



## From Socioenvironmental Inequality to Sustainable Development: The Case of Cantinho do Céu

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### ABSTRACT

The present article showcases the case of Cantinho do Céu, a territory that, through well-structured public policies and interdisciplinary planning, has emerged as an exemplary instance of successful intervention in unplanned settlements within peripheral and environmentally fragile areas. Situated in the southern zone of São Paulo, Brazil, Cantinho do Céu is a peninsula within a watershed area along the shores of the Billings Reservoir. The occupation of the area occurred as a consequence of the city's rapid and unplanned expansion, through the opening of irregular subdivisions that deforested almost the entire original Atlantic Forest and did not adhere to land parceling regulations in force at the time. The houses, constructed through self-building, came to shelter approximately 10,400 families without access to basic infrastructure, which, in 2010, characterized Cantinho do Céu as one of the largest precarious settlements in the largest metropolis in Latin America; located, as an aggravating factor, in an environmental protection area. This study aims to explore the challenges of articulating social and environmental issues faced by the municipality of São Paulo in developing plans and projects for interventions in socially fragile and environmentally protected areas. Overcoming orthodox planning practices and through interdisciplinary collaboration across various spheres of the public sector, the program structured simultaneous intervention strategies that qualify the occupation without altering the urban fabric or existing housing, while also implementing sanitation and drainage systems, eliminating risk areas, and creating green spaces and public areas. Thus, the case of Cantinho do Céu exemplifies how it is possible for the public sector to promote sustainable development in irregular settlements, respecting local aesthetics and culture, celebrating urban plurality, and simultaneously preserving the environment.

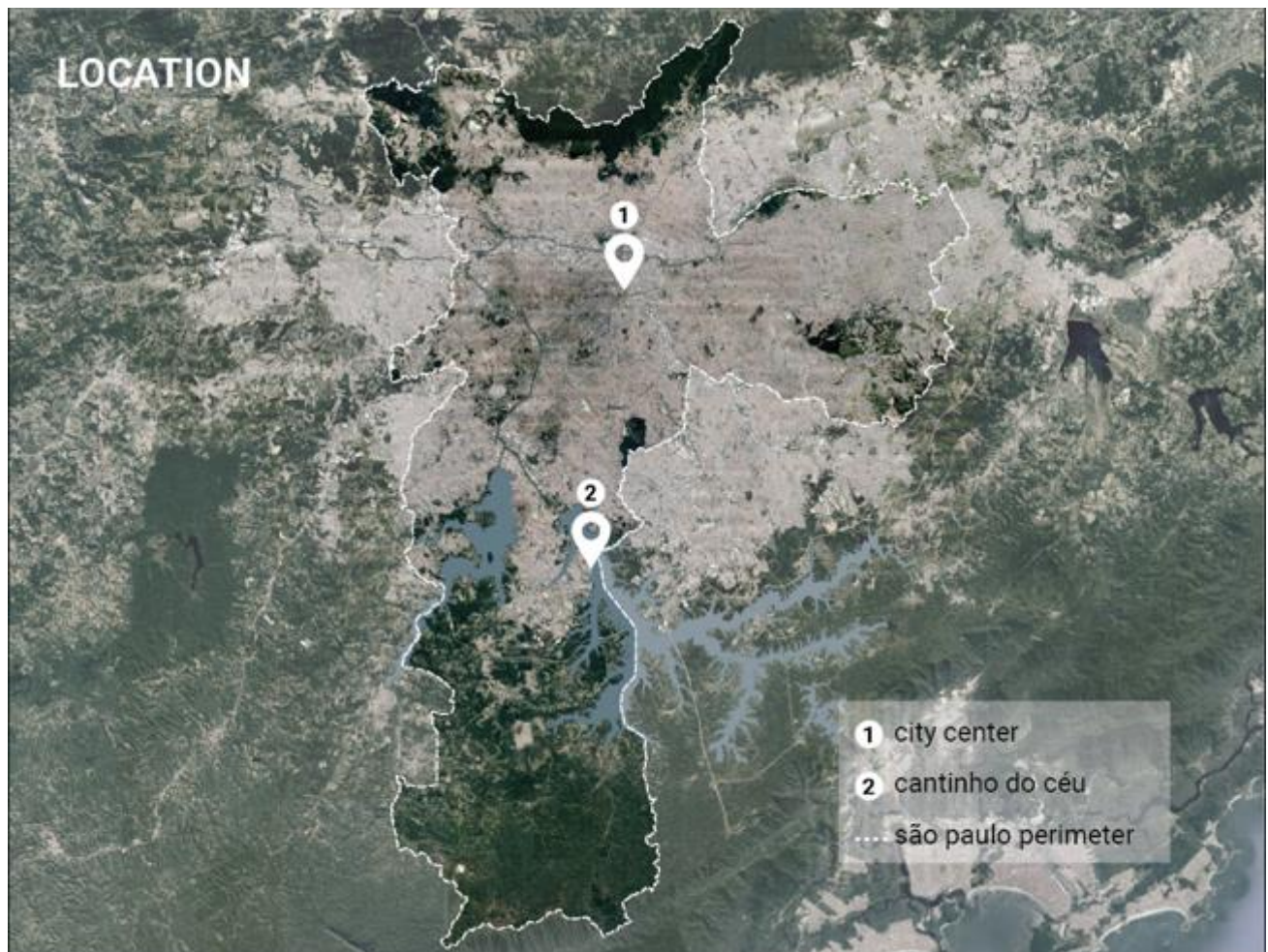
## 1. Introduction and Methodology

Throughout the 1980s, the World Commission on Environment and Development, established by the UN General Assembly, set out to study the relationship between humans, the environment, and development. The culmination of years of assessment and hearings was the Brundtland Report, which

coined the term "sustainable development." Defined as "a process of transformation in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations" [1], the concept was adopted by governmental bodies and furthered by private enterprises and civil society organizations, becoming the focus of numerous actions and discussions since its inception.

Importing the concept into the Brazilian urban sphere, the most urgent and additionally complex promotion of "sustainable development" lies in socially fragile settlements. The integration of social, economic, and environmental agendas in this context is hindered by the tendency to expel low-income populations, who lack the resources to afford formal housing, to legally restricted areas within cities, especially environmental preservation areas. Thus, the question arises: how to promote sustainable development in communities located in environmentally protected areas, where irregular and underserved settlement has led to deforestation, the alteration of natural water sources, the construction of landfills, soil contamination, and continuous discharge of sewage and solid waste into water bodies?

Cantinho do Céu is an example of successful application of this theory. Located in the southern zone of São Paulo, Brazil, on a peninsula on the shores of the largest reservoir in the metropolitan region of the city, Cantinho do Céu is a territory whose occupation occurred haphazardly and in violation of the land use laws in force at the time.



**Fig. 1.** Location of Cantinho do Céu in São Paulo, Brazil

Socioenvironmental inequality, defined by Alves as "the differential exposure of individuals and social groups to environmental amenities and risks" [2], was the reality of the territory: a precarious

settlement, populated by low-income residents, built in geologically and hydrologically risky areas, without access to clean water or sewage collection, lacking recreational areas or dialogue with nature. Populations that, unable to sustain themselves in the "formal" city, found themselves forced to settle in areas where the real estate market had no power or interest in operating, without integration or articulation with the rest of the city: environmental preservation areas.

Faced with the established situation, the city of São Paulo, through the Watershed Program, developed an integrated, multiscale, and interdisciplinary action plan for intervention in the territory, with an objective that challenged the beliefs of territorial planning at the time: to promote environmental protection and recovery in the area without displacing the already established population, through the regularization of the irregularly constructed space.

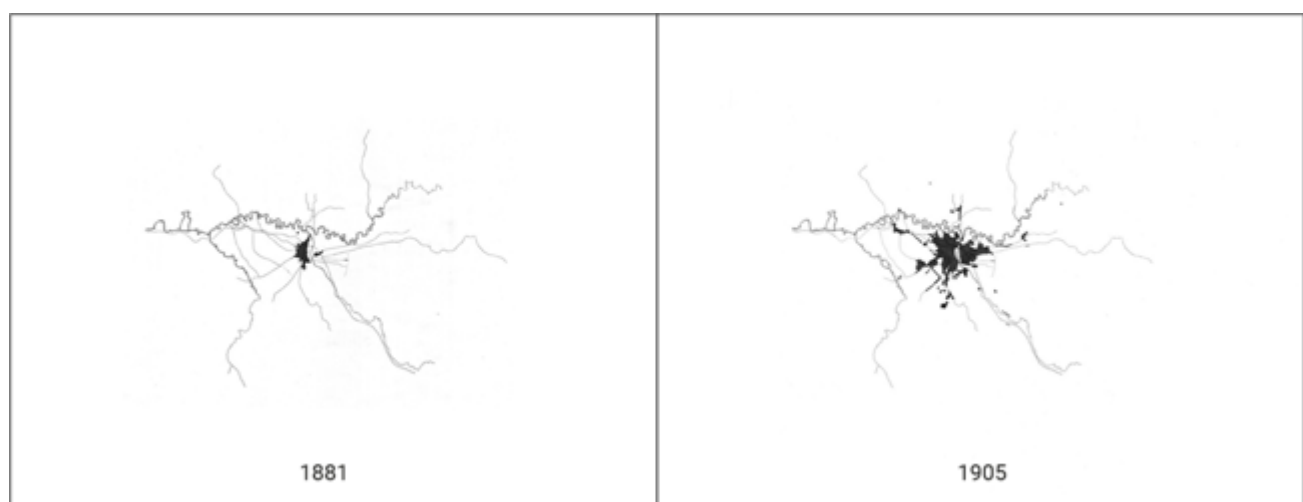
It is intended, then, through bibliographic reviews and data analysis, to elucidate how Cantinho do Céu became a successful example of development and application of intervention methodology in irregular settlements in environmental preservation areas. The economic, social, and environmental development of the territory was ensured through territorial planning, well-structured public policies, and project tools.

## 2. Historical Context

### 2.1 The City of São Paulo

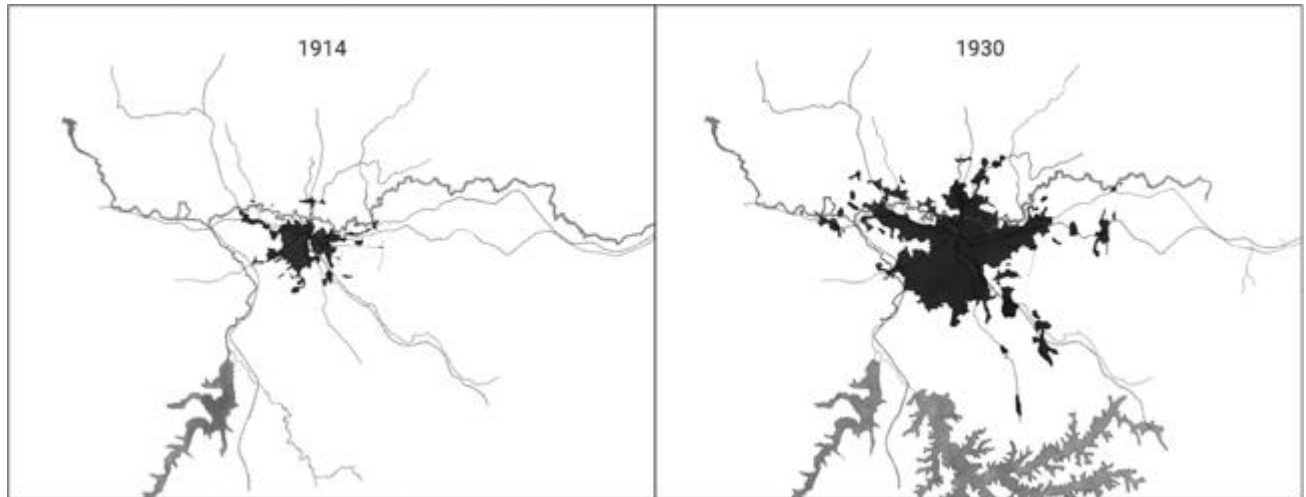
From a village founded by Portuguese priests in Jesuit missions to the largest metropolis in Latin America, São Paulo is the product of human displacements and significant population surges.

One of the various economic cycles that marked the history of the capital, the coffee cycle, initiated in the 19th century, inaugurated a series of vertiginous demographic leaps in São Paulo. The economic prosperity generated by coffee production, combined with the process of restricting the slave trade initiated at the same time, created a high demand for labor on coffee farms. As an immediate solution to the labor needs of the rural workforce in São Paulo, both public and private initiatives were introduced to encourage the entry of immigrants into the region, attracting workers from various countries and continents and transforming the geographical, demographic, and landscape panorama of São Paulo [3]. Over a period of 25 years, the city's population grew 800%: from 30,000 inhabitants in 1875 to approximately 240,000 people in 1900 [4].



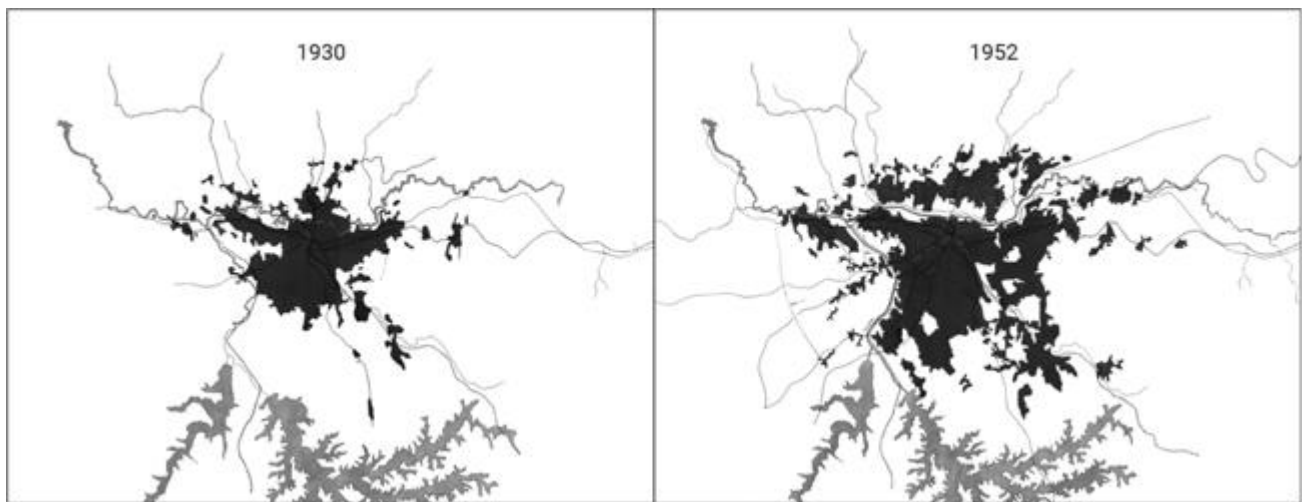
**Fig. 2.** Urban area of São Paulo 1881-1905

The influx of immigrants demanded increased investments in basic services such as housing and health [4]; coffee production reached high levels, and the surpluses of coffee enabled capital diversification and the growth of industrial activities; simultaneously, public and private capital investments were made in urban infrastructure and services, railways, culture, and leisure. São Paulo was transforming into a financial, economic, social, and cultural hub [5]. In 1912, the municipality reached the mark of 450,000 inhabitants [3].



**Fig. 3.** Urban area of São Paulo 1914-1930

With a rapidly accelerating growth rate, the city became attractive to national workers as well. Starting from the 1930s, the São Paulo government restructured its subsidy policy to attract populations from other regions of Brazil, marking the period of a second migratory wave to the city [5]. From 900,000 inhabitants in 1930 [6], São Paulo grew to 2 million in 1950 [3].

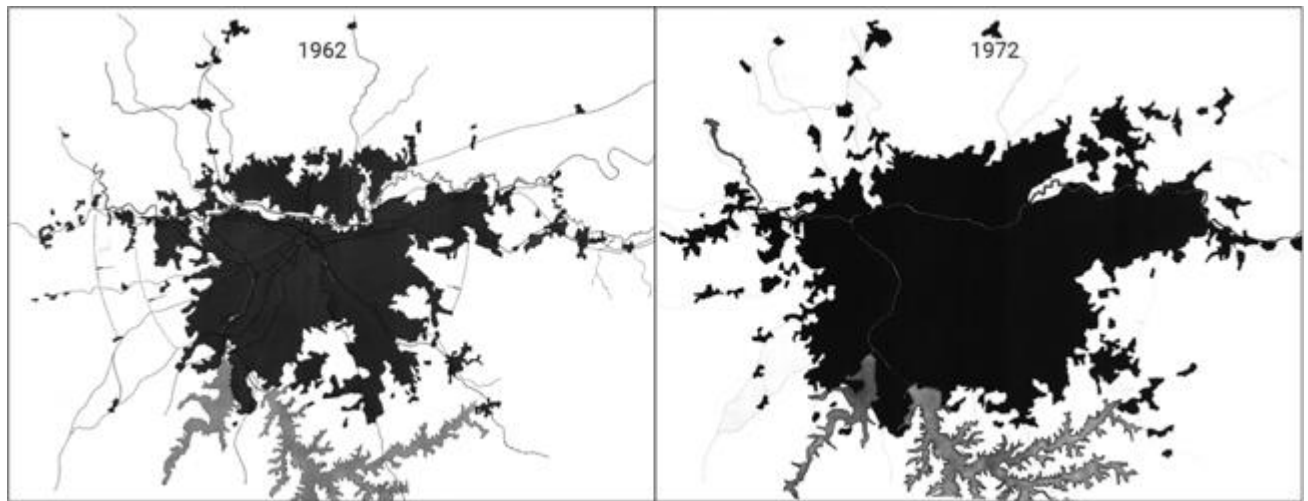


**Fig. 4.** Urban area of São Paulo 1930-1952

São Paulo grew throughout the 20th century in an intense but unequal and segmented urbanization process [7]. Its expansion axes were drawn according to the interests of large private groups, which opened streets and avenues with speculative motivations, transforming urban services and basic infrastructures such as electricity, piped sewage, potable water, and paving into privileges of the city's most valued neighborhoods, available only to a small portion of the population [7]. Public investments aimed to "modernize" the city in accordance with the values of the Belle Époque, meeting the desires of the elites [6].

Meanwhile, the unplanned city grew on the outskirts of the urbanized area. In contrast to the appreciation of central areas, workers began to reside in regions with more accessible land, increasingly distant from the center, settling in low-income settlements in peripheral areas [8]. Thus, São Paulo's peripheral horizontal growth was oriented.

São Paulo's housing problem worsened from the 1970s, when self-construction and peripheral land subdivision, initiatives of the workers to circumvent the lack of housing supply for the low-income population, were no longer able to absorb the growing workforce of the municipality [8]. Until the 1970s, the percentage of the population living in slums corresponded to 1% of São Paulo's total population. From that same decade, the growth of slums, mainly in the outskirts of the city, was exponential: "While the population of the city grew 44% between 1970 and 1980, the slum population grew 446%" [8].



**Fig. 5.** Urban area of São Paulo 1962-1972

From significant population growths in short periods of time, São Paulo became what it is today, the largest metropolis in Latin America. The radiocentric expansion towards the road infrastructures implemented according to private interests, however, generated a disjointed and sparsely dense urban sprawl [9], with an essentially formal downtown and popular subdivisions in the peripheries. In the last census, in 2022, there were nearly 11.5 million inhabitants and 4.9 million households in the municipality; of these, approximately 850,000 households (17%) are located in slums or irregular subdivisions [10].

## *2.2 The Reservoirs' Watersheds*

The continuous expansion of the city in the 20th century, as a consequence of population growth, created a growing demand for electricity and water supply, which motivated two major investments in the southern zone of São Paulo: the construction of the Guarapiranga reservoir (1906) and, subsequently, Billings (1935), by the Canadian company The São Paulo Tramway, Light and Power Company Ltd., a power and light company operating in the city [7].





**Fig. 6.** Water reservoirs of the Southern region of São Paulo and its basins

Until the 1960s, São Paulo's urban sprawl remained distant from the two reservoirs, and the watershed areas had controlled occupation oriented by the luxury market, which exploited the leisure vocation of the reservoir waters. Along the Guarapiranga, country and yacht clubs, recreational farms, and high-end subdivisions with very low density were opened, while the rest of the hydrographic basins remained composed mainly of large farms and preserved native forest.

From the same decade onwards, however, industrial activity began to intensify in the southern quadrant of the city, generating job offers related to industry and services in the region. The consequence was the expansion of urban sprawl towards the reservoirs, characterized by the production of popular subdivisions opened by workers seeking proximity to job centers.

The arrival of the urban sprawl in the reservoir watersheds overlapped with a moment when environmental issues were gaining strength in Brazil. The occupation of the watershed protection areas became a topic of debate, on the argument that the quality of water for public supply would be affected by urban occupation in the region. Thus, in 1975 and 1976, State Laws No. 898/75 and No. 1,172/76 were created, which regulated, in a very restrictive manner, land use in watershed regions. Examples of restrictions on areas occupied in watersheds after the date of publication of the law include: the prohibition of installing public facilities; infrastructures, including sewage collection; and the delimitation of minimum lots of 500m<sup>2</sup> [11].

However, the city continued to grow, and the effect was the opposite of what was expected: instead of preventing the occupation of the Billings and Guarapiranga reservoirs' watersheds, the enactment of the laws accelerated the process of densification in preservation areas. When implemented, the sprawl of occupation of the watershed area was already at an accelerated pace and with consolidated

occupations in many points, and the restrictive nature of the law did not add up to mechanisms of oversight or public policies to mitigate the ongoing population growth in the region [12]. As an aggravating factor, industries, the main job centers in the region until then, began to automate much of the production processes and moved out of São Paulo's urban area, eliminating jobs and worsening the housing issue in the southern part of the city [8].

There was no expropriation of private land in the areas decreed as protected watersheds by the new laws, which prevented the conversion of the territory into public reserves of natural preservation [8]. Landowners, who had bought land for luxury developments in the region, saw their land lose construction potential and, consequently, value. As a consequence, a process of clandestine land division and subdivision began, with private lands being illegally sold to the low-income population seeking housing in the city.

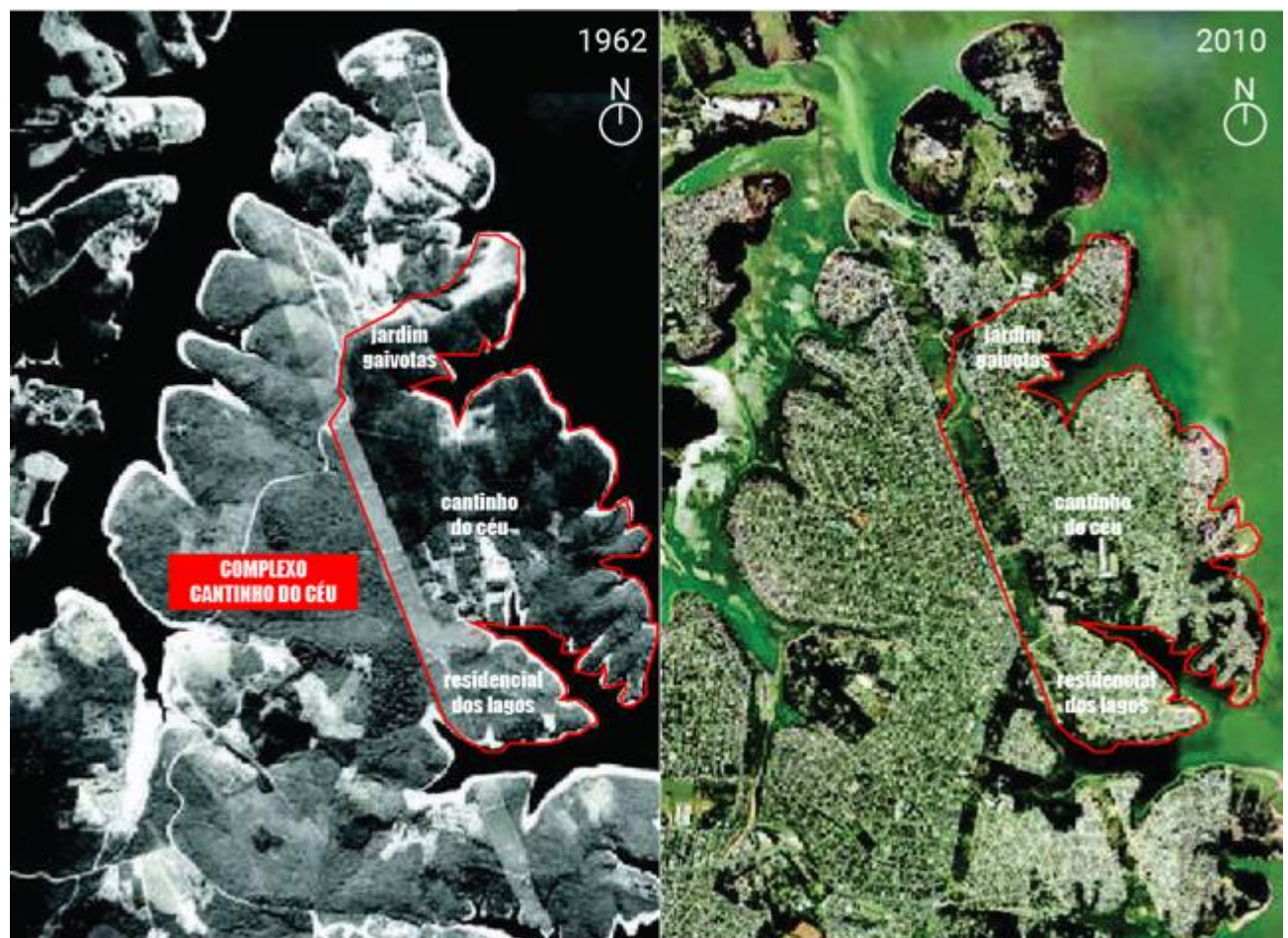
The result of the sum of the factors presented was the consolidation of the occupation of the environmental protection areas of the reservoirs in a fully illegal, irregular, and unsupported manner by the government: spontaneously, through the formation of slums, and planned, in the form of implementation of irregular subdivisions.

In 10 years, the situation of the reservoirs worsened significantly. The occupations were consolidated throughout the territory, and, faced with the impossibility imposed by the law to formally sanitize the areas, the sewage generated by the settlements was discharged directly into the streams and water bodies of the reservoirs. In an attempt to contain the growing pollution of the reservoirs, the new Law on Watershed Protection (State Law 9,866/97) was approved in 1997, along with its Emergency Plan, which allowed the Government to implement basic sanitation actions in watershed areas. In parallel, the Guarapiranga Program was structured, which in 1991 intended to address the social and environmental damages caused by the unsupported occupation of the Guarapiranga basin. From the enactment of the new law, the program entered its first phase, subdivided into 5 axes: implementation of water and sewage infrastructure, garbage collection, urban recovery, environmental protection and recovery, and management of intervention areas. In 2005, the program was revamped to also cover the Billings hydrographic basin, under the name of Watershed Program.

### *2.3 The Cantinho do Céu Peninsula*

The Cantinho do Céu, a territory composed of the neighborhoods Jardim Gaivotas, Cantinho do Céu, and Parque Residencial dos Lagos, on the shores of the Billings reservoir, remained with entirely rural characteristics until the 1980s, consisting of farms with crops and livestock [8]. However, in 1987, the pattern of occupation that had been spreading through the watershed preservation areas reached the neighborhood: to the south of the peninsula, the irregular subdivision Lago Azul was opened, and in the rest of the region, a process of occupation of old abandoned farms began without organized movement [8].





**Fig. 7.** Occupation of the peninsula of the Cantinho do Céu complex and its formed neighbourhoods. Original images from the book “Sky and water, the living in between - The Cantinho do Céu” [14], edited by the author

Through diagnostics elaborated in the late 1990s, it was found that the precarious occupations in Cantinho do Céu had, at that time, a population of about 7,000 families. The houses lacked official water supply and were not connected to the sewage collection system, making use of cesspits, which were constantly subject to overflow into the storm drainage ditches; in addition to the lack of sanitation, none of the streets were paved, and garbage collection was done precariously, only on the main roads.

Faced with this scenario, in 1997, a Civil-Public Action was filed against the municipality and the state government, in which the Public Ministry demanded that Cantinho do Céu be regularized according to the pattern established in the current law (State Law 9,866/97). The evacuation of the 50-meter strip along the reservoir edge and areas with slopes above 30% was determined, in addition to a dramatic reduction in the density of occupation (in compliance with the parameter stipulated by law of minimum lots of 500m<sup>2</sup>) [13]. Compliance with the demands of the Public Ministry would imply the removal of all 7,000 families from the area in question, pointed out by the action as the sole measure for the environmental recovery of the peninsula.

Months later, the new Watershed legislation was approved, and the inclusion of Cantinho do Céu in the Emergency Plan opened up possibilities for the construction of alternatives for resolving the conflicts in the area [12]. The approvals quickly reverberated in the precarious settlements of the Billings Reservoir. The neighborhoods of Cantinho do Céu and Jardim Gaivotas, through the mobilization of community leaders in the region, actively participated in the meetings of the Billings subcommittee, demanding the permanence of the residents and the same treatment that was being given, at the time, to the settlements of Guarapiranga. In response to popular demand, the São Paulo



Municipal Housing Secretariat prepared the Legal Billings Program, which raised financial resources for the implementation of the requested improvements, seeking integration with actions of the State Government.

In 1999, action plans were contracted for selected areas of Billings, and Cantinho do Céu was selected as a pilot project. As a way to propose an alternative to the extremist determination of the Civil-Public Action, the Housing Secretariat elaborated an urban plan for the area, which aimed to reduce the environmental damages of the peninsula without needing to remove the families settled there. Keeping the existing lots (mostly 125m<sup>2</sup>), the plan proposed a drainage system in valley bottoms, implementation of sewage collection networks, elimination of risk areas, and implementation of public spaces, which was accepted by the Public Ministry. After the plan was developed, in 2001, the program was discontinued, resumed in 2005 under the name Watershed Program. In 2010, the plan was resumed, and a new project was developed for the area, in partnership with the technical team of the Public Ministry, considering the updated situation of the settlement and seeking solutions to keep the largest number of families in the area [14]. After a long process of bidding, contracting of works, social registration, and project development, the urbanization works of Cantinho do Céu began.

### **3. Watershed Program: The Case of Cantinho do Céu**

#### *3.1 Urbanization and Regularization of Favelas as a Tool for Combating Socioenvironmental Inequality*

The identification and perception of favelas as a "problem" for Brazilian cities emerged at the beginning of the 20th century, along with the emergence of the first precarious settlements. Public intervention studies were based on a hygienist discourse, as favelas were considered breeding grounds for diseases and contamination, as well as a threat to social order and security [15]. In the first half of the century, around the country, various eradication policies were developed, which, based on repression [16], were seen as the solution to the housing issue that arose at the time.

Throughout the century, there were many public efforts to try to eliminate the increasingly numerous and populous favelas. Most plans involved removing irregular settlements from areas of public interest or real estate market occupancy, and the displaced families were relocated to temporary accommodations, housing complexes, or settlements built on the outskirts of urban centers, or simply evicted without relocation. Many of the implemented complexes lacked transportation, health, leisure, and education infrastructure and had standardized housing unit typologies that disregarded the uniqueness of each family nucleus. As a result, in many cases, the new settlements were inadequate for the families' reality, leading to the abandonment of the units and the return of many families to favelas, where they could build their homes according to their own identities and needs, closer to job centers and urban services. The few initiatives to improve favelas at the time, such as the SERFHA (Special Service for Recovery of Favelas and Unsanitary Dwellings), created in Rio de Janeiro in the 1940s [15], addressed basic services punctually, with the support of non-governmental organizations.

The debate between the removal model and the favela urbanization agenda only began in the 1960s with the creation of the favela eradication program proposed by Governor Carlos Lacerda in Rio de Janeiro. Compulsory removals, supported by the real estate market and the middle and upper classes, sparked revolt and resistance from the favela population. Those who managed to remain in the territory began demanding urbanization works, which were eventually addressed in 1968 [15].

The Rio de Janeiro experience had nationwide repercussions, both politically and socially. In the 1970s and 1980s, in a common experience with other countries in Latin America, social movements erupted throughout the country, particularly housing rights movements, which gained significant strength in São Paulo due to the exponential growth of favelas during the same period. Additionally, in 1988, the new Federal Constitution was approved, which established the social function of private

property through the tool of urban special adverse possession, the first legal instrument supporting the permanence of the population in irregularly occupied areas [15].

In this context of debate and paradigm shifts, the first urban plan for Cantinho do Céu was developed in the late 1990s. Opposing the Ministry of Public Prosecution's determination for the total removal of irregularly settled communities, which was still suppressive in nature, the plan proposed an alternative that respected the pre-existing conditions of the favela, requalifying spaces and ensuring the permanence of populations in the territory where they had settled and built their relationships. The aggravating factor of the Cantinho do Céu favelas and irregular settlements, however, was their settlement in environmental preservation areas and, additionally, in the watersheds of a reservoir that supplies water to the city of São Paulo. Even in a period when views on favela interventions were being restructured, the environmental discourse often prevailed over the demand for housing.

### *3.2 A Project for Cantinho do Céu*

The plan elaborated by the Housing Department advocated for the non-exclusivity of environmental and housing topics, but rather their complementarity. Environmental improvement and preservation of the reservoir could be promoted alongside housing issues, through the integration of the settlement into the formal city. The proposal, restructured in 2010 and developed in collaboration with the local community, envisioned connecting all residences to the sewage collection, export, and treatment network to eliminate irregular discharge into the reservoir's water sources; provision of clean water supply; connection to the formal electrical grid; restoration and protection of the reservoir banks through the implementation of public green areas; and renovation of all public roads, maintaining the original layout established by the residents and implementing paving, drainage systems, and adjusting the dimensions of necessary roads [17]. As a final action, the plan proposed the regularization of land tenure in the settlements, with the delivery of titles to families and, ultimately, the formalization of domiciles.

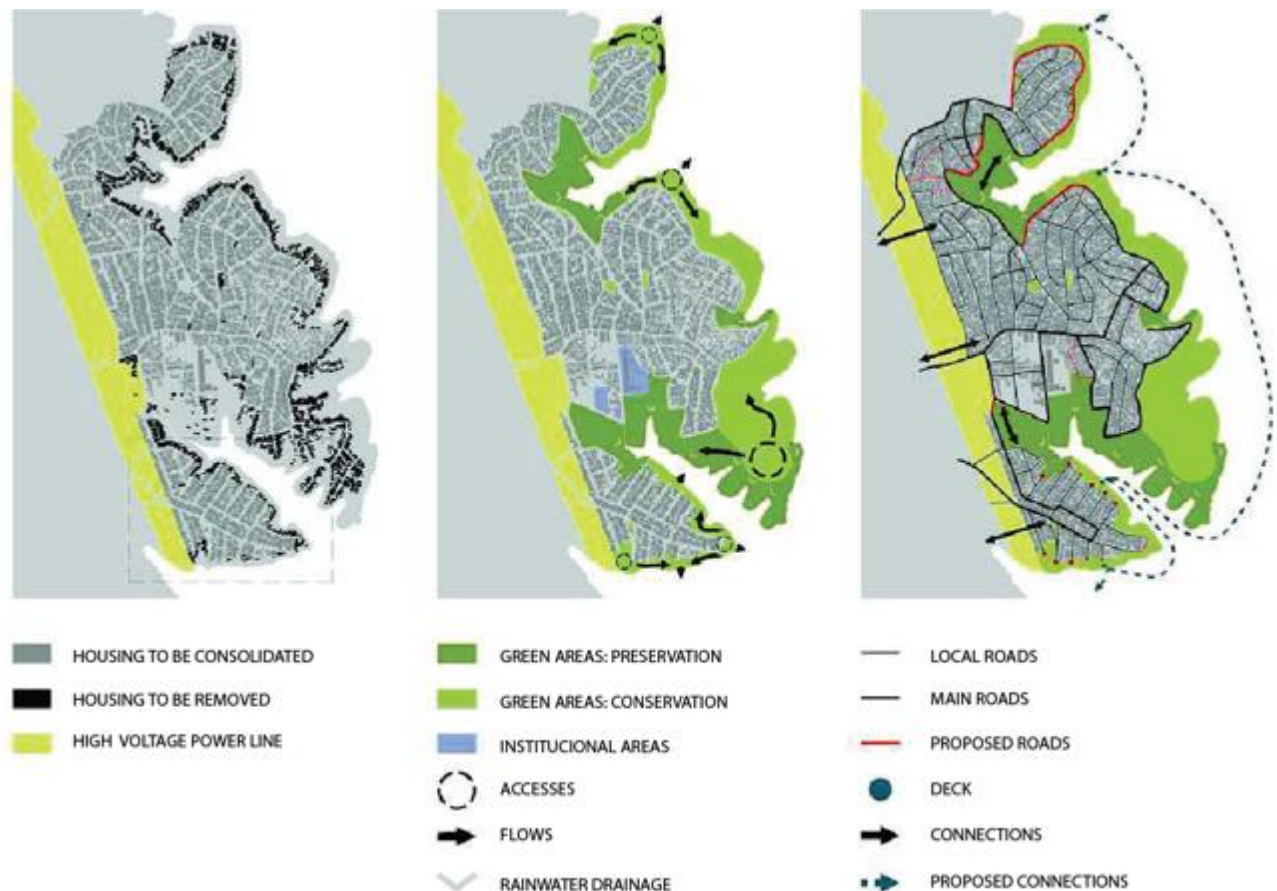
The evictions, originally demanded by the public civil action, were reconsidered to be carried out only in cases where the houses' permanence would be impossible due to their location in areas of geological risk, usually caused by settlement in areas with high slope or irregular landfills; hydrological risk, caused by settlement very close to stream banks or the reservoir; or in case of impossibility of sewage collection from the residence. The requirement to preserve a non-aedificandi strip of 50 meters from the edge of the entire reservoir, accepted in the initial plan elaborated for the site, was negotiated, ensuring the permanence of domiciles settled in the strip, provided that there are no other conditions for removal. As a form of environmental compensation, other areas, beyond the 50 meters from the banks, where families would already have to be removed, were designated as reforestation, protection, and environmental recovery areas [14].

However, solutions are not simple when it comes to the removal of families in socially and environmentally fragile areas. In many experiences of interventions in Brazilian favelas, it is common for reoccupations of the lands from which families are resettled to occur, as they become empty spaces, and consequently "available," near points with urban infrastructure.

The solution proposed by the project, to ensure that areas restricted from occupation were not reoccupied, was the attribution and formalization of a public use for the site. Aligning the needs for social function creation and environmental recovery, parks, squares, and collective use facilities were planned for the sections where residences were marked for removal, extending the sense of community to the area. The territory gains a use and a network of owners, which ceases to be seen by the population as an empty or abandoned area and becomes understood as a space of collective use that also belongs to them.

The strategy of creating public spaces, combined with efforts for environmental recovery of the peninsula, resulted in the proposal of a linear park on the reservoir shore. The removal of the strip of residences whose front facades and accesses were along a road parallel to the reservoir and the backs

faced the water, as illustrated in figure x, was demarcated. In place of the demolished houses, a park was outlined, which, with a length of 7 km, connects the entire complex shoreline, linking the three neighborhoods that form it: Jardim Gaivotas, Cantinho do Céu, and Parque Residencial dos Lagos. The effort of the plan, subsequently reinforced by the apparatus of the project developed for the park, was to establish a connection with the reservoir for a population that built its community with its back to the water, whose relationship was practically reduced to the disposal of sewage and solid waste on the banks.



**Fig. 8.** Diagrams of the plan for the Cantinho do Céu complex. Original images from the book “Sky and water, the living in between - The Cantinho do Céu” [14], translated by the author

The proposal fulfilled what it intended. The community's sewage would no longer be discharged into the reservoir, the water bodies would be recovered, risks suppressed, irregular landfills undone, and banks preserved. The families, entrenched in the territory they had built for more than 20 years, would be kept in the houses where they had settled, with security and dignity. Environmental, economic, social, and housing agendas coexisting and complementing each other in a single project. The Cantinho do Céu Complex was born.

### 3.3 Intervention Strategies

#### 3.3.1 Public policies

The implementation of the program required overcoming bureaucratic practices and orthodox strategies that had been applied in urban planning until then. In pursuit of facilitation, agility,



coherence, and interdisciplinarity, a network of actors was structured, composing multi-levels of governance and knowledge. Representatives from civil society and the Federal, State, and Municipal governments, through their various secretariats, were involved in the process of jointly constructing interventions [17].

The Watershed Program, through which the project was executed, mobilized secretariats whose scope and activities were of interest for the sustainable development of the area, establishing partnerships and agreements for participation and fund allocation: the Secretariat of Greenery and the Environment, Education, Health, Culture, and the São Paulo State Basic Sanitation Company. The execution of the works was centralized in the Housing Department to ensure agility, and the other secretariats were involved in planning, establishing strategies, identifying demands, and post-occupation actions.

Through these agreements, the Housing Department carries out integrated and simultaneous works in Cantinho do Céu, which would normally be implemented in a segmented manner by other secretariats. Projects and works for parks, usually the responsibility of the Secretariat of Greenery and the Environment; water and sewage connections, the responsibility of the São Paulo State Basic Sanitation Company; buildings for health, education, and culture facilities, the responsibility of the respective secretariats; all executed by the same construction company, in a single project, under the responsibility and contracting of the Housing Department and fund allocation from the responsible secretariats.

Thus, interdisciplinary knowledge and interests are strategically applied in the territory, ensuring that the population is efficiently served in all spheres of development, in an intervention that, beyond urban infrastructure, guarantees leisure, education, culture, and health for the community.

### *3.3.2 Planning and execution tools*

An integrated program, within a territorially complex area, with an extensive and diverse scope of works, demanded meticulous and cohesive organization to translate planning into action. The adopted strategy was structured around the spatial division of the territory into work stages and the disciplinary division of the team into action fronts. Six stages of urbanization for Cantinho do Céu were delimited, each subdivided into phases of linear park construction, and the team was structured into three action fronts: social assistance, projects, and construction.



**Fig. 9.** The six work phases of Cantinho do Céu and the project of the linear park

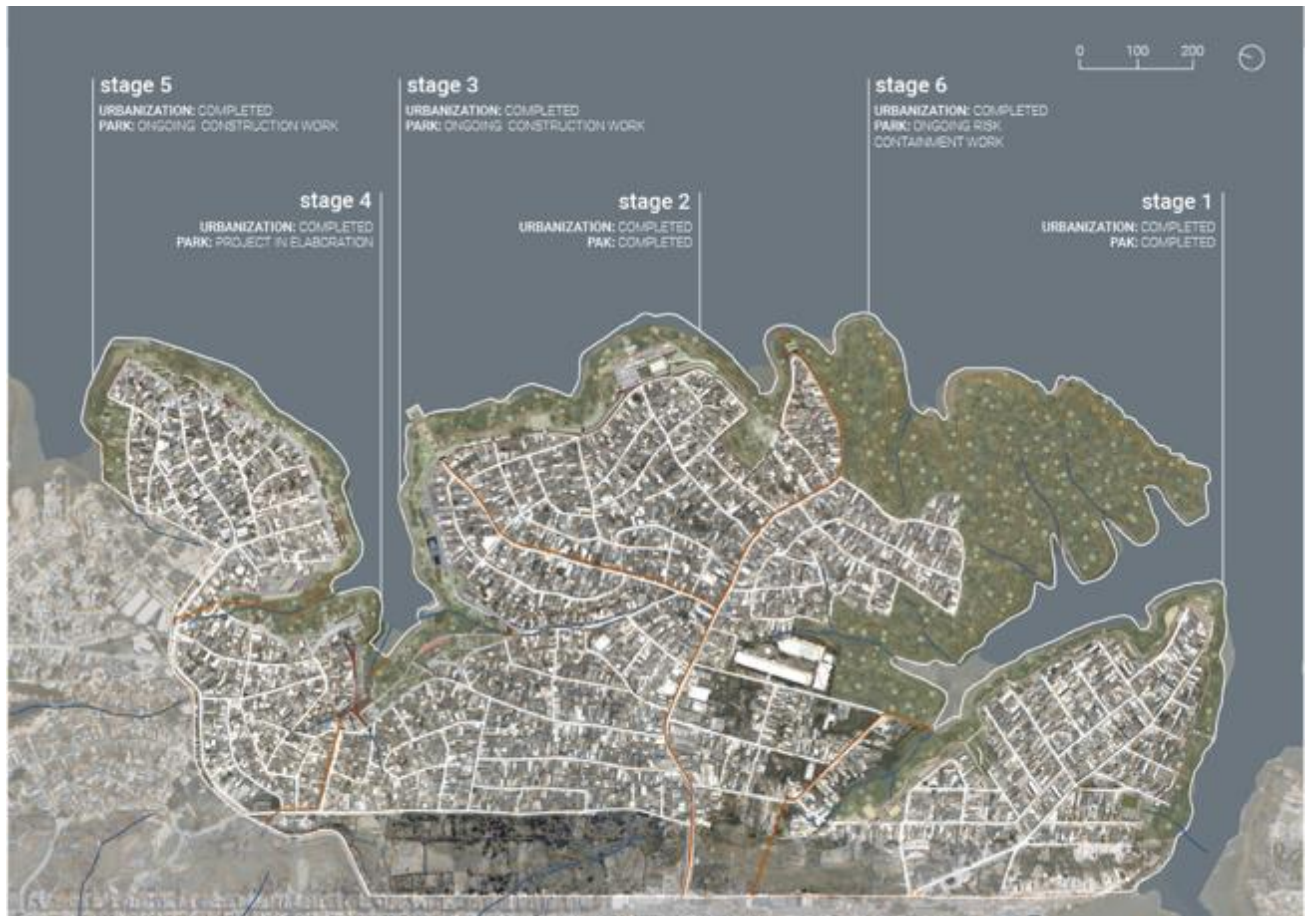
The team was structured so that the three work fronts could act together throughout the entire intervention process, from preliminary planning to monitoring the population after the delivery of the works. Despite being consolidated and with longstanding occupation, Cantinho do Céu is a mutable territory in constant expansion, as demonstrated by the numbers: from 7,000 families surveyed in the first diagnosis conducted in 1999, the population increased to over 10,000 families surveyed in the registry carried out in 2010 [14] (França, 2012). Integrated and synchronous action in the territory was the solution found for executing works in such a complex territory, where the situation one day may be different the next. Adaptability proves essential since it's impossible to follow the order of a conventional project, where surveys and assessments are first conducted, followed by design, and finally, construction is executed.

The houses, mostly multifamily and with more than two floors, are self-built, constructed empirically, without projects or topographic surveys, making it impossible to draw an accurate profile of the land before the removals take place. On the other hand, the work requires agility because once the houses are demolished, park construction needs to promptly begin to prevent re-invasions in the liberated areas. Thus, the project needs to be developed before house removal, based on preliminary topographic surveying, and then reconsidered and adapted to the actual post-demolition and area-clearing situation. The projects are constantly under review according to the demands and obstacles identified by the construction and social assistance team.

As the work of registering families, conversations, and agreements with residents to be resettled progresses, civil work advances, demolishing negotiated houses and executing park construction in their place. Different stages of the intervention are developed simultaneously, each happening at a different stage, as construction fronts are opened according to the possibility of land release coordinated by the social assistance team. A strategic and coordinated work methodology was

developed, which relies on the harmony and constant communication among the three actors to be carried out, as one depends on the other.

Stage 1 was executed as a pilot section, initiated in 2010 and completed in 2012. Since then, all areas to be consolidated have been urbanized; the parks of stages 1 and 2 have been completed and inaugurated; the parks of stages 3 and 5 are under construction, to be completed by 2024; and the parks of stages 4 and 6 are under study and planning.



**Fig. 10.** Stages of conclusion of the phases of Cantinho do Céu

### *3.4 Life in Cantinho do Céu after the intervention*

There are several methodologies for qualitatively evaluating a public space, whether it be a square, park, or building. One of the most interesting is provided by Jane Jacobs, who determines four main elements to be observed in parks: complexity, centrality, insolation, and spatial delimitation [18].

From the perspective of complexity and specifically spatial richness, the linear park of Cantinho do Céu accommodates diverse programmatic devices that meet the sports and leisure demands of its surrounding population, as well as proposing various inclusive and complementary activities. Beyond the design of the park, its amenities, and the ground floor, small buildings are also added to house activities that complement and interact with the flow of people, such as health, cultural, and educational facilities, ensuring a complex succession of uses and users throughout the day. The criterion of centrality, in this case, in the paradoxical context of a linear park, is represented by a section of built mass housing two sports courts and an administrative headquarters, in contrast with the rest of the sparse area, punctuated by programmatic devices.



For the humid subtropical climate of São Paulo, the balanced relationship between insolation and shading is crucial for the success of an open public space, which in this case is well understood and equalized through large shaded areas by tree canopies. Spatial delimitation is peculiarly done through the contrast established between the continuous mass of houses bordering the sidewalk and road layout and the free and generous plane of the water body. The park presents itself as the conciliatory intersection in an environment of contrasts.

Beyond theoretical analyses and methodologies, observation and experience of the built environment are relentless tools. In Cantinho do Céu, the acceptance of the linear park by the local residents occurred immediately. Each new section of construction work executed was quickly appropriated and used by the population, regardless of the formal inauguration of the space.



**Fig. 11.** Phase 1 of the linear park being used by the population



**Fig. 12.** Phase 2 of the linear park being used by the population

Part of the success of this park stems from its vibrant and articulate neighborhood, which, even in the absence of any type of public space prior to the intervention, found ways to enable various activities. Some noteworthy examples include the "Samba da Clarissa," a samba gathering that brings together hundreds of people every first Sunday of the month to collect food; or the collectives "Imargem," "Entre o Sonho e a realidade," and "Navegando nas artes" which develop artistic, cultural, and educational activities for the children of the region. The linear park presents itself as an empowering support for activities already carried out by the community itself.



**Fig. 13.** Satellite images showing before and after the intervention of the linear park on the banks of the reservoir, phase 2

Abandoning pragmatic lenses and adopting a more poetic reading, it is possible to observe how the recovery of the reservoir's margins transformed the "space" into "place" through the reestablishment of the relationship between man and water. The park, by continuously recomposing the vegetation of the margins, forming green corridors, offers a refuge for fauna amidst the natural scarcity of the urban environment.

As the urbanization works are completed, the urban space is also quickly appropriated by the population. Houses that were once made from exposed brick were renovated, the residents painted their façades, took care of the sidewalks and started hanging out on the streets. The public spaces became vibrant, and the residents carried on the work that the municipality started, continuously enhancing and taking care of their territory.



**Fig. 14.** Before and after the intervention of the urbanization work, phase 1.



## 4. Conclusion

The experience of the São Paulo municipality serves as an example of how collectively built plans and actions, integrated and interdisciplinary, can simultaneously drive the development of a community and promote the preservation and environmental recovery of its territory.

The intervention in Cantinho do Céu reinforces the construction of the community's collective memory through the development of an urbanization project that preserves paths, routes, landmarks, meeting places, aesthetics, identity, and the built materiality by the residents, intervening respectfully through the implementation of urban infrastructure and services, utilitarian and leisure public facilities. At the same time, it creates green spaces, eliminates the discharge of household sewage into water bodies, restores streams, springs, and the reservoir's margins on which the community settled.

The success of the project can be perceived through the acceptance and engagement of the population. The reinforcement of local identity has proven to be essential for the incorporation of the implemented public spaces. Organized and engaged organizations and leaderships, already existing in the community, gained more strength and power of action, from the provision of spaces for the development of their activities. The territory is taken care of, and the population itself ensures its proper functioning and utilization. Formerly segmented, isolated, and unequal, Cantinho do Céu now integrates into the urban environment of the metropolis and the unique landscape of the reservoir, connected to the city's flows, activities, economy, water, and greenery.

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