Urban Consulting and the Social Production of Habitat in the Cerro San Eduardo of Guayaquil

Consultorio Urbano y la Producción Social del Hábitat en el Cerro San Eduardo de Guayaquil

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ABSTRACT
The Urban Consultancy (CU) is based on the study of two communities settled in the Cerro San Eduardo of the city of Guayaquil, product of an informal process that is currently consolidated as an urban part. This research is generated with the purpose of providing necessary and fundamental development tools for the population settled in this space. The objective of the Consultancy is to provide urban, architectural/constructive and identity/culture consultancy; with the purpose of improving the community spaces for the Cooperatives 25 de Julio and Virgen del Cisne, in the Cerro San Eduardo of Guayaquil; hoping as a result to have a positive impact in the improvement of their quality of life. Beginning with a study and diagnosis of the current situation of the Cooperatives, the results of which generate participatory workshops with the residents to make comprehensive improvements in the community spaces proposed by the community and that need to be enhanced and revitalized for the empowerment of the different age groups that inhabit the cooperatives.

Keywords: Urban Consulting, Habitat Production, Urban Diagnosis, Urban Consulting, Participatory Design

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RESUMEN
El Consultorio Urbano (CU) se basa en el estudio de dos comunidades asentadas en el Cerro San Eduardo de la ciudad de Guayaquil, producto de un proceso informal que actualmente se encuentra consolidado como parte urbana. Se genera esta investigación con el propósito de proporcionar herramientas de desarrollo necesario y fundamental para la población asentada en este espacio. El objetivo del Consultorio es brindar consultoría urbana, arquitectónica/constructiva e identitario/cultura; con el fin de mejorar los espacios comunitarios para las Cooperativas 25 de Julio y Virgen del Cisne, en el Cerro San Eduardo de Guayaquil; esperando como resultado tener un impacto positivo en el mejoramiento de su calidad de vida. Iniciando con un estudio y diagnóstico de la situación actual de las Cooperativas, cuyos resultados generan talleres participativos con los moradores en pro de realizar mejoras integrales en los espacios comunitarios que propone la comunidad y que requieren ser potenciados y revitalizados para el empoderamiento de los distintos grupos etarios que habitan las cooperativas.

Palabras clave: Consultorio Urbano, Producción del Hábitat, Diagnóstico Urbano, Consultoría Urbana, Diseño Participativo

INTRODUCTION
The Urban Consulting Project is a proposal born from the need of a community (inhabitants of the Cooperatives settled in Cerro San Eduardo) that seeks to be identified and recognized within the city of Guayaquil, therefore, some community leaders sought the support of the Catholic University Santiago de Guayaquil (UCSG). It is part of academic activities of a multidisciplinary team of teachers and students of the UCSG, from 2017 to the present. It is a joint work between the careers of Architecture, Interior Design, Graphic Management and Civil Engineering, and is in the process of diagnosis and that will allow to generate an urban, architectural / constructive and identity / culture Consultancy; and improvement of community spaces for the cooperatives 25 de Julio and Virgen del Cisne in the San Eduardo hill of the City of Guayaquil, to benefit the inhabitants of this sector.

For this purpose, the UCSG, through the Vice Rector’s Office for Outreach and the professors in charge of outreach in the different careers, held several meetings to decide the form or modality under which the approach with the community would be carried out, and in this way be able to detect the requirements to improve the current situation. Since there was no information to understand the current situation and social dynamics, it was decided to conduct a survey to learn about the reality of the families in the sectors, and to identify possible strategies, proposals and actions that could be implemented for the benefit of this community.

This is a Descriptive - transactional - quantitative study that starts from a sampling that generated an ethnography of the inhabitants and identified the needs in the Cooperatives, we begin this process aligning ourselves at first with the National Plan of Good Living with its line of Cooperation and development, and later we embrace the vision of the National Development Plan (2017-2021), mainly with the objectives of:
Guarantee a dignified life with equal opportunities for all people; Reaffirm interculturality and pluractionality, revaluing diverse identities; Guarantee the rights of nature for current and future generations: Boost productivity and competitiveness for sustainable economic growth in a redistributive and solidarity-based manner; and Develop productive and environmental capacities to achieve food sovereignty.

The results of these surveys allowed the elaboration of a baseline, where the Ethnography of the inhabitants, Perception of Housing (climatic comfort, physical information of the house, furniture), Conceptualization of the Neighborhood, Perception of the Sector (Civil Security) and Urban Image are visualized. To finalize the process of analysis and processing of the surveys, a cross-check of variables was carried out to detect the various workshops that can be generated for the benefit of the community, considering the variables correlated with specific topics proposed to know the feasibility of carrying them out.

In the case of the Conceptualization of the Neighborhood, Perception of the Sector (Civil Security) and Urban Image, this information has been used for the elaboration of mappings and the Urban Diagnosis is being developed. Since this is a Linkage Project, under the methodology of Participatory Action Research, that is to say, the final results are still in process and once this Project is completed it will be possible to continue obtaining results; so far we can see preliminary results by phases, described at architectural and urban level, and this is still a project that continues in process, so we present the results of the diagnosis so far processed according to the issues addressed.

At the urban level, the main problems identified in this community are focused on the low quality of its community and public spaces, houses that are located on slopes at risk of landslides, houses built without construction criteria and/or interior spatial and climatic comfort, being this territory lacking any type of urban planning, however, despite having received basic infrastructure such as sidewalks, roads, drinking water, electricity, among others, there are still houses that do not have an adequate sewage disposal system, or areas without street lighting.

In relation to the perceptions of the neighborhood, the results point to poor security, internal political differences related to the political context and governance, pedestrian and vehicular access difficulties. Statistics on environmental conditions, such as green areas, have been obtained and studied under the recommendations of the World Health Organization. The condition and state of public spaces and equipment serving this community has also been reviewed. Finally, in relation to the architecture and construction of the sector, the types of housing were identified (by their use, construction process, materiality) and their location was studied.

The results are the product of the data analysis. They summarize the statistical and analytical treatment of the results of the data collection (baseline). The order of work is: a) descriptive analysis of the data, b) inferential analysis to answer questions or test hypotheses (in the same order in which the hypotheses or variables were formulated). Since this is an urban impact project, i.e., it involves covering some key aspects for the development of this community, the preliminary conclusions show the community’s
desire to be active in improving the quality of life (as expressed in the baseline), which is expected to create a more comprehensive participatory urban development. Being developed under the methodology of Participatory Action Research, which has a strong social component and identifies factors and problems that affect the low quality of urban life, this project will allow the development of multiple proposals and research, which may include social, health and other branches, which will subsequently can be monitored and will be able to create new pedagogical models and allow for urban development models to be implemented.

Habitat International Coalition (HIC, 2010) mentions that the Social Production of Habitat recognizes collective organization processes that seek to improve the places where people live and live, relating directly to the organization of people and their collective action, giving priority to community benefit over the individual, in the construction of the habitat; In order to achieve high quality results, it is necessary to work in coordination with academia in order to contribute with knowledge and inputs to this production, so we proceeded to generate work tables with the purpose of obtaining comprehensive proposals under the Participatory Design modality.

Historically, the growth of the city has been generated without planning, producing informal settlements, which is why informal settlements (invasions) have proliferated in Guayaquil. According to city statistics, half of the city’s population lives in these invasions, which subsequently generate a demand on the part of these inhabitants to obtain the infrastructure and basic services that will allow them to live a dignified life. These settlements result in irregular housing, without technical construction criteria, with a heterogeneous social component, generating in some cases that these buildings are in places exposed to risks, and it is there that by public policy in some cases it is decided to relocate the most exposed houses. The 25 de Julio and Virgen del Cisne cooperatives respond to this type of process and in 2008 the community requested the Cabildo to regularize their situation.

Ecuador’s National Report of the Third United Nations Conference on Housing and Sustainable Urban Development - Habitat III (2015, p. 58) mentions this fact indicating that uncontrolled urban sprawl is a phenomenon that affects both first world cities and cities in developing countries; uncontrolled suburban sprawl is characterized spatially by the growth of urban sprawl on the peripheries of the city. In general terms, the most notable consequences of this spatial development phenomenon are: environmental degradation due to the urbanization of natural reserves or rural areas; loss of agricultural land caused by the change of use or its conversion to industrial, commercial or residential land uses; increase in Greenhouse Gases (GHG), due to the increase in travel, generally vehicular.

On the other hand, Deuskar, C. and Ferreira, S. T (2016) in the publication in the World Bank Blogs published the article A story of many cities: tracking urbanization in the world, this article mentions the World Urban Footprint project producing a layer of information about human settlements, in these reports it is stated that currently, more than half of the world’s population are urban dwellers and this number continues to
increase rapidly. Since settlements - and urban areas in particular - represent the centers of human activity, the environmental, economic, political, social and cultural impacts of urbanization are far-reaching. They include negative aspects such as the loss of natural habitats, biodiversity and fertile soils, climate impacts, waste, pollution, crime, social conflicts or transport and traffic problems, making urbanization one of the most pressing global challenges. Consequently, a thorough understanding of the global spatial distribution and evolution of human settlements is a key element in devising strategies to ensure the sustainable development of urban and rural settlements.

On the other hand, the National Development Plan, Toda una vida (National Planning Council, n. d., p. 123) in the Territorial Guidelines for territorial cohesion with environmental sustainability and risk management, also states that territorial cohesion seeks to reduce gaps, expand opportunities and improve living conditions, eradicate extreme poverty and improve the quality of life, this implies intervening effectively in improving the provision of services related to social reproduction and the satisfaction of basic needs in terms of habitat and housing, where the right to the city demands rethinking rural-urban relations and the democratic construction of spaces for citizen coexistence.

The National Territorial Strategy (NTS) is part of the National Development Plan, A Whole Life (National Planning Council, n. d., p. 110) and defined a dynamic and proactive structure for the management of physical space and human activities on it; the NTS implies the construction of guidelines that favor the articulation, coordination and prioritization of planning, management and land use planning instruments. These tendencies respond to the need for permanent follow-up of policies, activities, requirements, interests and impacts in reference to the economic, social and environmental aspects of the territory; this is why development planning and land use planning constitute part of a continuous and cyclical process, which may have various phases of formulation and alignment based on permanent monitoring, follow-up and evaluation processes.

On the other hand, the National Report of Ecuador of the Third United Nations Conference on Housing and Sustainable Urban Development - Habitat III (Ministry of Urban Development and Housing of Ecuador, 2015, p. 49) argues that "rapid urban growth does not generate dynamics that improve the quality of life of the population in an equitable way", in such a way the National Planning Council (2013, p. 142) also announced that in Ecuador only a few municipalities had initiated public space recovery processes, highlighting that these efforts are isolated and the need to generate national regulation and control frameworks and the recognition of the capacities of each territory in terms of a system of cities is evident.

Ecuador is a country that is in search of more humane and equitable living spaces, and that is why the National Development Plan (2017-2021) Toda una Vida (National Planning Council, n. d.), p. 64 in the National Development Objectives in axis 1 of Rights for all throughout life, in Objective 3 points out "Guarantee the rights of nature for current and future generations", for which it maintains that territorial cohesion is
understood as social and territorial justice, and from the territorial perspective it considers environmental sustainability and risk management as fundamental axes, where environmental sustainability corresponds to the compatibility of uses according to the aptitude that a territory has; This relationship will restrict the possibilities for benefiting, managing and systematizing the use of natural resources, in order to guarantee access to them for the benefit of all, with intergenerational responsibility; and risk management includes the reduction of current risks, prevention of future risks, disaster preparedness, response and management, constituting fundamental elements for the construction of safe and resilient territories, including the effects of climate change (considered as a threat).

The 11th Sustainable Development Goal (SDG) (United Nations, n.d.) aims to ensure that cities and other human settlements are safe, inclusive, resilient, secure and sustainable, focusing on housing and blighted neighborhoods, transportation, participatory planning processes, cultural heritage, waste management, air quality, disaster risk management and other issues, the (World Bank, 2017) in the article The cities of the future in Latin America: Fewer cars, fewer young people, but "smarter" indicates that in Latin America a paradigm shift is being generated in terms of the SDGs, notoriously in policies and in the approach to urban planning; in relation to policies, investment has been generated and the city is conceived as an opportunity for the territory, where sustainable development, welfare and equity are part, this change arises from an irreversible reality of urbanization on a global scale, currently more than 50% of the population; in 2050 it will be 75%.

The Urban Consulting Project seeks to support the development of projects and applied research that address this problem, especially in relation to the occupation, use and transformation of this urban space. It is under this conception that the Project seeks to be able to insert itself with national public policies related to the occupation of urban space.

MATERIALS AND METHODS

This is a Descriptive - Transactional - Quantitative study. The cooperatives are located in the city of Guayaquil, in the northwest of the city, between the sector called Ciudad Deportiva -Carlos Pérez Perasso- and the viaducts (tunnel type) that connect the avenues Martha de Roldós and Barcelona. The Virgen del Cisne cooperative is at the bottom of the hill and the 25 de Julio cooperative, on its slopes. Alvarez et al. (2016) indicate that the 25 de Julio Cooperative is one of the five informal human settlements located southwest of the Protected Forest, and the most numerous with 3450 inhabitants (52%) of the total in that area.

With this information, the CU identified that 1000 families live in the study cooperatives, divided by polygons, which made it possible to define the sample size in order to include the greatest diversity of inhabited polygons. A closed survey was conducted with a 5% margin of error, with a sample of 330 surveys, leaving 282 valid surveys, after discarding those that had errors or compromised the sample.
A survey was prepared based on other international experiences carried out in spaces with similar characteristics, a validation was made by experts (Urban Researchers - Urban Observatory) in community issues, a pre-test was made with a focus group and the final survey was defined. The students were trained to understand the questions and to be able to explain them to the inhabitants (without influencing the answers), the survey was carried out by the students in a single day. To take the surveys, a joint trip was organized by the delegates of each career to survey the inhabitants of the Cooperativa 25 de Julio and Virgen del Cisne sectors, to cover the area and survey the population in a single visit.

Once the survey was completed, each card was digitized and a total result was obtained for each group surveyed. The surveys were cleaned, eliminating those that presented any inconsistency or filling error, leaving a final sample of 282 surveys. Subsequently, a final review and tabulation of the data obtained was carried out. A second review of the results was carried out and the data was unified in an online document so that it could be discussed simultaneously with several urban researchers and any errors in the processing of the data could be verified.

A unified results sheet was generated for all the polygons (the two cooperatives are included); in which the data and percentages per question are found; subsequently, a sheet with the graphs of the results was made to generate a visual interpretation of the results. To finalize the process of analysis and processing of the surveys, a cross-referencing of variables was carried out to detect the different workshops in which the population would be interested in participating for the benefit of the community; the variables correlated with specific topics proposed by the UCSG were considered to determine the feasibility of carrying them out.

The project is based on academic-community practices that understand the applied knowledge of urban planning, architecture and civil engineering as necessary and fundamental development tools for the urban and rural population, and is developed through two types of work teams: Architectural Team and Urban Team.

The methodology applied is the one that corresponds to the Participatory Action Research (PAR), because it is a research that has a large social-participatory component, this methodology involves a flexible design and built progressively throughout the process, allowing the construction of a program that is strengthened throughout each of its phases and can identify new symptoms or problems to be solved, the phases and stages of PAR of Alberich quoted by Martí (2017, p. 2) are adapted (see table 1) (see Table 1). Another example of this methodology is the scheme of action research cycles proposed in the study by Sánchez Gómez et al (2014, p. 575).
### Table 1. Stages and Phases of Participatory Action Research (PAR)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
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<tbody>
<tr>
<td>Pre-investigation stage: Symptoms, demand and project development.</td>
<td>Detection of Symptoms and demand (from an institution, generally local administration) for intervention. Research approach (negotiation and delimitation of the demand, elaboration of the Project.</td>
</tr>
<tr>
<td>First stage. Diagnosis</td>
<td>Contextual knowledge of the territory and approach to the problem based on existing documentation and interviews with institutional and associative representatives. Information gathering Constitution of the Follow-up Commission Constitution of the PRA group Introduction of analyzer elements Start of field work (individual interviews with institutional and associative representatives). Delivery and discussion of the first report.</td>
</tr>
<tr>
<td>Post-investigation stage: Implementation of the EPI and evaluation. New symptoms</td>
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On the other hand, Zamora (2017, p. 288) indicates in his publication Constructivism and critical realism in environmental conflicts, that environmental problems should not be solved exclusively with the best empirical evidence, but also include political principles, justice and integrate deliberative spaces, i.e., the argumentation of all those involved, therefore, this example also strengthens the methodology selected for this study, in its participatory component.

PRA applied to the development of this Project:

Information was collected to generate the 1) ethnography of the inhabitants (age, sex, composition of the family nucleus, place of origin, level of education, socioeconomic conditions), 2) identify the services and problems and conditions of the environment that the community identifies as priorities to improve their quality of life and 3) possible
training topics were presented (to be developed later by the students, for which the construction of a building called Consultorio Urbano is also proposed).

This information gathering made it possible to establish the Baseline (LB), which will guide the development of the entire Methodological Process throughout the Project in time and in all its stages. When the community expressed interest in receiving training in the Baseline, the steps and stages for the design, construction and subsequent implementation of the CU for the community were developed. The CU has two components; the Architectural Component that is dedicated to the analysis of the site for the design and construction of the building called Urban Clinic; and the Urban Component that is dedicated to the analysis and review of the information obtained in the WP in order to generate consulting proposals for the community. This document presents the results from the Urban point of view.

RESULTS
The information obtained has allowed us to understand and identify the problems and internal relations of this community. We proceeded to analyze the information, defining the Ethnography of the inhabitants, to understand the composition of the households, age, sex, origins, level of education, economic activities, family income, members with disabilities. At the Urban level, the following information was identified: Perception of the Housing, Climate Comfort of the Housing, Physical Information of the Housing, Basic Information of the Housing, Furnishings, Orchards, Neighborhood, Perception of the Sector (Civil Security), and Urban Image.

In terms of ethnography or socio-cultural context there is a gender balance, in which 52% of the population is male and 48% is female, where 54% are single. Likewise, there are 25% of people who are between inactive and unemployed and 55% of the families live on less than $300 per month. Within a mountainous environment, it is important to note that 44% of the disabilities are associated with physical or motor disabilities, followed by 23% of those affected by diabetes. It should also be noted that 54% of the families surveyed have the perception that their neighborhood is not very safe, either because of crime or because of the environmental conditions of the sector.

Regarding the political and governance context, the cooperatives studied have developed notable political differences, which frustrate the progress of the sector, hindering the legalization of their lands and the obtaining of resources for the development of the area. The irregularity of the urban layout is due to its informal growth, which has resulted in places that are difficult to access for both vehicles and pedestrians, as well as the built environment. Eighty-two percent of the families do not own a vehicle, so they must walk up to 20 minutes, sometimes on narrow, unstable roads with steep slopes, to reach the nearest bus stop. Of the 290 hectares of the sector's total area, only 4.2% is used for public space (mostly sports fields). In addition, there is 1.7 m2 of green area per inhabitant of the 9m2 recommended by the World Health Organization. The scarcity of public space and the narrow sidewalks of 1m wide, lead to the use of vehicular roads as internal pedestrian mobility and public space.
Facilities such as churches are closed most of the time and the only medical center is only used on the first 13 days of each month, from 7am to 12pm, and is for older adults with catastrophic illnesses. If the community wishes to be attended at a medical center, they must go to another sector of the city. Having so little public space is a disadvantage, since they have almost no green areas and do not have basic equipment in their own cooperatives. If they need or want something, they must look for it outside the sector in which they live.

The architecture and construction of the sector is defined by two types of housing: commercial housing and traditional housing. The commercial housing is in strategic sectors of the neighborhood and the commercial program is considered from the beginning of the initial construction or increases over time. Four types of housing have been identified. The first type are homes that begin construction from the back of the lot to the front, since they use that space for commercial activities due to the location where they are located. Many of these houses start their construction with cane, and now of making an improvement, they build in the space that they are not using on their land, and little by little they move forward, leaving the initial space as the last space to change. The second type are houses that begin construction from the front of the lot to the back, adjoining the boundary line, they do allocate a commercial space, but advance the construction towards the back occupying the entire lot without leaving open spaces such as retreats, patios or arcades. The last type are houses made of cane or concrete that leave some space in the construction of their houses, and these spaces often serve as a support for community integration and relationship with the urban environment. At the same time, it can be considered that the different types of housing are related to the interests of the users and to the location in specific sectors of the site.

In general terms, the neighborhood’s initial informal growth condition, connected to the topography of high slopes and the geological conditions of the clay soil, have caused the sector to grow anarchically, bringing with it situations of physical risk and perceptive insecurity for its inhabitants. The complex roads and lack of street lighting have led to unknown people using it as a temporary hiding place, lending itself to committing criminal acts inside the neighborhood. It is observed that from the conditions initially exposed, a concentration of services has been generated in relation to the main access road in the Virgen del Cisne Cooperative (lower part of El Cero), and in the street near the drinking water plant (interagua) of the Coop. 25 de Julio (upper part of El Cerro).

DISCUSSION
So far, the Urban Consulting Project has a baseline that allows the identification of problems and factors that affect the low quality of urban life and the degradation of urban space. This study proposes the use of the diagnosis of the urban, architectural/constructive and identity/cultural conditions of San Eduardo Hill, in order to contribute more effectively in urban development plans in the sectional government. As a result of the baseline survey, it can be inferred that this is a fragmented community that has the perception of little security in its sector, that has a low percentage of
participation in community activities, but it has also been possible to identify a strong desire to participate in workshops or training that allow them to improve their quality of life, but these workshops are perceived as a form of individual improvement.

The proposal of our strategic plan, which involves urban, architectural, constructive and cultural identity aspects, including community participation, is expected to strengthen the capacities and skills of the inhabitants of Cerro San Eduardo. It is also suggested that periodic monitoring can be done, since having a strong participatory social component could generate a management model that would allow replication in various sectors of the city.

CONCLUSIONS
The isolated and disconnected location of this settlement, in relation to its access and transportation, has made it difficult to access key facilities such as hospitals and markets. In its interior, the topographic condition and narrow roads make it difficult to access public transportation that allows greater connection with the city, and other community services; these conditions result in a low quality of urban life, such as dissatisfaction, civil insecurity, loss of identity and disinterest in the development of the place.

Since the CU is an urban impact project, i.e., it involves covering some key aspects for the development of this community, the conclusions show the community's desire to be active entities in improving the quality of life (expressed in the baseline), which is expected to create a more comprehensive participatory urban development. The construction of a community architectural space will promote community organization and allow for the transfer of knowledge through the implementation of technical assistance through the Urban Consulting Center to provide continuity in the planning, design and execution of projects to improve housing structures, public spaces and community services infrastructure.

Being developed under the methodology of Participatory Action Research, which means that it has a strong social component, which identifies factors and problems that affect the low quality of urban life and provides feedback, this project will allow the development of multiple proposals and research, which may include social, environmental, health and other branches.

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