

Social and Environmental Function of Urban Space

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Abstract: Medellín is a city located at Aburrá Valley, Colombia that had its growth process associated with orographic and hydrographic conditions, where planners and technicians made important plans and projects articulating the environmental and built systems. The valley, despite having a high index of slope and areas of potential risk of landslides, has a high degree of human occupation, represented in different economic strata. In this scenario, planners and municipal administration, associated with academic and civil society, have made important advances in favor of Social Urbanism. *The Plan de Ordenamiento Territorial*¹ – POT (1997) introduced the social and ecological function of property, the public function of urbanism, the equitable distribution of burdens and benefits, with the prevalence of the general interest over the private; the *Plan de Desarrollo de Medellín*² – PDM (2001) introduced elements such as civic culture, which sought to elaborate urban projects that integrated the physical, cultural and social components (2004); the *Proyecto Urbano Integral*³ (PUI), in turn, contributed to the decline of violence and the upgrade of quality of life rates, establishing an important step in the construction of the right to the city. The projects were oriented to active mobility and public transportation, and expanded the provision of collective equipment associated with public space, expanding community outreach and empowerment. Social participation has become a fundamental element for the success of the implementation of the project as well as its maintenance.

1. Introduction

During the 1990's, Medellín was reported by the press as one of the most violent cities in the world. That time, the high number of homicides put the city in the same violent level as other cities that were facing civil wars. It had an average 7 thousand homicides each year.

Over the fifty year guerilla and paramilitary warfare in the biggest cities in the Colombia – especially Bogotá and Medellín – received most of the country's convicts; whole families that were expelled from their lands headed to those cities in search for shelter, work and life opportunities. In the last decade the city was home for over 100 thousand inhabitants in that condition and it is estimated that 20% of its total population have a similar background.

1. Territorial arrangement planning.
2. Medellín Development Plan.
3. Integral Urban Project.

There were several police attempts to end the conflicts, however, the armed group's military power is as strong as the State's. The conflict stretched so much that Medellín, for example, was in a state of emergency.

At the end of the 90's and the rise of the new millennium, public administrators, civil society, business groups and intellectuals joined and engineered a project to Medellín. Once the territory and its social cultural complexities were acknowledged and, guided by the *Social Urbanism* methodology, the city was transformed and consolidated a new city model, emphasizing public space projects and collective equipment in underprivileged areas, looking for diminishing its historical social debt. In 2013 Medellín won the "City of the Year" award, among other 200 cities. The award was organized by the Wall Street Journal and voted by internet, considering the carbon footprint reduction, creation of cultural spaces and criminality reduction.

2. Methodology

This article focuses on deepening the comprehension of Medellín's public spaces and environment contributing to project practicing in the area of architecture and urbanism; promoting a democratic projection and use of this space; and democratic participation, reinforcing the creation of urbanity manners focused on peace and social interaction. This research was made through bibliographic review, data collection and analysis and field registers and observation.

The public spaces issues refer to project elements noticed in the architect and urbanism domain: the spatial form corresponds to a complex materialization of elements and processes. The urban spaces shape analysis – or the singular *public places* – go through the element analysis of its own immediate context and its relation with social and cultural wider contexts. Containment or delimiter elements: buildings; walls; fences; views; geometries; natural elements (topography, hillsides, vegetation); functions (Ferreira, Sá e Leão, 2015).

3. Analysis/Results

3.1. *Urban legislation and social participation ratification*

Colombia went through a significant institutional crisis during the decades of 1980 and 1990, which revealed a political and social stressful period in the country, widening the debate and the social mobilization that led to a population demand for improvement. The National Constitutional Assembly was the responsible for the society restoration which culminated in the promulgation of the Colombian Political Constitution in 1991, based on the Social Rule of Law and on the participatory democracy.

It can be said that the Colombian Political Constitution arise as a social victory in the popular struggle that demanded recognition and right assurance to the population. Among the proposed changes there were speech development and citizenship practice, as well as political, social and civil rights when enabling social participation as its highest in the national political history, with rules that regulated as fundamental rights and duties in the nations' lives (art. 95); another transcendental change was the political, administrative and tax decentralization in the urban planning, generating appreciation in the local reality such as space management and innovation public policies (Lopera, 2019, p. 22).

The new constitution included tools aiming housing policy, environmental sanitation and

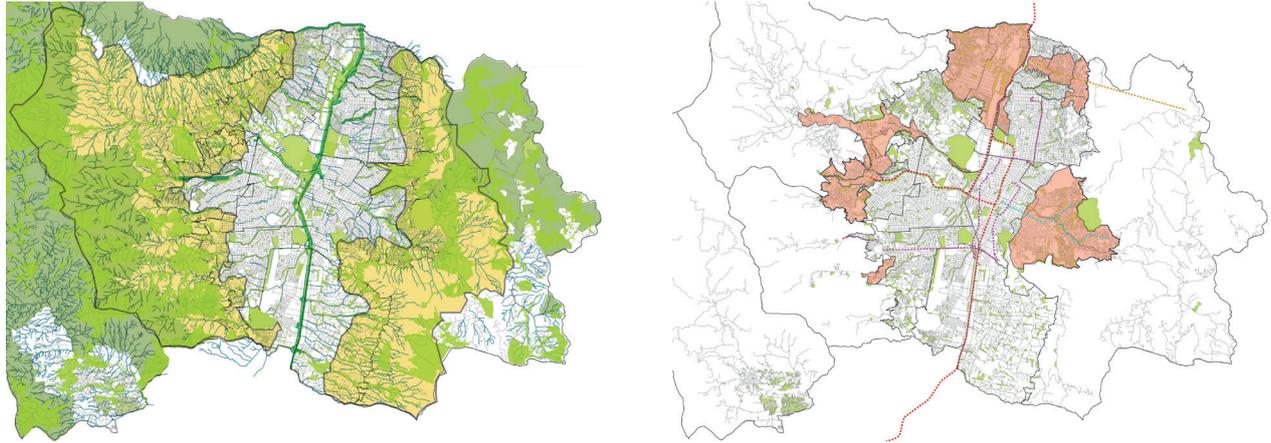


Figure 1.

geological risk, public space, mobility and social participation (Zuquim, Sánchez Mazo, Mautner, 2017, p. 10). It established the public space as the structuring element to the land use having direct influence over the population, leading to creation of laws that set its importance, its determinant, its components, plans, projects and financing and management structures.

Lei de Desarrollo, from 1994, defined basis for the national development based on the equity principles; the urban policy *Ciudad y Ciudadanía*, reaffirmed the city right in 1995; the Plan de Ordenamiento Territorial – POT, in 1997, introduced the social and environmental property function, the urbanism public function, the fair distribution of load and benefits, prevailing the general interest over the private (Zuquim, Sánchez Mazo, Mautner, 2017, p. 11).

Participation was recognized as the main and fundamental supporter of the urban legislation, establishing ties between social organizations and the state hiring in sectorial programs in different orders and it was ratified by the law 134/1994, art. 103, replaced later by the law 1757/2015 (Zuquim, Sánchez Mazo, Mautner, 2017, p. 11).

In 1995, advances in urban policy happened due to the law *Ciudades y Ciudadanía* which enacted the right to the city, valuable asset for collective consumption, public par excellence, and scenery of fundamental rights. Subsequently, in 1997, the law 388 from Desarrollo Territorial changed law 9, from 1989, transcending the illegal view of precarious settlements based on the social and environmental function of property, incorporating international debate concepts such as improvements, relocation and prevention.

After Lei de Desarrollo Territorial, Planes de Ordenamiento Territorial (POT) arose in municipal scale, making it possible the urban policy and regional planning implementation, public services and housing rights (Partial Plans). Such implementation should attend the precarious urban conditions, habitability and land access needs. (Lopera Perez, González Avendano, Sánchez Mazo, 2017, p. 19).

Furthermore, the concept “Ecological Structure” was coined and interpreted as a category that has the specific function of keeping biodiversity and the essential ecological processes of the land. The large scale city parks, previously seen as isolated areas in the urban structure, are now seen as essential part in the land use planning, therefore the environmental commitment was validated:

In order to guarantee principles and law enforcement related to social and ecological property function, the urbanism public role and promote urban development benefits fair sharing (Contreras, 2016, p. 124).

Most of the early territorial framework planning in Colombia was approved between 2000 and 2003, and they are known as POT from “first generation”. It was valid for 12 years (the equivalent to three municipal management periods).

The early POT designs were improvised. Some cities designed them in a hurry, others copied; bottom line is that the early POTs were not of high quality and did not promote the cities’ development according to Diana Muñoz, manager of the Modern POT program, from Planeación Nacional⁴.

The law 1625/2013, which replaced the Organic law 128/1994, conceptualizes the so called Metropolitan Areas as intermediate management territorial entity, constituted by a set of towns surrounding a core city, *bounded by territorial, environmental, economic, social, cultural, technological and demographic dynamics and interrelations*, and it defines its operation, based on issues that affect one or more cities simultaneously. The law 1625 tried to redefine the metropolis concept to beyond urban conurbation, broaden its range to territorial management of systems that extrapolate municipal boundaries, what they called *metropolitan phenomena*.

3.2. *Overlapping Layers in the urban area: a collective development*

The Integrated Urban Projects held in Medellín, became formulation and analysis methodology with a high potential impact transformation in the areas involved, with the land and its urban fabric cross-sectional reading, rural and semi-urban (borders areas/ *fringe belts*). Knowing Vale do Aburrá’s environmental structure and also its built area, allowed the planners to understand the occupation processes and the development of the projects that guided the city’s growth in the past years.

The land *layers’* cross-reading was approved by the Decree 1504/1998. This decree regulates the management of the POT’s public spaces, characterizing and structuring the tools needed to develop the plans. The public space is defined as “*coordinating and structuring element fundamental in the city area, it’s also the regulator responsible for the environmental conditions of the city*” (Chapter 2, article 7, Decree Law 1504).

Therefore the Public Area System is the articulator of natural and built spaces in the city, and it is composed of *natural components*, hydric and orographic systems, *artificial components*, human occupation and connectivity system and *complementary components* formed by afforestation and the urban furniture set.

3.3. *Metropolitan Comprehension of the Environmental System*

Medellín city is in the Antioquia department, in Vale do Aburrá, Central Mountain Range. It is 7 kilometers wide and 30 kilometers long it is border to the north by the city of Bello and to south to the city of Caldas, creating the Vale do Aburrá Metropolitan Area (AMVA), which includes ten cities. Its altitude varies from 1,500 to 2,500 meters in the valley highest point, increasing its inclination and soil vulnerability as it gets closer to ridges and the highland surrounding. It also has three *Cerros Tutelares* in the inner part of the valley – *Nutibara, El Volador* and *La Asomadera*.

The city’s area is in Rio Medellín’s basin, which splits Aburrá’s valley, it’s irrigated by roughly 200 direct tributaries, and more than 350 indirect ones and its most important streams are *San-*

4. <http://www.eltiempo.com/archivo/documento/CMS-16643406>. Access 6/4/17.

ta Helena, La Iguaná and La Presidenta. Throughout the years the streams and the river Medellín became an open sewage, and nowadays they are in the process of depollution.

Considering all the natural complexity from the location, in 1980 the Vale do Aburrá Metropolitan Area (AMVA) was created and it started operating in an integrated and inclusive way with all the cities laws in 2000. Currently AMVA is the agency responsible for planning and managing all the valley natural components, such as hydric and orographic systems and environmental public areas. Decentralized, AMVA is constituted by a technical team focused on developing projects and it is managed by the metropolitan area cities mayors, being Medellín's mayor the one with higher decision-making power.

3.3.1. Environmental Public Areas: Linear Parks and the Metropolitan Green Belt

Environmental Public Areas are connected to the ecological land structure, they use natural components such as hydric, orographic or vegetation, to shape public spaces with high environmental value, always considering ecological preservation, already described in the municipal order. Medellín has consolidated metropolitan and municipal projects related to the Medellín River and its tributaries and also related to the high valley, structuring the Metropolitan Green Belt, this project embraces the ten cities part of Metropolitan Area of Medellín.

4. The Metropolitan Green Belt and the Jardín Circunvalar

The Metropolitan Green Belt projects designed by AMVA, attends a series of land structure aspects in relation to its natural elements. It also addresses to the issue of human occupation in slopes near the rural areas (*Corregimientos*) and other cities connected to AMVA. The project's obvious landscape and environmental action towards the land, seeks hydric and vulnerable landslip preservation. These problems are caused by the kind of soils, slope inclination and formal and informal occupation.

The project brings up two belts that present different priorities and need of action due to its characteristics: The *cinturón superior* needs conservation and environmental protection to the land, understanding of its part in Metropolitan Structuring Ecological System, guarantee of its



Figure 2.

environmental functions like hydric fountains, primary woods, etc. The *cinturón inferior* offer strategies to consolidate a transition zone between the urban and rural areas, focusing on the creation of a border park with natural resources, low density maintenance to keep the natural areas, and the support for the population of informal settlements, either improving the belt or removing and relocating people in case of risk.

Jardin Circunvalar of Medellín is a milestone in the Metropolitan Green Belt, and it began with Aníbal Gaviria (2012 – 2015). Expansion areas were established in small urban centers along the valley's longitudinal axis. Two parks were created in the east and west cost of the city and they promoted the longitudinal city growth preventing settlements occupation in slopes and streams benefiting the land ecological structure.

The Garden is part of the Inferior Metropolitan Belt and embraces social, cultural and educational components in its programs. Following the PUI's pattern (Integral Urban Projects) it needs public transportation connection and can be reached by the Metrocable (cable car) stations *13 de Noviembre, La Sierra, La Cruz, Santo Domingo* and *Picacho*.

The Project was divided in steps, starting with *Cerro Pan de Azucar*, eastern side, and by *Cerro El Picacho*, western side, where Landscape Conductor Plans were structured in each hill.

5. Medellin River Parks

Medellín River Parks is supposed to be an urban transformation integrated project that involves intervention in the River's bank with infrastructure, landscape, vegetation quality and readjustment works in order to become the main transport corridor and also enables citizens encounters. It is the city's return to its origin, when the population used to use the river, bringing back life quality and turning the river environmentally friendly.

This Project is being led by EDU – Urban Development Company together in an agreement with AMVA. It consists in a set of parks that together will form a linear ecosystem, that is 28.1 kilometers long, where 19.8 kilometers in the Medium Sector – the correspondent to the city of Medellín – 7.2 kilometers in the South Sector and 1.1 kilometer in the North Sector. The two last sectors correspond to other cities in the metropolitan area. This is the main strategy from the last Medellín POT; it was approved in 2014 and developed with different society areas, public authority, entrepreneurs, social, academic, environmental and cultural organizations through several meetings, workshops and forums. The first stretch was built around the central axis in the International Business and Administrative area, what the supporters claim will benefit everyone.

It started with the downgrade of the expressway in some points, turning it into a tunnel and covering it with a park, creating this way a cultural and recreational activities space. In other areas, empty urban space was used to create green public spaces.

The park will enable connection between the city's protected areas, the three tutelary hills – *Nutibara, El Volador y La Asomadera*; the *Jardin Circunvalar*, the green belt that intends to contain Medellín's extended growth; besides the rivers territories.

The Medium Sector, which is almost 20 kilometers long and has a 327 hectare area, corresponds to the city of Medellín and that's where the park's construction began. The piece between 33 Street and San Juan Avenue was already finished and other river banks work has already begun. The next parts will be developed by public-private partnerships.

6. Linear Parks in Medellín River's tributaries

Medellín River's linear parks' tributaries are other strategies described in the 2014 POT. The idea is to create an environmental system, integrated to green areas, especially those with higher importance such as stream banks and its ciliary forests, tutelary hills and the Medellín River after the park formation.

The Linear Parks program (Integrated Stream Intervention) started with Sergio Fajardo (2004 – 2007) administration period. In that time, following EDU seven linear parks spread in different communities and in both side of the valley were built: *La Herrera*, *La Bermejala*, *La India*, *La Presidenta*, *La Quintana*, *La Malpaso* and *Ana Díaz*. Some of these projects like *La Herrera*, are part of the PUI strategies and others like *La Presidenta* were environmental interventions between EDU and the Environmental Secretariat when regions were not as complex and didn't need PUI support.

According to Ortiz (2014), the city describes its linear parks strategy as:

The green spaces, around the stream, presenting adequacy as natural public spaces, to connectivity, maintaining biodiversity and ecosystems, decontaminating microbasins and enjoyment of citizenship and passive recreation, outdoor and near nature (...). These are spaces with ecological and environmental functions; furthermore, they are home to many native trees, refugee of birds and a mechanism to protect and recover native ecosystems inside the city and represent an integrative element that allows balance between environmental conservation and space recovery. Open areas that provide outdoor spaces, available for rest and recreation and turn to open permanent environmental education classes for the communities to value and care for water, trees, fauna and to develop friendly actions toward the environment (Ortiz, 2014, p. 1314).

6.1. Territorial articulation and Connectivity System

Natural elements that form the land from the metropolitan perspective comprehension allow more articulation and harmony between the environment and the built area, guiding public policies and management to beyond the political limits that define the cities.

Medellín is the main urban area in AMVA, and it has minor urban centers and expansion areas along the valley. It is composed by layered communes from north to south, being the south area the one with higher income. Transversally to the river it is seen that the higher altitude areas have lower settlement's density presenting low life quality.

The connectivity is organized along the river, where you find most of the arterial routes and public transportation system. The mobility system is directly related to the water system and Medellín River is the main connective channel to the Metropolitan Area, where you can find expressways and subway railway lines. There is however contradiction concerning whether the river must become a mobility system or it should be recovered to become a linear park.

AMVA is the metropolitan transportation authority, designated to manage the transportation systems. In 2005, they launched the *Plan Maestro* of mobility 2005-2030 to all the metropolitan area, guiding the space's development towards a sustainable transportation system, using the *Mtrocable* (cable car), the *Metroplus* (BRT), the *Tranvia* (VLT) and the tram. The responsible for the system's building is the Massive Metropolitan Transportation Company – METRO.

Besides meeting the connectivity need of the city, the *metro system* contributed to success in the urban renovation. It was a milestone in the *Social Urbanism* connecting public spaces and collective equipment net to the mobility system denoted in the POTs and transportation equipment built in Medellín and seek integration with the community offering open spaces for

leisure. A recent example is the *Tranvía de Ayacucho*, which connects the eastern center region to the center and occupied empty spaces along the way with green areas.

The *Metrocable* have also brought relevant contributions to the connectivity, environmental, public and social system's articulation, occupying empty spaces and creating spaces for socializing in the affected areas around the stations. The public space is defined by the transportation line, which is designed by the geographic-morphologic analysis before being consolidated.

7. Comprehensive Urban Projects and the Public Space decentralization

Comprehensive Urban Projects (PUI) developed between 2004 and 2011 had a very participatory process along its steps. During its first period (2004-2007) the local government used the Metrocable line K construction to structure their first project, the Northeast PUI, establishing a low impact intervention, based on the POT and PDM principles. The PUI is an integrated urban management program that deals with physical, social and institutional components, acting in areas where the State was not present before and using all the urban planning tools simultaneously. Thus it works with the community through social participation mechanisms like public assemblies, communal councils, etc.

The public space was acknowledged as an ordinary platform in which people live and are developed as individuals and citizens, that's the reason it was created as a social inclusion tool; mobility has acted as a connector system to the urban plot in order to instigate articulation; equipment as reference point associated as complements to collective and individual life; housing and its surrounding as support for the individual and his family (Lopera, 2019, p. 39).

The *physical component* Works with the improvement and building of housing, collective equipment and public spaces development seeking harmony with the environment, creating new parks that plot interventions; the *social component* links civil society in all steps of the process, since the diagnosis and problem identification through field research to proposals formulation through community workshops; the *institutional component* acts in the articulation with community entities, private sector, national and international NGOs and secretariats managing the financial and administrative parts of the projects, and following it up after its implementation.

The social participation was consolidated with each sector's potentials identification, in the citizenship pacts, in the training about use and appropriation of public spaces, in the committee's participation and in the local workforce used to build the projects, raising the belonging feeling in the community. The identification of community leadership and information channels was fundamental for the PUIs' methodology to work, having the community permanently following the projects. The used methodology promoted advances in the Colombian urban policy and allowed the development of new urban forms and functions due to open thinking, turning architecture in engine to the city inhabitants' progress (Lopera, 2019).

8. Oriental North PUI Phases I and II

The Oriental North PUI is located in communes 1 and 2, structuring itself in the influence zone of Metrocable, line K from the Metropolitan Transportation Integrated System and it affects directly the neighborhoods *Villa Niza*, *Andalucía*, *La Francia*, *Villa Del Socorro*, *Popular*, *Granizal*, *Santo Domingo Savio 1 and 2*, *La Avanzada* y *La Esperanza 2*, contemplating roughly 230,000 in habitants.

The project connects Acevedo Station, line A from the subway to its last station, Santo Domingo, where it is possible to connect to the Turistic Metrocable, line L, to Parque Arvi.

The region started to be taken over by informal settlements in the 1950's, the occupation was a result of the armed conflicts happening in the country where people were being expelled from their lands. The first action taken by the public power happened in 1970, when the first formal settlements were built in the region and then later on sidewalks and allotments started to happen, nevertheless, population was still in need of public equipment. Actions were still occasional and were not organized in zone plans or neighborhoods, so the communities kept growing and so did their density.

That was the first PUI developed in the city, simultaneously to the line K construction. This way it was possible to accelerate the project execution, and its best articulation. Around the stations, later on squares, new roads and sidewalks were made coordinated to the local transportation system.

The *Paseo Andalucia* sets the intervention in the urban connection axis in line K turning it in a neighborhood road with a large sidewalk and street furniture; the *Puente Mirador Andalucia* connects the different neighborhoods and creates a pedestrian space that is considered a park by the community; the *Parque Lineal La Herrera* recovers the stream, rebuilds the green system along its banks and offers squares and pools for community joy; the Parque Biblioteca Santo Domingo brings culture and education to the population and is an internationally known landmark – although it had some building problems that compromised its facade; and the housing consolidation in Juan Bobo stream, which restructures the informal land occupation, clearing the steepest slopes, recovering the sewage system and offering social housing to the community.

In 2008 the second phase of Oriental North PUI arose, focusing on La Avanzada, Carpinelo and Aldea Pablo VI neighborhoods. These districts had their consolidation later to the first PUI phase and are facing the search of a proposal of city urban limits affirmation, with border linear park conformation, focusing in the small agriculturists (Circunvalar Garden).



Figure 3.

9. Discussion/Conclusion

Data collection and the recent research analysis intend to show the complete view and the open nature of the Colombian *Social Urbanism* along the last decades, relighting in the city of Medellín. Knowing about the physical and social land aspects enabled the implementation of complex projects that guided a sustainable city growth in harmony to the environment. Urban policies driven to social debt reduction and the search of land equity, raising public spaces offer, collective equipment, housing provision and basic sanitation were successful due to participative methodologies along its implementation.

The urban scenarios developed along the period were consolidated as public space guided by active mobility and public transportation. The *Metrocable* system was the way found to expand the area for the population historically forgotten in valley slopes, and enabling the right to the city. The Integrated Urban Projects are examples, especially the Oriental North PUI that took advantage of the cable car construction to start insertion of equipment and public spaces that were decisive to the project. Territorial connectivity was seen as a fundamental factor to build trust with the community, and it was part of the agreements between both parts.

In relation to environmental public spaces, the city established strategic projects that seek conversion, conservation and preservation to the higher parts of the valley, structuring the *Metropolitan Green Belt*. This belt is a transition area between the rural and urban territories, having public spaces for both demands, support equipment to settlement occupation control and semi-urban community service, with culture and education spaces, subject already discussed in the pilot project *Jardin Circunvalar*.

Environmental public spaces were also constituted through the riparian forest in Medellín River's basin restoration, strengthening the water system and caring holistically about the environment. The *tributary and linear parks* in Medellín River are environmental control areas with solid afforestation and open water rails, preserving the environmental values of these sectors and serving the population as quality public spaces and fauna and flora corridors. Finally, the *Medellín River Parks* offer the population leisure along the river, redefining the population relationship with that place.

A communal public space constitution is only possible when comprehending all the layers that are part of the city. Structuring of different projects associated with programs that meet the connectivity, environmental and public services needs guide towards sustainable city growth and turn public space an articulation element. City's morphology, in its broad sense, maximizes itself as these projects are established, ratifying its fundamental characteristics and balancing the relationships between the natural and the built means.

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