhabitants.

This methodology aims to strengthen decision-making processes and seeks to include all actors in the territory. For Linck (2006), this space, known as the territory, is a collective appropriation and construction, and similarly, Martínez (2012) shows that it is the social actors who build the territory. Thus, we can say that resilience is an ideal at the individual, communal, and/or organizational level (United Nations, 2012), but with the variety of actors that shape the city, it is challenging to identify resilience as an opportunity aligned with individual goals.

Similarly, the social production of habitat is defined by Enet (2022) and Habitat World Map (2017) as a concept developed in Latin America that embraces both the process and the product resulting from a collective

effort by people to build their own habitat (neighbourhoods, homes, towns). This is done through a social production process in which the participants plan, implement, and maintain their habitats and urban elements, contributing to solutions for various problems. Social production is a people-centred process that frequently involves partnerships between communities and local governments, and sometimes the private sector, with non-profit objectives that still yield effective results.

Reviewing one of the principles of the New Urban Agenda (UN, 2017), the goal is to create resilient cities and human settlements, aiming to strengthen urban resilience. For this reason, we commit to working under the framework of participatory governance and co-construction (co-production) for decision-making in this territory. This methodological model for planning is considered by several authors as a direct practice of city-building, in which the citizen plays a direct role in the production and consumption of spaces (Freire, 2009). Various institutions involved in planning, such as architecture and urbanism collectives, advocate for this type of practice as a more efficient tool for urban resilience and sustainable development.

Additionally, it is worth mentioning that there are many successful cases of applying this methodology and the conceptual tools, which will be further explained in the discussion section of this article.

On the other hand, as a university (IES), we cannot turn our backs on reality. In the case of Cerro San Eduardo, the approach is based on the call made by the Ecuadorian state to higher education institutions to collaborate with society. In response to this, the institution, since 2017, has taken on this challenge through the creation of various community engagement projects, with objectives and scopes tailored to the locations where they will be implemented. In alignment with this call, the IES was entrusted with the responsibility of the Urban Consultancy Project, which operates in the Cooperatives 25 de Julio and Virgen del Cisne in Cerro San Eduardo, Guayaquil.

The Urban Consultancy was a multidisciplinary team composed of four programs from the Higher Education Institution (Architecture, Interior Design, Graphic Design, and Civil Engineering). Through community practices developed with students, and guided and monitored by the institution's faculty, it operated as an urban, architectural/constructional, and identity/cultural consultancy focused on the improvement of community spaces. The purpose was to enhance the natural and built environment of the Virgen del Cisne and 25 de Julio cooperatives in the city of Guayaquil through the design and implementation of participatory proposals at the urban, architectural, constructional, and graphic identity levels, aiming for an optimal process of social habitat production and knowledge transfer in these fields.

This relationship originated from the community, whose members approached the IES to request support in improving their quality of life and immediate surroundings. The university responded by launching a multidisciplinary and multiscale initiative, involving the Architecture, Interior Design, Graphic Design, and Civil Engineering programs. Students, under the guidance of their professors, developed community-based practices.

A declaration document was created for the Urban Consultancy Project, with the general objective of contributing to the improvement of the urban quality of life for families in Virgen del Cisne and 25 de Julio in Cerro San Eduardo, Guayaquil. This is achieved through continuous urban, architectural/construction, and cultural/identity-related advisories to ensure an optimal process of social production of habitat, facilitating knowledge transfer in these areas and the subsequent evaluation of the knowledge acquired.

The specific objectives of the Urban Consultancy Project in Cerro San Eduardo are:

- Diagnose the urban, architectural/construction, and cultural/identity conditions of the area.
- Provide technical advisory services through the Urban Consultancy in the cooperatives Virgen del Cisne and 25 de Julio for planning, designing, and executing improvement projects for housing structures, public spaces, and community service infrastructure.
- Transfer urban, architectural, construction, and cultural knowledge to enhance the capacities and skills of Cerro San Eduardo's residents.
- Promote public/community space improvements through participatory design to revitalize the sector.

- Periodically evaluate the assimilation of information at the end of each stage/activity and assess its application in different scenarios.

Approaching the historical context, Villavicencio (2011) introduces us to the reality of the city of Guayaquil, affirming that from the second half of the 20th century to the present, there have been ongoing processes of land occupation and illegal appropriation by poor social groups. These areas are referred to as invasions and form and consolidate into unplanned illegal settlements, resulting from multiple factors, often responding to social inequalities, housing deficits, or the inability of economic actors or the government to address socio-economic disparities.

This way of initiating the land occupation process has led to various negotiation scenarios between the local government and the inhabitants, who, in their quest for recognition, organize under the figure of cooperatives. Cooperatives are groups formed by the population with the goal of securing land and housing. Once these objectives are achieved, they often disappear, transforming into neighbourhood committees that advocate for equipment, infrastructure, and/or services for their settlements (Carpio et al., 1987). This cooperative structure is recognized by the state, specifically by the Ministry of Urban Development and Housing, which regulates them and defines their functions and objectives, including the development of projects and urbanization works (Ministerio de Desarrollo Urbano y Vivienda, 2017).

These processes began in the 1950s, where the mechanism involved land traffickers appropriating land and then selling it to the poor. In these invasions, which form the new Guayaquil where half of its population resides, the inhabitants have fought to obtain basic infrastructure (fill, sewage, potable water, access roads, etc.) and essential services to enable a dignified life. The demands for this infrastructure were presented to the municipality, which, depending on the pressure from the inhabitants and political considerations, would construct it.

Historically, due to the aforementioned processes, the growth of the city of Guayaquil has occurred without planning, resulting in the production of informal settlements. Consequently, informal population occupations have proliferated. These settlements provide irregular housing, where thousands of workers, street vendors, retailers, drivers, domestic workers, and others live and work in urban areas.

In these settlements, inhabitants live in precarious conditions due to little or no technical construction criteria, resulting in some cases where buildings are in risk-prone areas. This leads to a lack of decent housing, sanitary infrastructure, and basic services. The relocation of homes situated in hazardous zones or urban and housing restructuring programs must be addressed with appropriate public policies by both local and central governments in an effective and responsible manner to resolve the situation of these inhabitants.

This is the case in Cerro San Eduardo, where some occupied spaces have slopes exceeding those ideal for construction, with some areas surpassing 50%. This creates difficulties for pedestrian and vehicular circulation, as the sidewalks are narrow, only 1 meter wide. These characteristics result in limited spaces for social cohesion and community life, impeding gatherings and overall quality of life. The lack of facilities often forces the community to travel to other parts of the city to meet their needs, or as the inhabitants express, they feel invisible.

The process of working in this territory begins with meetings among the involved faculty to determine the best approach to engage with the community and identify their needs. This approach starts with studying official information documenting the settlement processes, summarized as follows:

The cooperatives Virgen del Cisne and 25 de Julio are in the low plain and on the slopes of Cerro San Eduardo (25 de Julio, 1982 - Virgen del Cisne, 1990) in the northwest of Guayaquil. These settlements emerged informally, bordering the Carlos Pérez Perasso sports complex, the El Paraíso protective forest, and the tunnels (San Eduardo) that connect Martha de Roldós and Barcelona avenues (Figure 1). Poveda et al. (2023) indicate that the cooperative 25 de Julio is one of five informal human settlements in the city, situated to the southwest of the protective forest. Initially, this space was developed as a stone extraction quarry, which later turned into the city's garbage dump.

The informal settlement and its disorganized growth have created a complex impact on both the built and natural environment. The loss of original flora and fauna and soil erosion are problems that directly affect the quality of life and the sustainability of the area. To address these challenges, it is crucial to include in the solutions a comprehensive plan that considers the rehabilitation of public spaces, the improvement of infrastructure, and environmental restoration. Additionally, participatory mechanisms that involve the community in the process should be pursued.

The settlement covers 290 hectares, with only 4,2% allocated to public space, primarily used for sports fields. With just 1,7 $m^2$ of green space per inhabitant, this is far below the World Health Organization's (WHO) recommendation. According to Robles et al. (2015) and data from the Inter-American Development Bank (IDB), the WHO advises a minimum of 9 $m^2$ of green space per inhabitant, while in Latin America, the average is only 3,5 $m^2$ per inhabitant.

The local government has provided some basic infrastructure, such as sidewalks, roads, and potable water connections, but the area lacks access to a sanitary sewer system. Wastewater is managed through latrines in some homes, while others discharge it directly into the streets, adding another factor that negatively affects the quality of life.


Figure 1: Location of the Virgen del Cisne and 25 de Julio cooperatives on Cerro San Eduardo and the IES. Equipo Consultorio Urbano (2019)

The lack of community spaces for social cohesion, along with narrow sidewalks of just 1 meter, forces pedestrians into the streets, further degrading the living environment. This situation is exacerbated by limited government action in vulnerable areas with low socioeconomic conditions. Moreover, many homes lack basic architectural guidelines, aesthetics, and environmental comfort. Some are even at risk of collapse due to the absence of structural standards, especially in the event of an earthquake, or because they are in areas prone to landslides caused by erosion.

The community organization identified two cooperatives: Virgen del Cisne, situated in the lower part of the hill, and 25 de Julio in the upper part. A notable strength of these cooperatives is the collaboration among residents, who work together towards their common goal of legalization. Both cooperatives have successfully secured support from the Ministry of Health for elder care and assistance from IES to develop a community engagement program aimed at improving the neighbourhood.

Weaknesses identified include fragmentation between the two cooperatives, leading to a lack of direct communication due to internal disputes or coexisting interests within the neighbourhood. This situation prompted our work at IES to act as a negotiating bridge between the two cooperatives to achieve common goals for neighbourhood improvement. The Virgen del Cisne Cooperative has a more established community organization that is recognized by residents, whereas the 25 de Julio Cooperative lacks a defined neighbourhood organization. Consequently, not all residents acknowledge the self-appointed neighbourhood leader, which has at times hindered efforts to engage the community.

Threats in the territory include disputes with the original landowner and the local government's decision not to intervene, despite community efforts to reach a legal agreement with both the original owner and the local government. The Virgen del Cisne Cooperative has managed to achieve 80% legalization and recognition (with property titles), while the 25 de Julio Cooperative has only reached 10% legalization due to a lack of local support and a recognized community organization.

IES has been actively working in the territory and with the identified communities to strengthen social actors in achieving true governance that is equitable and inclusive. This effort is facilitated through dialogue and aims to enhance visibility among other stakeholders, including local government and public and private institutions. Considering the territory's context, Participatory Action Research has been identified as the research and work tool that will provide the necessary guidelines to achieve the proposed objectives, taking into account the area's specific conditions. The concept of social production of habitat remains a crucial tool in this approach.

Participatory Action Research (*Investigación-Acción-Participativa*) has been conceptualized by various authors, with Balcazar (2003) presenting Selener's definition, which states that it "is a process by which members of a marginalized group or community collect and analyse information and act on their problems in order to find solutions and promote political and social transformations" (p. 60).

This concept of a marginalized community, while carrying political or ideological implications, can be illustrated by the observations of Prilleltensky and Nelson in Balcazar (2003). They characterize oppression as a state of domination in which the oppressed experience exclusion, discrimination, exploitation, control, and, in the worst cases, violence, resulting in asymmetrical power relations. This form of domination is perpetuated by restricting access to material resources, and when the oppressed develop a level of critical consciousness, a type of resistance begins to emerge.

Involving the community in these processes generates actions that can transform the social reality of individuals and contribute to the overall effort, thereby demonstrating the practical value of Participatory Action Research (IAP) within social groups or communities. Zapata and Roldán (2016) clarify that IAP is research aimed at social change, conducted by community members who seek to improve their living conditions and those of their surroundings.

## 2. Methods

The methodology used is Participatory Action Research (PAR) with tools for the social production of habitat. Since this research emerges from a community engagement project of the higher education institution (IES), with the purpose of benefiting the communities of the Virgen del Cisne and 25 de Julio Cooperatives in Cerro San Eduardo, Guayaquil, it is important to note that it has been a process involving students in the development of all stages. This means that the work is carried out semester by semester, with a constant flow of students, while faculty supervision remains consistent throughout the project. The phases and stages adapted from Alberich's PAR (Table 1), as cited by Martí (2017), have been employed.

The project development phases are summarized as follows:

**Phase 1 (semester B2017): Data Collection**

A survey was developed as a research tool, which was tested and measured prior to being used in the field. This data generated a baseline, in which students, guided by IES faculty, conducted a survey with a sample of 300 families from the approximately 1,000 living in the study area. The information gathered included the community's ethnography (age, gender, education level, origin, etc.), housing type and quality, neighbourhood quality, perception of spaces, training preferences, and identity elements.

**Phase 2 (semester A2018): Initial Data Processing and Analysis**

This phase was divided into two activities, each connected to different groups of students.

The first group of students, with the assistance and cooperation of the Urban Territorial Observatory (OUT), tabulated and geographically systematized the collected information using Geographic Information System (GIS) tools like ARCGIS. This allowed for the creation of detailed maps of the site data, laying the groundwork for the development of a diagnosis of the study area.

The second group of students (accompanied by faculty specialized in the subject) was responsible for the general collection of the gathered information and the early formulation of the diagnosis, including statistical analysis.

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| **Pre-investigation stage: symptoms, demand, and project development**<br>• Detection of symptoms and submission of a request (typically from an institution, usually local administration) for intervention.<br>• Research planning (negotiation and definition of the request, project development). |
| **First Stage: Diagnosis**<br>Contextual understanding of the territory and approach to the issues based on existing documentation and interviews with institutional and community representatives:<br>• Collection of information<br>• Formation of the monitoring committee<br>• Formation of the PAR group<br>• Introduction of analytical elements<br>• Start of fieldwork (individual interviews with institutional and community representatives)<br>• Submission and discussion of the first report. |
| **Second Stage: Programming**<br>Process of incorporating all existing knowledge and perspectives, using qualitative and participatory methods:<br>• Fieldwork (group interviews with the community base)<br>• Analysis of texts and discourses<br>• Submission and discussion of the second report<br>• Conducting workshops. |
| **Third Stage: Conclusions and Proposals**<br>Negotiation and development of concrete proposals:<br>• Development of the Comprehensive Action Program (PAI)<br>• Preparation and submission of the final report. |
| **Post-investigation Stage: Implementation of the PAI and evaluation. New symptoms.** |

Table 1: Stages and phases of Participatory Action Research (PAR). Martí, F. (2017)

**Phase 3 (semester B2018): In-depth Data Analysis**

In this phase, a second stage of diagnosis was carried out with the aim of refining and cross-checking the collected information to avoid data inconsistencies. Additionally, the data included in the analysis were verified to ensure they were free from errors or inconsistencies.

**Phase 4 (semester A2019): Problem Analysis**

The academic work structure was maintained. During this phase, the information was further refined and cross-checked, and the results were shared with the community. This process helped identify the problems and opportunities within the community and its surroundings, allowing the focus to shift toward defining urban strategies to be applied or implemented.

**Phase 5 (semester B2019): Proposals**

The process of developing various urban development strategies and perspectives began. Students proposed the first drafts of urban facilities, which would be refined using urban-architectural criteria. Feasibility studies, management models, and case studies or analogous models (typologies) were examined to determine how these proposals could be implemented. The most feasible proposals were then evaluated.

During this stage, several participatory workshops were also held to compare the documented information with the community's input, always prioritizing the community's voice as the main beneficiary and resident. This process was carried out through four working groups (Figure 2), each addressing a specific issue and overseen by external experts (not affiliated with IES) to maintain objectivity. The community participants rotated between the different groups to ensure balanced participation.

For such cases, various theoretical frameworks guide community engagement approaches. In this case, the framework used was the Resilience Wheel (United Nations, 2012) (Figure 3).

**Phase 6 (semesters: A2020 - B2020): Documentation and Project**

During this stage, in-person access to the territory was not possible due to the global health emergency caused by the pandemic. However, during this period, the evaluation and documentation of the proposals previously developed by the students took place, and a model for a Community Strategic Plan was defined, with the intention of developing it under the thesis modality for the Architecture and Interior Design programs.

**Phase 7 (semesters: A2021 – B2021): Execution**

In this phase, the goal was to execute the highest-impact strategies, with active involvement from IES students and faculty. However, the execution had to be postponed again due to the ongoing global health emergency. This period was used to continue documenting, theorizing strategies, and evaluating the results achieved up to that point.

**Phase 8 (semester A2022): Additional Constructions**

In this semester, a second stage of the project began, referred to as Stage II or the Reformulated Stage. During this phase, the focus shifted to other urban facilities identified during the diagnosis, which were also developed through graduation projects. One of the key topics addressed was the design of a Gerontology Centre. Several participatory workshops were held with the community, resulting in valuable information that contributed to generating new intervention proposals at the neighbourhood level using the methodologies of tactical urbanism or guerrilla urbanism.

**Phase 9 (semesters B2022 and A2023): Actions in the Field**

At this stage, specific actions were carried out in the territory, in collaboration with the community, students, and faculty. These actions were based on the analysis of information collected during the participatory workshops. The actions were planned, executed, and monitored by the Architecture, Interior Design, and Graphic Design programs at IES. Additionally, the Civil Engineering program identified areas at high risk of flooding due to the current physiography of the hill and the effects of erosion. This documentation was directly submitted to the local government as a contribution from IES, to aid decision-making and the implementation of preventive measures.

Figure 2: Working tables monitored by external experts. Equipo Consultorio Urbano (2019).

**Phase 10 (semester B2023): Systematization**

In this stage, the activities, actions, implemented proposals, and theoretical proposals developed throughout Stage II of the project (specifically from semester A-2022 to A-2023, spanning three semesters) were documented and recorded.

## 3. Results

As this project involves community engagement by IES, with direct work in two communities and a constant rotation of students each semester, the results have accumulated progressively over each academic term. This has occasionally led to outcomes not being achieved as quickly as the territory might have required. The entire process has been guided by the vision of social production of habitat and the methodology of Participatory Action Research (IAP).

The project began with the collection of information, which established a baseline. From this baseline, it was identified that the community is fragmented, perceives a lack of security in their area, and has a low level of participation in community activities. However, there was also a strong desire within the community to participate in workshops that could improve their quality of life. These workshops are viewed as an opportunity for individual improvement. The Municipality of Guayaquil (M.I. Municipalidad de Guayaquil) remained a key ally throughout the project, along with involvement from private companies and certain non-governmental organizations for specific actions. The main results can be summarized as follows:

- Diagnosis of territorial conditions.
- Initiation of an urban, architectural/construction, and cultural/identity consultancy for the improvement of community spaces.
- Participatory workshops conducted with the community.
- Development of a Strategic Intervention Plan (PEI) for the territory.
- Multiple proposals divided into urban and architectural systems at the neighbourhood scale, including buildings that will facilitate urban and human interventions.
- Design and construction of an IES space in the territory (Urban Consultancy building, Figure 4), which serves as a hub for planning activities, a space for training and social cohesion, and a living laboratory that adapts to the physical conditions of the environment.

Identification of community aspirations (Figure 5) with a 5 and 10 year vision.

Schematic Urban Intervention Plan (PIU), featuring a neighbourhood-oriented community vision (specific projects emerge from this).

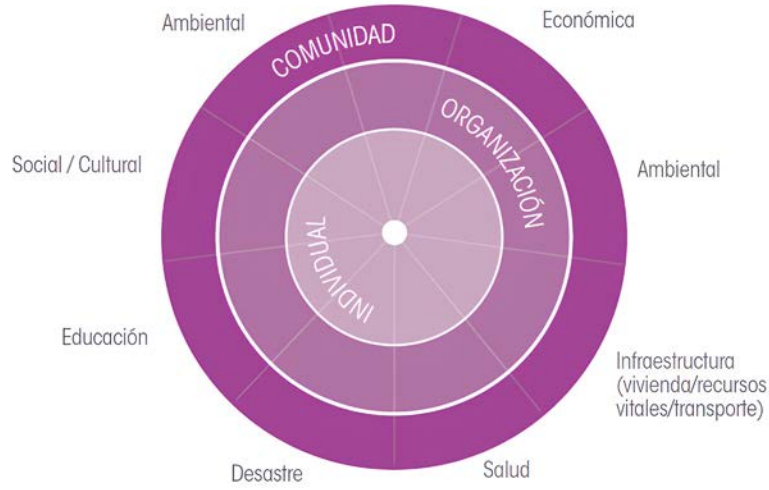



**Figure 3: Urban resilience wheel.** Naciones Unidas (2012)

Specific Projects:

- Five architectural project themes (developed through the degree completion processes of the Architecture program). The designed buildings include a multifunctional bus station, commercial plaza, community development centre, health sub-centre, and childcare centre.

Proposal for Additional Buildings: Developed through degree completion projects, focusing on a gerontological centre.
Intervention Proposal Plan: Developed through data collection and tabulation, participatory workshops, territorial diagnosis, urban-architectural intervention proposal design, and result evaluation.
Urban Research Topics Worked with the Community:

- Socio-cultural context, population
- Political context and governance
- Geographic and natural context
- Urban layout and built environment
- Architecture and construction
- Local economy and productive development
- Waste management and food security
- NGOs and strategic allies
- Technology and innovation.

From these urban topics developed through participatory workshops, new opportunities for architectural proposals were identified:

- 360-degree viewpoint
- Multifunctional spaces that accommodate various activities and are complemented by green areas to improve the green index. These spaces include playground, skatepark, dog training area, and running track.
- Diagnostic Approach: This phase includes a series of steps and a combination of research methods:
- On-site observation
- Semi-structured interviews
- Data collection (surveys and mapping)
- Research from primary and secondary official sources.

- The unified, tabulated information is translated into a diagnosis proposing possible multidisciplinary interventions. From this diagnosis, a SWOT analysis is developed, summarizing the territory's strengths, opportunities, weaknesses, and threats (Figure 6).
- Community workshops from various perspectives, including age-group perspectives.
- Community-identified spaces and community mapping.
- Planting native species to reduce landslide risk and increase green mass.
- Designing community spaces collaboratively with the community using participatory methodology.
- Training in the management and maintenance of green areas.
- Mapping areas prone to flooding.
- Manuals for creating urban furniture.
- Basic construction manual for high-risk housing.
- Electrical network maintenance manuals for homes.
- Additional academic outcomes include participation in conferences, competitions, paper publications, and a memory book of the first execution stage.

**Community Participation Results**

In the areas where interventions were possible, improvements were made in the quality of the built environment and the natural surroundings, directly benefiting residents' quality of life. A comprehensive urban diagnosis gathered updated data, enabling an analysis of space quality and determining the types of interventions needed from within the community. This documentation also facilitates negotiations with government entities, allowing for the implementation of coherent interventions aligned with their competencies. The information collected aimed to help create a settlement that meets basic urban standards to ensure a quality habitat. To support this goal, manuals were developed for urban design, green area improvement, and housing enhancement. These were specifically designed for residents to carry out improvements themselves, without specialized labour. For public spaces, the information can be used to advocate for urban improvements with local authorities.

Efforts also aimed to reduce vulnerability and risk from natural hazards by studying areas with high flood or landslide potential. Using a risk map and technical assessment, targeted interventions were planned.

**Figure 4: Urban Clinic Building.** Equipo Consultorio Urbano (2020)

The urban equipment design intended to decrease service access inequalities and address the invisibility of vulnerable populations (children, pregnant women, people with disabilities, and the elderly). A product of this effort was the Urban Intervention Plan (PIU), designed to improve existing facilities or establish new ones through a systemic approach (urban and architectural systems). The PIU was based on a preliminary exploratory diagnosis developed with faculty and students. The goal was to create a neighbourhood that enhances residents' quality of life, reducing the need to travel to other areas of the city, mainly by fostering public space ownership and strengthening local governance through continuous training of community leaders and members, supported by academia and public and private entities.

Each workshop was assessed with a satisfaction survey, achieving 100% satisfaction among community participants, who found the workshops relevant and aligned with their needs.
Community feedback also provided these recommendations:

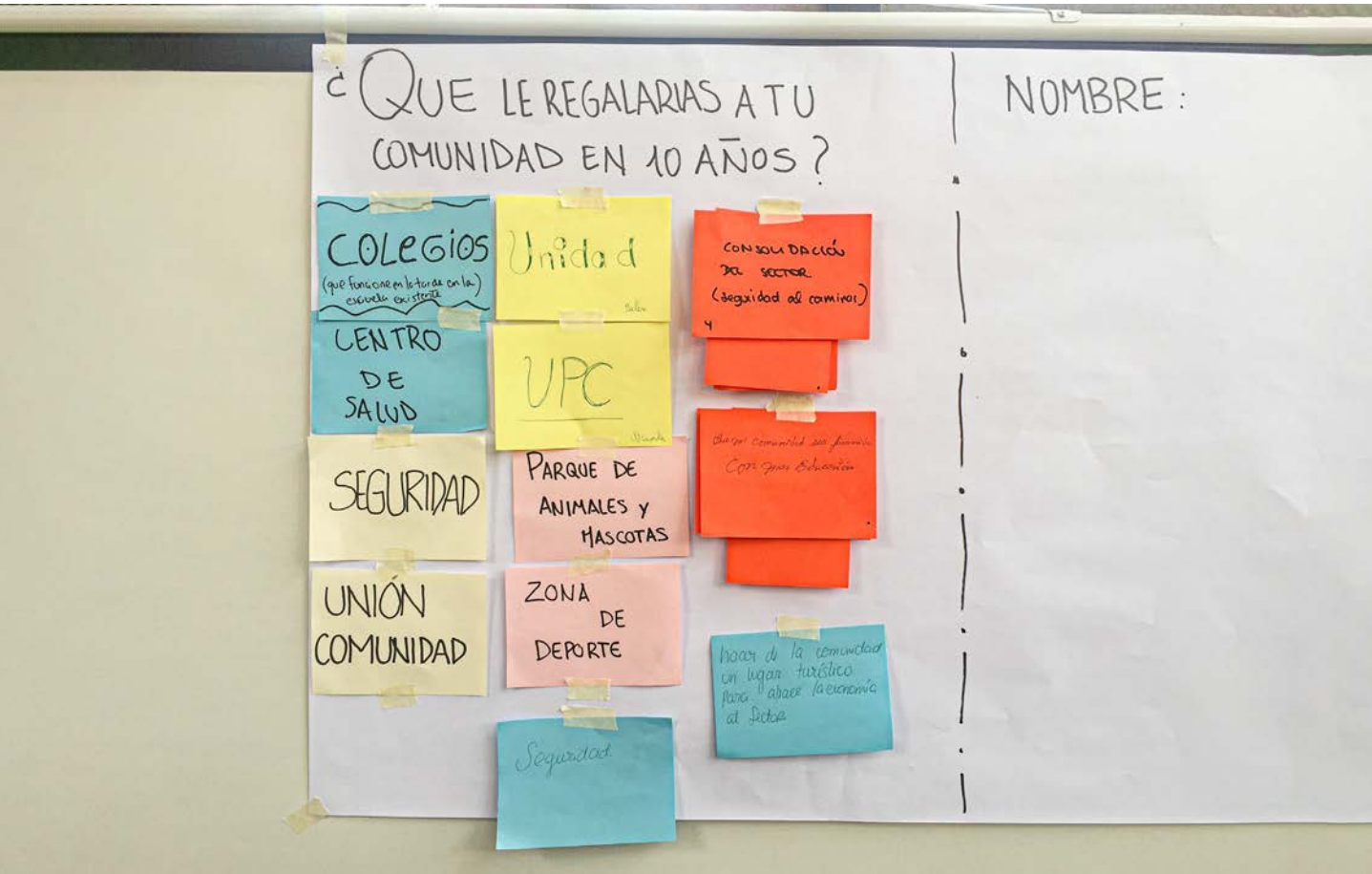
1. Continue these types of workshops, and
2. Schedule multiple workshop dates at various times to accommodate different community segments (due to residents' work schedules).

To illustrate a specific case developed through participatory design (design of the communal plaza), survey results from the community indicated that 95% of residents reached a consensus on the plaza design. There was 100% agreement on the proposed spaces and placement of plaza furniture, as well as 100% agreement on the location of the children's play area. Minor differences arose regarding the exact location of trees and the selection of finishing materials, ultimately resulting in a consensus.

### Additional Results

The ecological impact on the protected forest due to settlement expansion was identified. This impact includes a reduction in the original flora and fauna and an increase in urban sprawl, which has led to additional issues, such as erosion and, consequently, landslides into populated areas. This occurs due to the lack of vegetation cover, which typically stabilizes the soil through the roots of native tree species (Figure 7).

**Figure 5: Community desires.** Equipo Consultorio Urbano (2019)



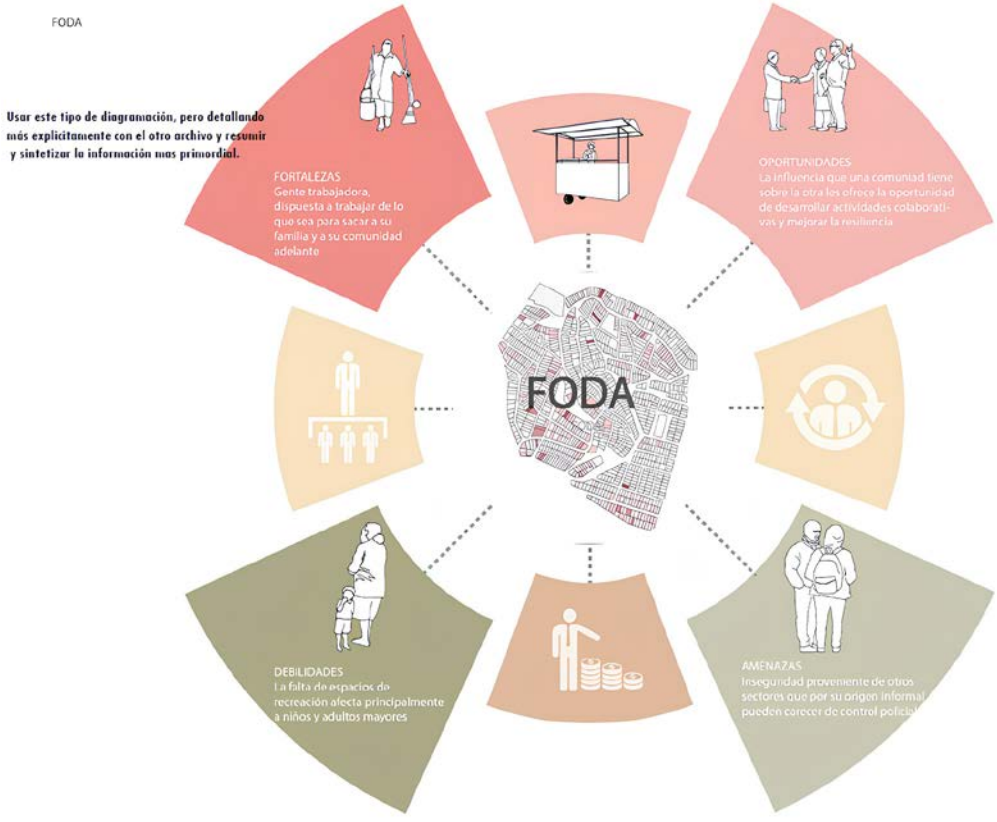



Figure 6: SWOT of the communities of Cerro San Eduardo. Equipo Consultorio Urbano (2020)

## 4. Discussion and conclusions

This study leveraged a diagnostic assessment of the urban conditions in Cerro San Eduardo to more effectively inform future urban development plans for the regional government. Findings suggest that the community perceives low physical security, particularly concerning natural hazards, and has few communal spaces. However, residents identified potential areas for improvement to enhance their quality of life. Despite having a form of community organization (governance), the community shows a low rate of participation in communal activities. Nevertheless, there is a strong interest in workshops and training sessions that could help improve their quality of life.

The results demonstrate that the community has a clear understanding of the areas needing intervention and potential solutions, with some awareness of urbanistic, architectural, and construction aspects, all of which include community participation. The findings also indicate a community interest in strengthening their skills and abilities. Furthermore, it suggests that periodic monitoring could be feasible; with a strong participatory social component, a Management Model could be developed that would allow replication in various city sectors.

The intervention with the community through participatory workshops has enabled a real, firsthand understanding of the challenges, strengths, deficits, and weaknesses of this area. This approach has provided residents with an opportunity to understand their situation more deeply and connect with institutions that could assist in managing their territory.

The objective set by the IES has been gradually achieved through a georeferenced mapping diagnosis, enabling intervention decisions to be made collaboratively with the community and local government, which can also be supported by private institutions. This process has highlighted the need for strategic external allies to ensure the project's sustainability.

This academic experience in the territory has given a voice and visibility to the residents of this community. The outcomes of the analysis and interventions conducted by a multidisciplinary team have underscored the importance of collaboration among various disciplines, including Architecture, Urban Planning, Construction, and Social Sciences. Building spaces and addressing urban research topics directly with the community ensures a close correlation and guarantees the

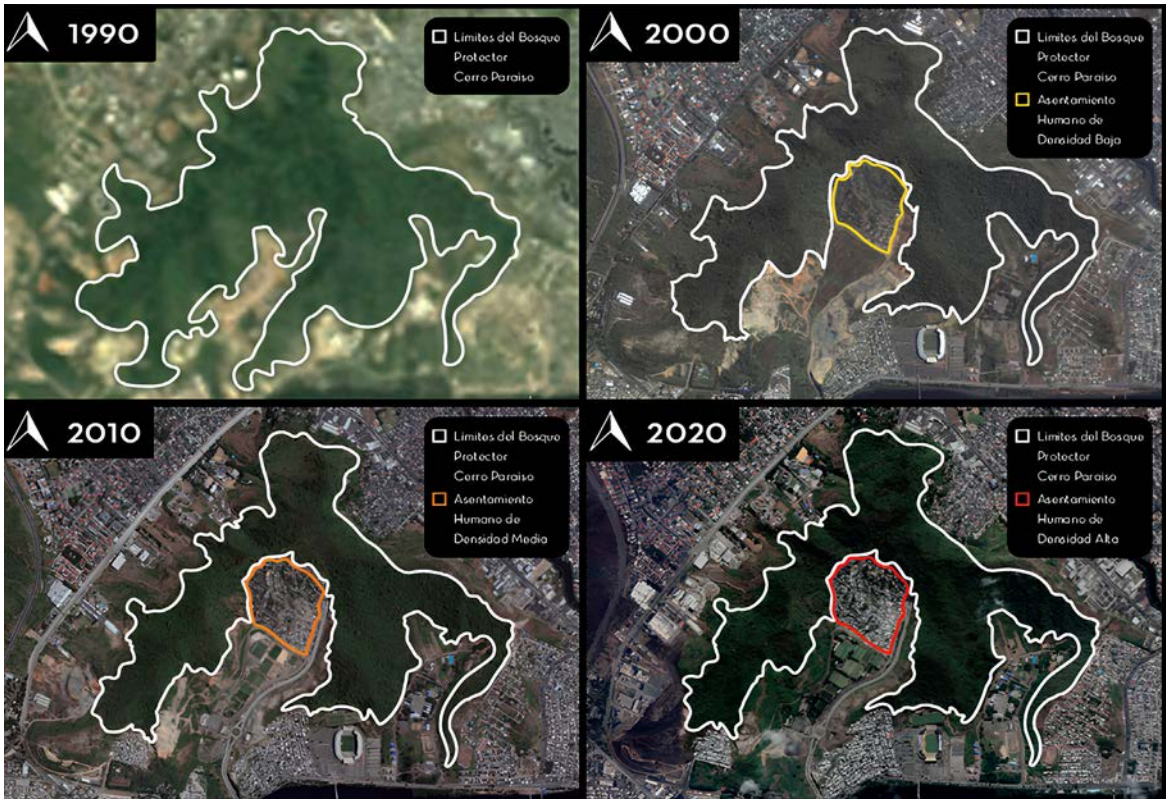



Figure 7. Progressive state of the protective forest and the relationship with the settlement. Equipo Consultorio Urbano (2020)

preservation of the community's identity and sense of belonging.

As a negative aspect, the fragmentation of the neighbourhood into two cooperatives, each with its own internal vision, sometimes slows down the direct work with the community (such as participatory workshops). This fragmentation occasionally necessitated holding two separate invitations for the workshops, focusing on the specific topics relevant to each cooperative, which had to be conducted on the premises of each cooperative to achieve better engagement.
In comparison to other projects with similar characteristics, there are successful cases under this model of community participation for the social production of habitat. Notable examples of transformations achieved through this dynamic of participatory co-construction include:

Case 1: Placemaking in Peru, developed by Stella Schroeder and Claudia Coello (2019). Their proposal focused on transforming a human settlement in Santa Julia (northern Peru). Key outcomes included community involvement in improving a park, raising awareness among residents about the importance of public spaces, and encouraging consistent use of these areas, which extended to children and schools from neighbouring districts.

Case 2: Cuenca RED (2015, 2016), aimed at revitalizing public spaces in Cuenca (Ecuador), particularly in the heritage zone. This initiative employed urban acupuncture and participatory design strategies, resulting in significant citizen proposals and the creation of public spaces that function as urban facilities.

Case 3: IDEA (2018) in Hermosillo, Mexico. This urban strategy was developed to activate the city's historic centre through a participatory process, involving both in-person and online activities. Significant outcomes included a series of specific interventions linked to particular sites, positive perceptions from surveyed residents, and the identification of potential opportunities within the area.

The previously mentioned cases provide assurance that this type of methodology yields coherent results with successful outcomes. Furthermore, upon reviewing the highlighted cases, there is potential for expanding both this study and confirming the results achieved in those cases.

However, a limitation of this research-project is that much of the production remains in a theoretical state. The next phase of developing a Participatory Urban Intervention Plan based on the architectural and urban proposals generated for the communities of Cerro

San Eduardo was not carried out. Additionally, not all urban interventions proposed as part of the project for neighbourhood improvement and community empowerment in the territory were implemented. This construction phase could not be initiated due to the prevailing insecurity and widespread violence experienced in the city.

It is feasible to produce new publications from different perspectives or branches of knowledge, or to expand on results. In-depth comparative case analyses could also be conducted. As a researcher-educator, these results provide certainty that the methodology employed was appropriate, replicable, and could be expanded through research in other areas of the city or in similar contexts. It can even demonstrate how academia could participate in decision-making through governance and participatory co-construction.

As main conclusions, it can be said that the applied methodology was coherent and aligned with the reality and informal origin of the studied territory. Despite developing extensive theorization that, for various reasons, was not executed, it remains feasible to yield positive results. Additionally, in the social field, a change in how the space is perceived and used by the community was observed. Residents felt valued, heard, and acquired small responsibilities regarding their use and cohabitation of the space.

As a final note, it's important to highlight that the high turnover of students did not hinder progress; maintaining clarity regarding objectives, methodology, and expected outcomes ensured ongoing student engagement, with consistent mentorship from the instructor.

However, it is uncertain whether, given the informal origin of the space and the absence of ongoing monitoring or support from any institution, the residents will be able to continue applying the methodologies or sustain self-management of the territory independently, even with access to information that facilitates such processes.

Since this project originated from the academy, this experience also serves as a way of territorializing the IES (Higher Education Institution), its academic domains, and its substantive functions. This project, having been a proposal that involved different approaches and many hands, found its potential in diversity and multidisciplinary, avoiding segregated or isolated actions, which resulted in a common goal: to improve the quality of life. In other words, this experience is feasible to replicate in other neighbourhoods with similar characteristics.

This entire experience can serve as a source for exploring new topics in research, teaching, or community engagement.

Finally, it can be expressed that the IES has contributed to the training of socially responsible professionals who are equipped to participate in sustainable development. Guayaquil, a city where inequality has generated significant and deep gaps between social groups, sees projects like these, originating from academia, transforming into bridges that unite and connect groups and social actors who are distanced or simply unaware of each other. It is through this methodology that the IES (Higher Education Institution) can be understood as a connector that links two realities in pursuit of a common sustainable and resilient future.

Working in the territory allowed us to understand the need for collaboration among different fields of study due to their competencies, given the strong social component, and the involvement of external allies (public and private entities). Developed under the methodology of Participatory Action Research (IAP), it enables constant feedback and identifies factors or problems that may affect the low quality of urban life in that community.

It is improbable to capture in writing the magnitude of the impact that these activities have had on the processes of co-construction, construction, and reconstruction of knowledge among students, faculty, and the community.

## 5. Recommendations

As indicated throughout this document, significant results were achieved, but the implementation phase in the territory remains an outstanding commitment to the communities. From all the participation throughout the process and intervention periods, it can be highlighted that this type of methodology (Participatory Action Research - IAP) has effective and efficient tools to deliver results quickly and concretely.

Since this project, the Urban Consultancy, developed a baseline that allowed for the identification of problems or factors contributing to the degradation of urban space or low urban quality of life, it was also identified that it has a strong participatory social component. Therefore, it can be recommended that new research or outreach projects be initiated, which could generate new research topics.

As a complementary reflection to everything documented, it can be recommended that the future of this type of project, or among its strengths, lies in obtaining diagnoses of the neighbourhood. These diagnoses serve as a resource for both public administration (local governments) and the private or academic sector, allowing for the generation of urban implementations or improvements in public spaces, social interactions, or housing in future actions.

It can also be stated that urban issues transcend physical space; in this sense, this project can be identified as a source of information that encompasses or includes various branches of knowledge, from social aspects to identity and construction. Therefore, it can be inferred that it would be ideal to carry out such projects in collaboration with multiple disciplines or with the

support of researchers from other fields. The gathered information reveals other spatial-social relationships, meaning that some social dynamics, governance structures, or economic factors were made visible. This documentation could strengthen the capacities and skills of the residents.

However, it can also be identified that there is still a digital divide in addition to the economic and academic gaps, which limits the potential reach of the results. Although we listened to and worked directly with the people, the inability to maintain consistent communication with them resulted on some occasions where the invitations were limited to groups that collaborated continuously and permanently.

As a final recommendation, it can be indicated that maintaining these types of relationships is valuable and important. Urban laboratories or civic design spaces can be specifically established in neighbourhoods with informal origins to facilitate management on urban living issues, as dialogue will allow for diagnoses that are more in line with specific local realities. This approach could truly engage citizens in the co-construction of the city and contribute more effectively to urban development plans within local governments.

These strategic plans could involve urban, architectural, construction, and cultural identity aspects and can include community participation.

## 6. Acknowledgments

As indicated, this research stemmed from a community engagement project by a Higher Education Institution (HEI) enriched by experience. It was presented at several events, including conferences, publications, and competitions. It won First Place in the Best Practices in Community Engagement video competition at the 6th Community Engagement Conference held by Universidad San Gregorio de Portoviejo (USGP).

Throughout the project, faculty members and the HEI's Vice Rectorate for Community Engagement participated, along with the residents of the communities Virgen del Cisne and 25 de Julio, the National Police of Ecuador, the Municipality of Guayaquil (through a collaboration agreement), and private sector support in the form of donations of goods and services. Special acknowledgment goes to the selfless support (ad honorem) from professionals, faculty, private sector, and students, who collaborated on this project without expecting direct benefits.

**Conflict of Interests**. The author declare no conflict of interests.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