THE INTERFACE BETWEEN RESEARCH AND EXTENSION IN THE DISCUSSION OF LINEAR PARKS AS A STRATEGY TO REHABILITATE URBAN LANDSCAPE

A INTERFACE ENTRE PESQUISA E EXTENSÃO NA DISCUSSÃO DOS PARQUES LINEARES COMO ESTRATÉGIA DE REQUALIFICAÇÃO DA PAISAGEM URBANA

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ABSTRACT

This paper discusses the academic practices of the Programa de Ensino Tutorial (PET – Tutorial Teaching Program), a group composed of Architecture and City Planning students of the Pontifícia Universidade Católica de Campinas (SP). It reports the experiences resulting from an agreement between the University and the Municipal Government of Campinas to devise a linear park project. It seeks to reflect on the potential of such agreements as a means to develop both research and teaching practices based on projects involving different city planning agencies on a city scale. Additionally, it brings forth critical reflections on the creation of linear parks as a strategy to rehabilitate urban landscape and contribute to structure the open space system of the city of Campinas.
Keywords: Linear park. Master plan. Urban landscape. Urban legislation. Teaching of architecture and city planning.

RESUMO

Este artigo discute as práticas acadêmicas do grupo Programa de Ensino Tutorial no curso de Arquitetura e Urbanismo da Pontifícia Universidade Católica de Campinas relatando as experiências de um convênio firmado entre a Universidade e a Prefeitura Municipal de Campinas (SP) na elaboração do projeto de um parque linear. Busca-se refletir sobre o potencial de convênios como esse na elaboração de práticas de pesquisa e ensino de projeto que contemplam as diversas instâncias do urbanismo na escala do município. Identificou-se uma oportunidade de refletir criticamente sobre a criação de um parque linear como estratégia de requalificação da paisagem urbana, contribuindo para a estruturação do sistema de espaços livres da cidade de Campinas.
Palavras-chave: Parque linear. Plano diretor. Paisagem urbana. Legislação urbana. Ensino de arquitetura e urbanismo.

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1 INTRODUCTION

THE ROLE OF THE PROGRAMA DE ENSINO TUTORIAL IN PUC-CAMPINAS' COURSE OF ARCHITECTURE AND CITY PLANNING AND THE REFLECTIONS ON URBAN PLANNING AND PROJECTS THAT HAVE EMERGED FROM AN AGREEMENT BETWEEN THE UNIVERSITY AND THE LOCAL GOVERNMENT

The *Programa de Ensino Tutorial* (PET – Tutorial Teaching Program)[1] comprises groups of undergraduate students who commit themselves to developing full-time academic activities coordinated by a tutor professor. They begin as freshmen and are advised to continue until they complete their course. Within the Program, they plan and execute teaching, research, and extension activities that contribute to their training and the development of skills that are often not addressed with the due importance and time in the classroom.

Each group is made up of students from different years of the undergraduate course, which allows the exchange of viewpoints and collaborative learning experiences, where more advanced students get involved in the guidance and learning of less advanced ones. PET groups' projects and actions are founded on collective and collaborative work as a tool and context. As a context, the group constitutes a space of collective construction based on different perspectives and, given its features – voluntary participation, common goals, freedom of expression, diluted hierarchy – it fosters the academic improvement of all participants: students, tutors, collaborating professors, and student communities. (FERREIRA; MARTINS; FREITAS, 2007).

PET strives to articulate teaching, research, and extension to favor interdisciplinarity and the search for new pedagogical practices and experiences in undergraduate courses. In this regard, research practice is an integral and innovative part of teaching in undergraduate courses and extension[2] proves to be a relevant strategy for an effective interaction with society. Addressed in a dialectical way, research and extension can combine into scientifically, technically competent and politically relevant teaching practices, founded on ethical principles. (MARTINS, 2007, pp. 17-8).

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1 In 1979, the Programa de Ensino Tutorial (PET) was created among other initiatives aiming at reinforcing Brazilian higher education led by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES - Coordination for the Improvement of Higher Education Personnel) and managed by the Higher Education Secretariat of the Ministry of Education (SESu/MEC) in 1999. It currently comprises 842 groups of different areas of knowledge, distributed among 121 – public, private, and community – higher education institutes throughout Brazil.

2 "The Extension Forum of "Pro-Reitores" (Vice-Presidents) of Public Universities defined extension as an educational principle that takes into account the process of knowledge production through research and contact with reality. Emphasis on the process and strengthening of the institutional community, rather than material and intellectual assistencialism, are structuring elements of a contemporary and progressive view of academic extension." (MARTINS, 2007, p. 19).

At PUC-Campinas, the Architecture and City Planning PET comprises a tutor professor, twelve grant holders and up to six voluntary students, who take part in the activities with the same involvement as the grant holders. The group has its own office, which is a small project workshop where they can develop their research projects and studies. Since one of the goals of this program is to help develop the scholarship students into knowledge multipliers, other students of the course also attend the PET workshop and participate in study or work groups headed by the grant holders. Since its creation, in 1992, this Architecture and City Planning PET has been seeking to contribute to the discussion of the course pedagogical project and has proven to be a relevant laboratory for didactic and pedagogical experiments.

The methodology proposed by the PET allows handling research and extension in a dialectical way and effectively discussing possible teaching practices that guarantee the implementation of the course pedagogical project guidelines. The Architecture and City Planning PET thus adhered to the term of technical cooperation signed, in 2014, by the PUC-Campinas' Dean of Undergraduate Studies and the Secretaria Municipal do Verde, Meio Ambiente e Desenvolvimento Sustentável (SVDS - Municipal Secretariat for the Environment and Sustainable Development) of the Prefeitura Municipal de Campinas (PMC - Campinas Municipal Government) to develop – in a collaboration between the University and the municipality technicians – environmental projects complying with the SVDS' planning guidelines.

Under this agreement, the SVDS has presented various demands for implementation studies of linear parks in Campinas, provided for in the *Planos Locais de Gestão* (PLGs - Local Management Plans) of the City Macro-zones.[3] The Architecture and City Planning PET saw such agreement as an opportunity to deal in an interdisciplinary way with a project combining research and extension practices. It was also a chance to critically reflect on a linear park project as a strategy to rehabilitate the urban landscape and contribute to structure the open space system on a city scale.

It is assumed that direct contact with the community and the development of interdisciplinary strategies of research and extension enlarges and deepens the students' training provided by the Courses of Architecture and City Planning. The theoretical and practical reflections are fed back into the contents of disciplines and

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[3] To acknowledge the heterogeneity of the different areas of the city of Campinas, the 2006 Master Plan defined 9 Macro-zones, considering physical-territorial, socioeconomic, and environmental aspects identified in studies and diagnostics. Pursuant to Complementary Law nº 15, December 27, 2006 – Law of Campinas Master Plan –, the Plano Local de Gestão (PLG - Local Management Plan) is a complementary tool of land-use planning. In compliance with the City Statute, it must be developed by the Executive Power for the 9 City Macro-zones according to a participatory process. Based on a detailed reading of the guidelines, the PLGs define: urban planning norms describing the uses allowed; forms of land-use; restrictions on buildings and/or activities; equipment localization; measures of sanitation, infrastructure, and drainage recommended to rehabilitate public spaces; road system hierarchization; and measures recommended to protect, valorize, and rehabilitate the cultural and environmental heritage. The PLG for 'Macro-zone 9 is the 2010 Complementary Law Bill Nº 17. Available at: <http://www.campinas.sp.gov.br/governo/seplama/planos-locais-de-gestao/>. Last access: March 5th, 2016.

research projects and produce new knowledge that can be brought to the service of the community.

In Brazil, City Planning and Urban Project are usually treated separately, both in the undergraduate courses of Architecture and City Planning and in the practices of the local management agencies. Choosing the theme "linear parks" to develop an urban project on the interface between city planning and urban projects was an opportunity to reflect on the contradictions of the environmental public policies concerning open spaces. Bringing the university and the local authorities together allowed the undergraduate students to face the vicissitudes of environmental planning and local management. They were also able to reflect on the formulation of an Urban Project based on the assumptions of City Planning considering their interfaces and contradictions and establishing practices that bridge two moments: Planning and Projecting.

The present paper reports on the experience of preparing the project for the Parque Linear Lagoa (Lagoa Linear Park) in the northwest of Campinas (Macro-zone 9). The discussion of the methodology used to develop this task brings forth a reflection on the potential of such agreements to conduct research and teaching practices for projects involving different city planning agencies on a city scale: planning, management, urban design, landscape design.

2 LINEAR PARKS AND URBAN PERMANENT PRESERVATION AREAS IN THE ENVIRONMENTAL AND URBANISTIC LAW AND IN CAMPINAS MASTER PLAN

An open space is any place not occupied by a built volume: soil-space, water-space, light-space around buildings to which people have access. (MAGNOLI, 2006, p. 179).

> In a city, the open space system is constituted of spaces free from public or private buildings [...] Mostly associated with urban life, public open spaces are frequently places of conflicts and agreements, circulation or permanence, bio- and sociodiversity." (BENFATTI; SILVA, 2013, p. 5).

In Brazil, the contemporary approach to urban open spaces has privileged environmental aspects. Various cities have thus proposed to implement linear parks as an alternative to using valley bottom areas and as a municipal planning strategy. Environmentally speaking, a system of linear parks can improve drainage, increase the number of qualified permeable areas in the urban perimeter, contribute to ameliorate the microclimate and air quality, and help reverse the pollution and degradation of watercourses. In terms of city planning, linear pa-

rks have also been used as a strategy to prevent irregular occupations in urban valley bottom areas.

Given the relevance of environmental issues in today's world, the obligation to maintain or regenerate Áreas de Preservação Permanente (APPs – Permanent Preservation Areas) in urban areas has become a law that was reinforced by changes in the Forestry Code (Law/ Act 4771/65) provided for by 2001 Provisional Measure Nº 2166-67 (BENFATTI; SILVA, 2013, p. 4). In 2006, the legal discussion on areas of urban APPs was importantly revised, based on Resolution 369 of the Conselho Nacional do Meio Ambiente (CONAMA – National Council for the Environment).[4] Since the previous approach privileged exclusively biophysical and environmental aspects, this law was revised according to criteria considering the reality of the urban environment and the social use of APPs.

> In the last few decades, the environmental law helped preserve riparian forests. At the same time, urbanistic law began to consider watercourses as urban and landscape heritage and to revise past practices such as their piping and covering. Whether they are public or private, areas by watercourses began to be protected by environmental laws. For many cities, this implied a considerable increase in spaces free from buildings in their urban environment. Thus, new and important sets of unbuilt areas were incorporated to their open space system. (BENFATTI; SILVA, 2013, p. 4).

Section III of CONAMA's Resolution 369 establishes the parameters to implement public green areas in urban APPs. Pursuant to the *Plano Diretor Municipal* (PDM – City Master Plan), interventions or vegetation removal in APPs may be allowed by competent environmental agencies. Public green areas are defined as spaces endowed with vegetation and permeable groundcover that serve ecological, landscape, and recreational functions and improve the aesthetic, functional, and environmental quality of the city.

Beyond legal aspects, it is important to stress that in Brazilian cities watercourses have traditionally been linked to waste disposal, especially in fragile areas. And that the historical urbanization process, which polarized center and periphery, although it no longer occurs nowadays, has consolidated very precarious zones. Areas along urban watercourses are formally characterized by their linearity and the connectivity between them. They form huge open spaces that, when adapted to public use after effective actions of urban design have been taken, can be transformed into urban linear parks. From that standpoint, the latter can meet the APP law requirements

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4 CONAMA's resolution Nº 369, March 28, 2006, provides for exceptional cases of public utility, social interest, or low environmental impact that require interventions or vegetation removal in Áreas de Preservação Permanente (APP - Permanent Preservation Areas). **Diário Oficial da União**, 29 de mar. 2006, Seção 1, pp. 150-151.

and be thought of as strategies of city landscape rehabilitation. Furthermore, they contribute to a system of public open spaces and promote connectivity since they comprise non-motorized forms of mobility (bikes and walks) and social, cultural, sport, and recreational equipment in their programs. As they use urban APPs, which are traditionally degraded areas of Brazilian cities, linear park projects can reinforce landscape as a city right.

The strategy of implementing linear parks in APPs has been incorporated by Campinas' (SP) PDM in 2006 and the contradictions related to this city planning approach are discussed in the present paper. The paper by Silva and Benfatti (2013) already pointed out the weaknesses of this PDM, which privileges a quantitative approach to creating linear parks in the city. In the item concerning environment policies the authors highlight the "Green Axes", a sub-item meant to "[...] increase the ratio (m^2/inhabitant) of city green areas to reach and overcome the recommended standards."[5] Linear parks are a modality of "Green Axes" and, according to the PDM, they should be in line with the concept of APPs' environmental rehabilitation and made compatible with leisure and recreational activities. Therefore, according to Campinas' 2006 PDM, linear parks fall within the precepts defined by CONAMA's resolution 369 and play an essentially quantitative role in the environmental planning of the city. (BENFATTI; SILVA, 2013, p. 12).

Despite the contradictions relating to this theme, positive consequences for Brazilian cities are associated with the incorporation of issues concerning the preservation of APPs in city planning. In a structurally positive way, a stock of areas to be preserved for future generations is created, which constitutes a reserve of open spaces for possible social uses. This also guarantees the permanence of vegetation in urban environments. Yet, since APPs constitute new urban figures, the mechanisms to manage them and the methodologies of urban project must be improved. (MACEDO, QUEIROGA, DEGREAS, 2012).

3 THE LAGOA LINEAR PARK PROJECT IN CAMPINAS (SP): STUDIES ON THE INTERFACE BETWEEN PLANNING AND URBAN DESIGN

The involvement of the Architecture and City Planning PET of PUC-Campinas in the project of a linear park is an attempt to discuss, based on the articulation between research and extension, the contradictions of Campinas' environmental public policies concerning urban open spaces and to bring forth tangible support to discuss the dialectical relation that should exist between city planning and urban design.

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[5] Green Ways, or Green Axes, were instituted by Campinas' PDM – 15/07 Complementary Law in its articles 37 and 38.

Although the City Statute (2001) requires a participatory city planning process, the model in force in Brazil still defines "top-down" macro-zoning. Since planning solutions propose guidelines for large urban areas, they barely consider local community demands and, in many cases, they favor the real estate logic. (ANDRADE, 2014, pp. 41-42).

In Brazil, city planning based on zoning works within general guidelines. It has distanced itself from studies on the urban form without valuing the spatial heterogeneity of finer scales.

> In many cities, detailing the local scale depends on the Leis de Uso e Ocupação do Solo (LUOS – Land Use and Occupation Acts) that only propose project guidelines focusing on the functional and economic dimensions and ignore other social expectations, as the ecological, bioclimatic, cultural (identity and orientability), affective, sociological, expressive, aesthetic, and symbolic ones. (ANDRADE, 2014, p. 42).

Such actions disregard urban design, especially when it comes to water in urban environments. The approach of master plans rarely integrates environmental or other sector policies, which they treat in a segmented way (COSTA; CAMPANATE; ARAÚJO, p. 177). The lack of integration among government agencies produces unspecific guidelines that are sometimes inconsistent with the city reality. (ANDRADE, 2014, p. 41). In 2011, the Rede de Avaliação e Capacitação para Implementação dos Planos Diretores Participativos (Network of Assessment and Qualification to Implement Participatory Master Plans) carried out a research project coordinated by the Secretaria Nacional de Programas Urbanos (National Secretariat of Urban Plans) of the Ministry of Cities. Focused on "The Environmental Dimension in the Master Plans of Brazilian Municipalities", it revealed that most of the master plans analyzed only tackle the environment issue from the perspective of the green agenda, i.e., of urban forestation and of the preservation of open spaces and conservation units. Most plans were unable to make the necessary integration with the so-called brown agenda. As if subdividing, building, and occupying the urban space were "not environmental" activities and only preserving, in the sense of "not occupying" or "keeping untouched", belonged to the environmental field. (COSTA, CAMPANATE; ARAÚJO, p. 178).

To draw up the Lagoa Linear Park Project, the team of the Architecture and City Planning PET of PUC-Campinas analyzed both the Campinas' PDM (2006), which fits perfectly in the general features of the Brazilian city planning exposed above, and the PLG-MZ9, where the study area is located. The issue of linear parks is handled in a very general way in the city urban planning law and no municipal agency is defined as responsible for their implementation. The SVDS, which is

formally in charge of this subject, has no technical staff, resources, or appropriate structure to develop projects. The disarticulation between the actions of the City Planning, Housing, and Environment Secretariats also significantly undermines the implementation of linear parks in Campinas.

The methodology used to develop the Lagoa Linear Park Project is founded on a theoretical discussion taking into account conceptual aspects related to the theme, a bibliographical revision of recent studies, issues of the projectual practice – based on case studies in Brazil and abroad – a survey of the specific laws related to urban APPs, a documental survey of the cartography of the city of Campinas, plans and aerial photos of the project area, field survey carried out by the researcher team – with photographic, graphic, and descriptive records on observation forms. At the Campinas City Hall, the main interlocutors were SVDS technicians, planners, and managers with fairly varied training backgrounds: architects-urban planners, geographers, ecologists, chemical engineers, and biologists. Since the Municipal Government of Campinas manages matters relating to urban environment in a fragmented way, no dialogue with the Housing and City Planning Secretariats was possible.

Defined by the SVDS's demand, the project area is located in Macro-zone 9 (MZ9), by the Lagoa brook, a tributary to Ribeirão Quilombo. The area extension is compatible with the possibilities of developing a project discussing issues on the scales of planning and also of urban and landscape design. The group assumed they needed to contact the dwellers of the project area in order to get to know their actual demands and desires concerning the open spaces. They thus participated in meetings with the civil society organized by the Non Governmental Organization (NGO) Rede Abraço, acting in the region. During field visits, the collaboration of health agents and health center workers of the project area was crucial because these professionals have the best knowledge of the district reality and actually know the dwellers. The project was divided into three steps: 1 – Conceptual foundations and study area surveys; 2 – Project guidelines; and 3 –Proposal.

STEP 1 – CONCEPTUAL FOUNDATIONS AND STUDY AREA SURVEYS

It included a theoretical discussion taking into account conceptual aspects related to the theme, a bibliographical revision, and raising data on case studies of linear parks implemented in Brazil and abroad. With regard to laws, the main documents that provide the foundations for the analyses are Campinas' PDM (2006), the Caderno de Subsídios para o PLG (Contributions Book for the PLG – MZ9), the PLG – MZ9 itself with all its maps, and a critical reading of CONAMA's Resolution 369 (2006).

Figure 1 presents Campinas' nine Macro-zones. Located in northwest Campinas, MZ9 includes the district of Nova Aparecida, the neighborhoods of Parque Santa Bárbara, Vila Boa Vista, Parque Via Norte, and the region of Amarais, Jardim São Marcos, and Jardim Santa Mônica. This area is situated at the confluence of big, structuring thoroughfares: highways Anhanguera, Dom Pedro I, and Adalberto Panzan (which connects highways Anhanguera and Bandeirantes). Great physical barriers limit the area: the farms Chapadão (belonging to the army) and Santa Elisa, which are segregating elements hindering the articulation of this Macro-zone and the city urban mesh. MZ9 presents an intensive conurbation process with the cities of Hortolândia and Sumaré. Its 28.79 km^2 correspond to 3.61% of the area of Campinas, presenting no rural area.

According to the 2000 census, its total population was 75.747 people i.e. 7.81% of the city's total population. The favela population of MZ9, mainly concentrated in Jardins São Marcos, Santa Mônica, Campineiro, and Boa Vista (along the railroad), was around 16.645 people i.e. 13.04% of the city's favela population. Family income is predominantly medium-low to low. MZ9 presents a mix of low-income habitational uses with commercial and industrial uses. (Contribution Book – PLG – MZ9).

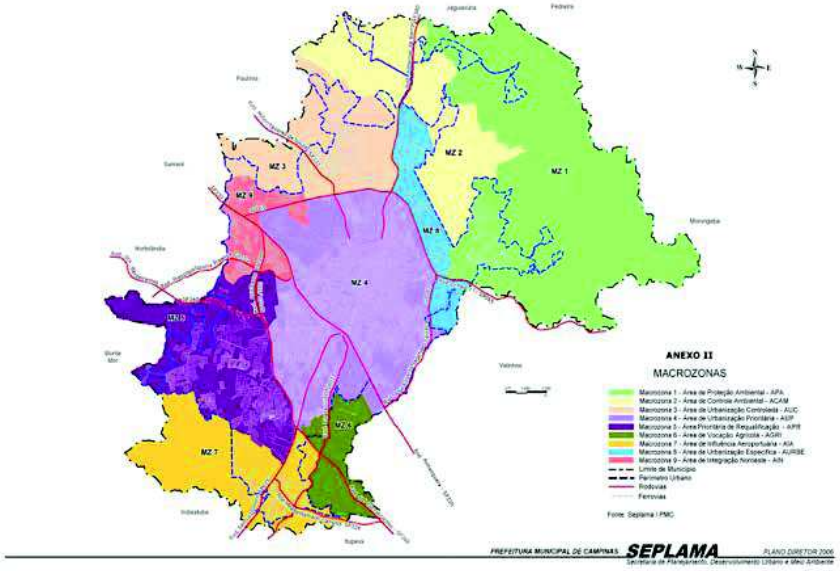

Figure 1 Map of Campinas' Macro-zones according to the 2006 Master Plan.
Source: Municipal Government of Campinas. Available at: <http://www.campinas.sp.gov.br/government/seplama/publicacoes/planodiretor2006/mapas/mapa32.jpg>. Last access: Oct 5th, 2016.

According to the PLG-MZ9, the area is drained by the Ribeirão Quilombo and its tributaries (Lagoa, Boa Vista, and Pari brooks, among others). It also comprehends part of the Piçarrão creek basin. These watercourses supply some neighboring towns and constitute a connection network between different, wide

floodplains with a potential to form wildlife corridors, implement green areas and productive spaces, and promote urban requalification. The circa 396 km^2 Ribeirão Quilombo basin encompasses the towns Americana, Nova Odessa, Sumaré, Hortolândia and part of Paulínia and Campinas.

MZ9 watercourses and their marginal areas are severely degraded and clear of natural vegetation. Many spots are used for debris dumping or some kind of agricultural activity. Some points present the spontaneous development of remnants of riparian forests and floodplain grasslands or crops grown by the community. Since there are irregular occupations and substandard housing, the municipality has taken actions to remove the population from the floodable areas. MZ9 comprises 363.70 hectares of APPs (figure 2), i.e. 12.69% of its territory. Only 78.78 hectares (21.66%) comply with the law and 284.92 hectares (78.34%) are in conflict situations, i.e., clear of natural vegetation. The latter are represented in red in figure 2. This picture somewhat explains the great amount of irregular substandard housing on floodplains and watercourse margins, exposing the population to the risk of floods. Figure 3 shows the plan of the Municipal Government of Campinas that proposes an integrated system of green areas for MZ-9 and converts many APPs into linear parks combined with a bike path network. Although the area along the Lagoa brook is densely occupied, it is classified as a green corridor, not as a linear park. Figure 4 shows occupation areas and favelas along the Lagoa brook, object of the project developed by the PET.

Project step 1 also included a survey of the physical and social aspects of the study area. Cartography, plans, and aerial photos of the project area were chosen to prepare the team before technical visits. Figure 6 depicts the land use and occupation survey of the intervention area. The urban equipment surveyed by the project team is presented in figure 7. The research team's field survey comprised photographic records, charts and a description, on observation forms. District health agents accompanied the team on some visits. Some photos of these field surveys are presented in figures 8, 9, 10 and 11.

STEP 2 – PROJECT GUIDELINES

Based on these surveys, the project guidelines began to be drawn up. Considering environmental issues and urban drainage, the possible positive impacts were verified on regional and metropolitan scales, which comprehend the Quilombo river basin, and also adjacent districts, since they qualify as public open spaces.

From an environmental point of view, the main project guidelines are: solutions for drainage and flood-control; contributions to recompose the riparian forests with native reforestation; rehabilitation of the Lagoa brook margins; restriction of the erosion and silting processes; and implementation of wildlife passages.

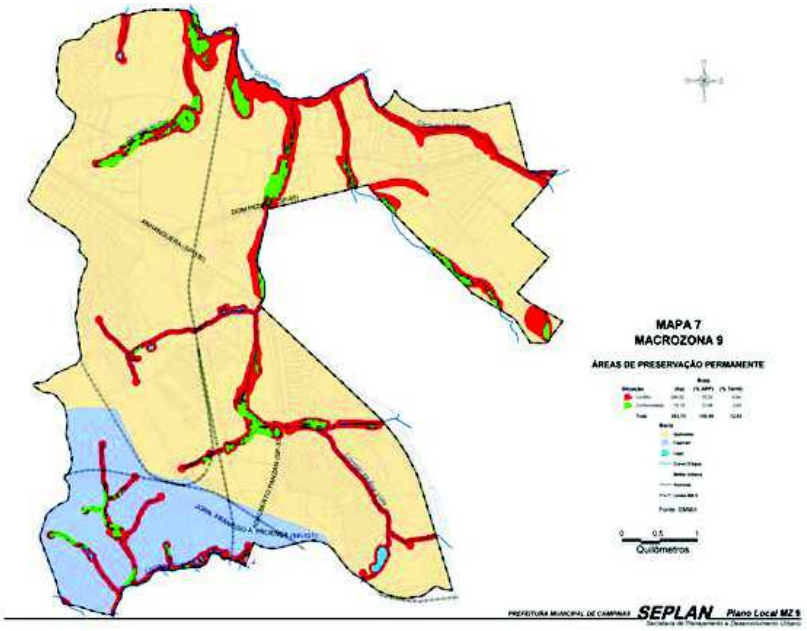

Figure 2 Map of the APPs in MZ9.
Source: Caderno de Subsídios do PLG – MZ 9 – Municipal Government of Campinas. Available at: <http://www.campinas.sp.gov.br/government/seplama/planos-locais-de-gestao/doc/mz9_mapas.pdf>. Last access: Oct. 4th, 2016.

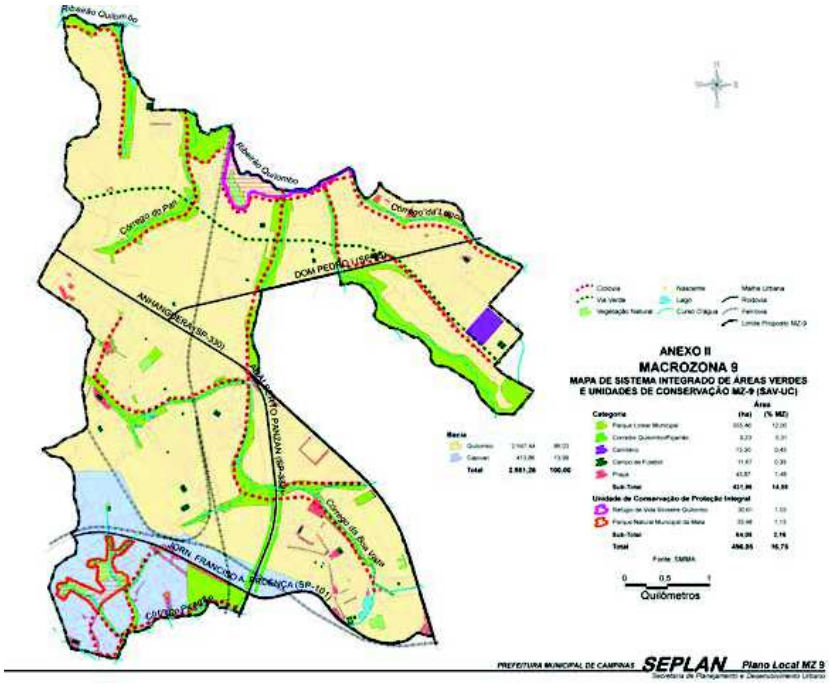

Figure 3 Map of MZ-9 integrated system of green areas and conservation units.
Source: Caderno de Subsídios do PLG – MZ 9 – Municipal Government of Campinas. Available at: <http://www.campinas.sp.gov.br/government/seplama/planos-locais-de-gestao/doc/mz9_mapas.pdf>. Last access: Oct. 4th, 2016.

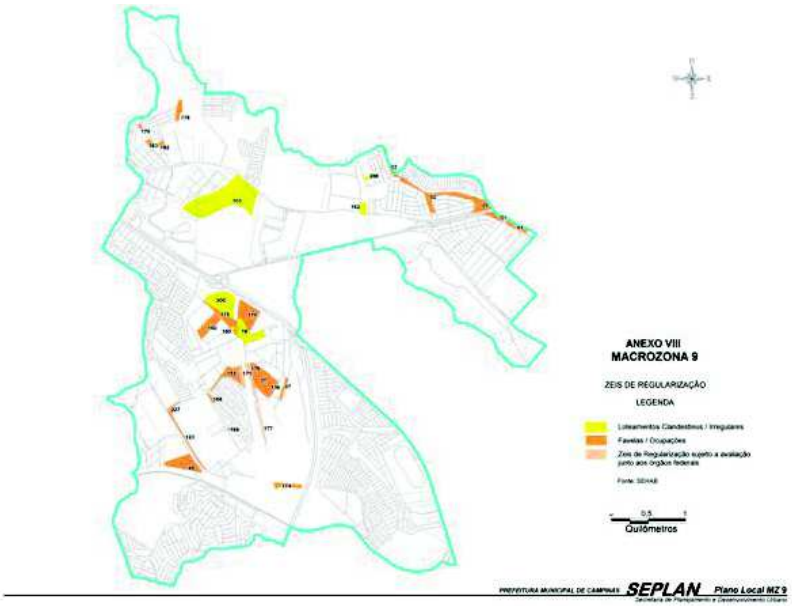

Figure 4 Map of the Zonas Especiais de Interesse Social (ZEIS - Areas of Special Social Interest) for MZ-9 regularization. Observe that the project area along the Lagoa brook has favelas and occupation areas.
Source: Caderno de Subsídios do PLG – MZ – 9 – Municipal Government of Campinas. Available at: <http://www.campinas.sp.gov.br/government/seplama/planos-locais-de-gestao/doc/mz9_mapas.pdf>. Last access: Oct. 4th, 2016.

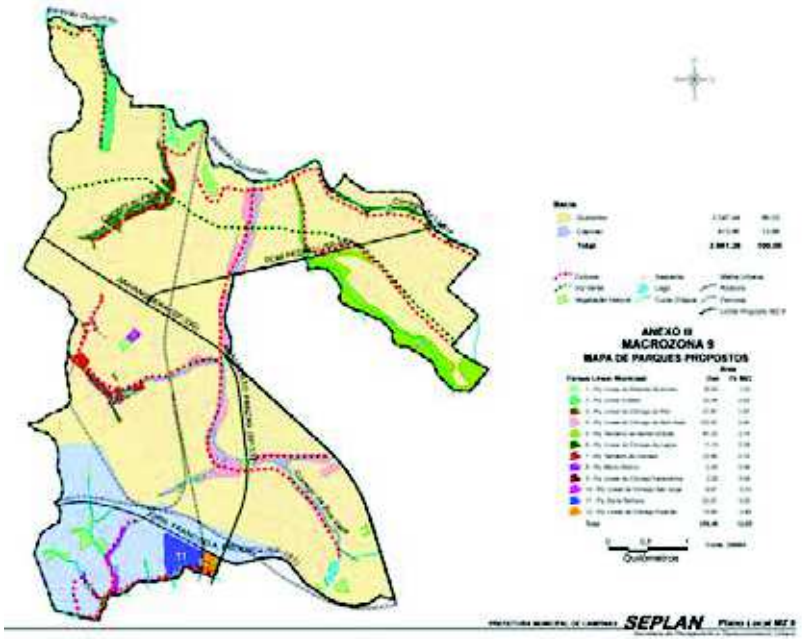

Figure 5 Map of the parks proposed for MZ9. The park along the Lagoa brook is part of the guidelines for the area.
Source: PLG – MZ – 9 – Municipal Government of Campinas. Available at: <http://www.campinas.sp.gov.br/government/seplama/planos-locais-de-gestao/doc/mz9_mapas.pdf>. Last access: Oct. 4th, 2016.

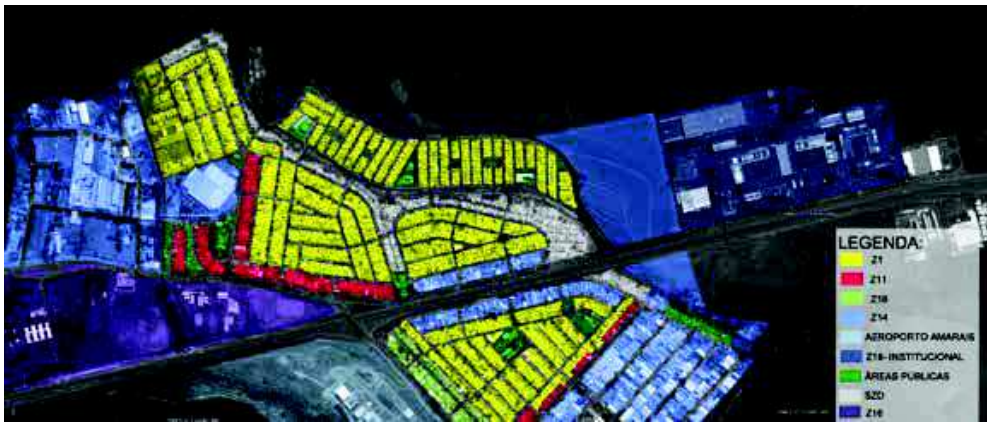

Figure 6 Land use and occupation survey.
Source: Created by the PET team.

Figure 7 Urban equipment survey.
Source: Created by the PET team.

Figure 8 Mapping of the field visit photos
Source: Created by the PET team.

Figure 9 PET team field visit. Pedestrian bridge over the Lagoa brook.
Picture: Daniel Henrique Ribeiro, 2015.

Figure 10 PET team field visit. Occupation of the Lagoa brook margins. The municipality has already initiated a process to remove families from hazardous areas along the brook.
Picture: Danilo Pena Maia, 2015.

Figure 11 PET team field visit. Lagoa brook margins in a poorly urbanized stretch.
Picture: Viviane Bestane Bartolo, 2015.

From the point of view of landscape rehabilitation, the guidelines privilege the connectivity potential of the green corridors, their relationship to the existing urban equipment and other public spaces and the importance of crossings for pedestrians and cyclists linking the region districts. The project guidelines are summarized in figure 12. Figure 13 highlights the relationship between the Lagoa linear park area, the first bike path layout and the other open spaces existing in the region.

The PET team participated in meetings with the NGO Rede Abraço to present their project goals to community leaders. Such contacts paved the way for more participatory planning. They also clarified the project intentions in the field of possibilities and academic studies and made it clear to the community that the Municipal Government of Campinas had given no guarantees that the project would be implemented. Overall, the project guidelines meet the community expectations.

STEP 3 – PROPOSAL

Based on the general guidelines, elements of the urban and landscape project were detailed. Work proposals include the implementation of a skate rink and an amphitheater in a floodable area to guarantee entertainment for local teenagers and avoid floods, as seen in figures 14, 15, 16 and 17. Another proposal of the group is to implement a circa 2-km-long bike path to improve the accessibility of residents and connect the neighborhood to the trade area and the Centrais de Abastecimento de Campinas S/A (CEASA – Campinas Supply Center). This bike path is shown in figure 18, with the project's general implementation. Pedestrian crossings were proposed according to the location of the urban equipment and road system (figures 19 to 34).

The best areas to recompose vegetation with native species, forming forest areas, and to install leisure, culture, and sport equipment were assessed. The impermeabilization percentages and changes for gardens, limited to 5% and 15% of the total area of the APP, respectively, were respected to comply with CONAMA's Resolution 369. Satisfactory technical solutions for containment basins were also evaluated, seeking to combine landscape design and drainage solutions. Results are presented in figures 18 to 34.

6 FINAL CONSIDERATIONS

Linear park projects show the importance of systemic thinking in the approach to urban APPs, taking into account not only the drainage system, but also environmental, cultural, social, political, and economic factors. Potentially, APPs constitute a stock of expansion area in the open space system of regions already presenting consolidated urban occupation.

Figure 12 Map summarizing the project guidelines.
Source: Created by the PET team.

Figure 13 Project guidelines. Proposals to connect the Lagoa linear park area to other neighboring open spaces and a bike path.
Source: Created by the PET team.

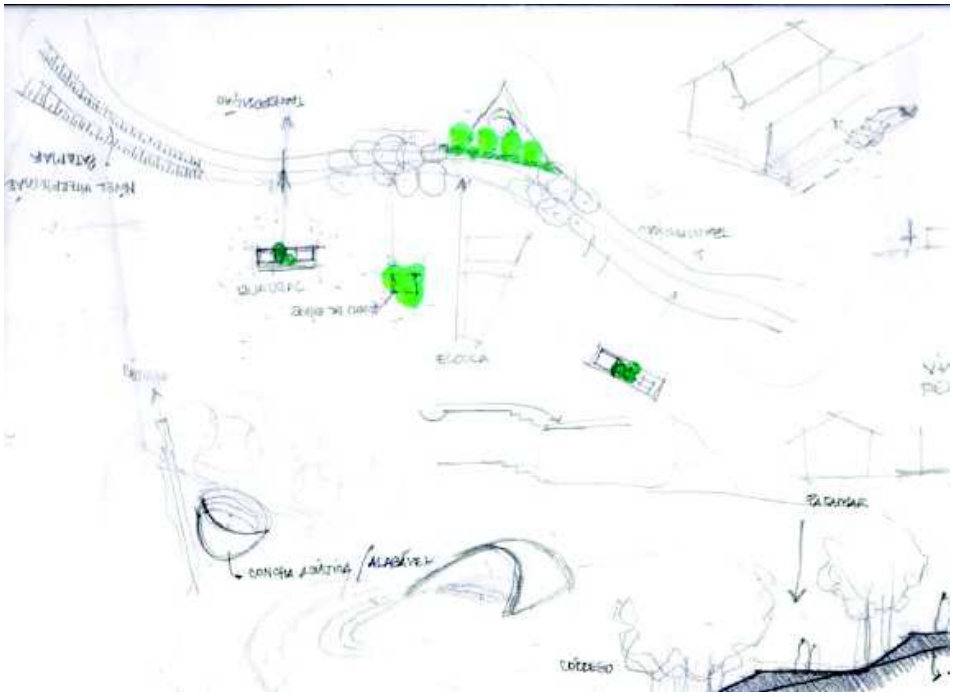

Figure 14 Project sketch.
Source: Designed by the PET team.

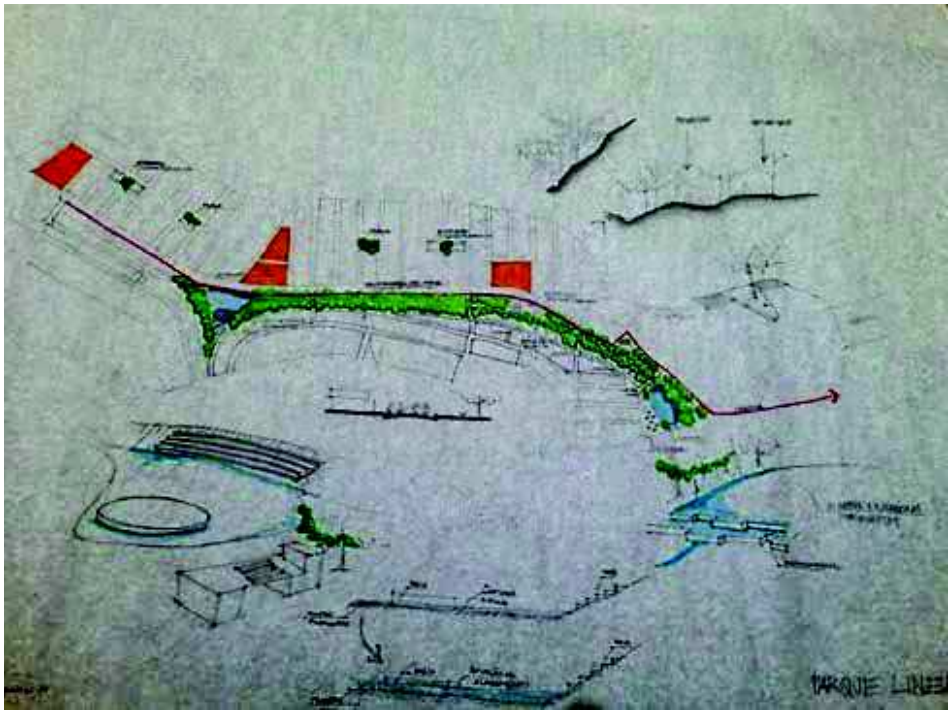

Figure 15 Study to connect the park to equipment and other open spaces.
Source: Designed by the PET team.

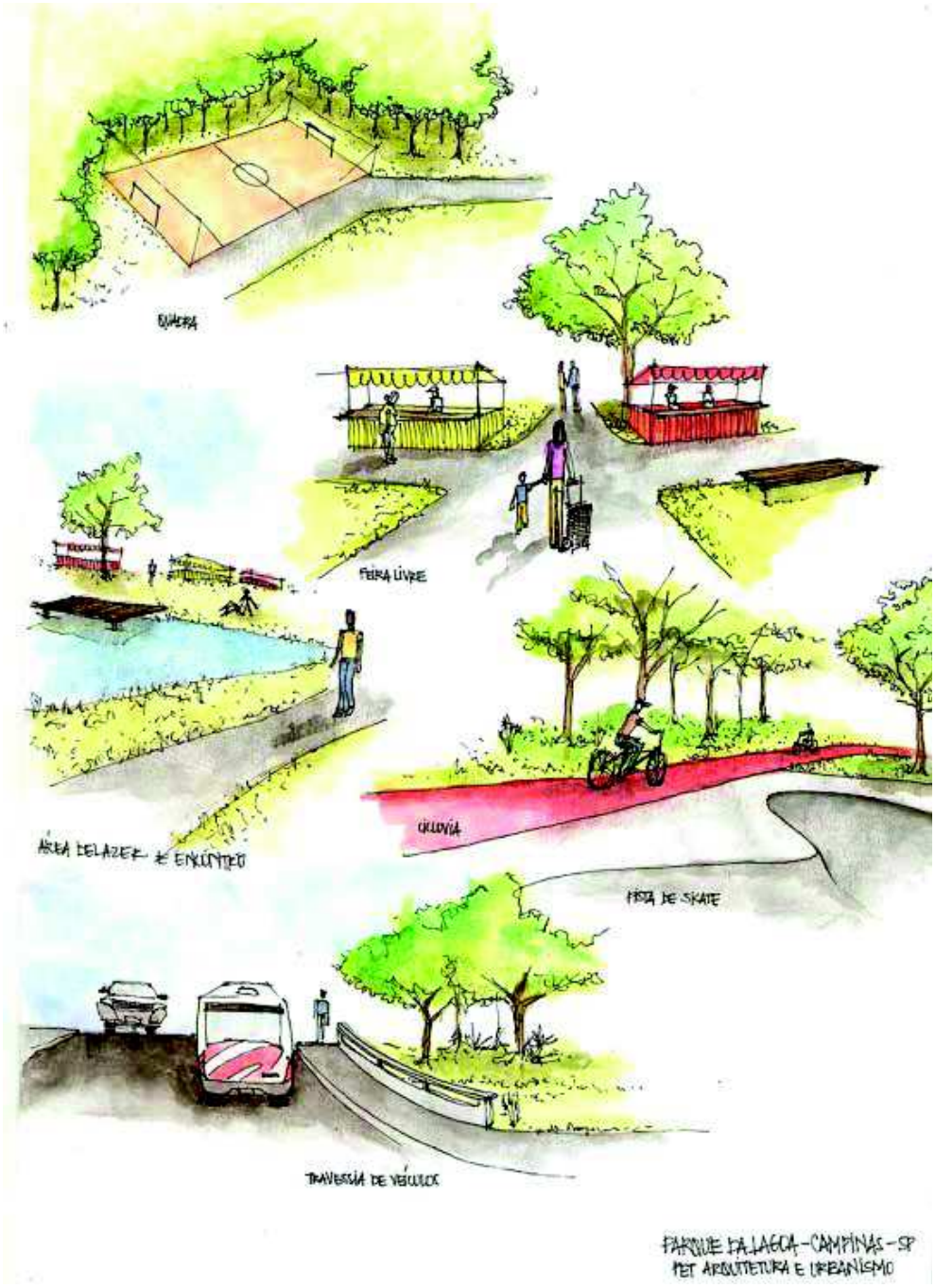

Figure 16 Studies for elements proposed in the project.
Source: Danilo Pena Maia.

Figure 17 Study for the skate rink and containment basin.
Source: Danilo Pena Maia

Figure 18 Lagoa Linear Park Project – General implementation.
Source: Created by the PET team.

Figure 19 Lagoa Linear Park Project – Sector 1.
Source: Created by the PET team.

Figure 20 Lagoa Linear Park Project – AA section.
Source: Designed by the PET team.

Figure 21 Lagoa Linear Park Project – BB section.
Source: Designed by the PET team.

Figure 22 Lagoa Linear Park Project – Sector 2.
Source: Designed by the PET team.

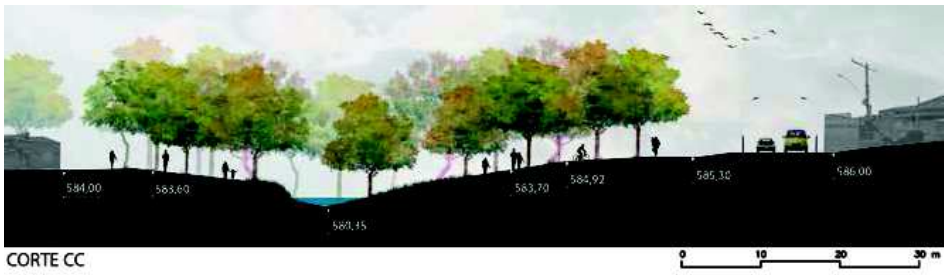

Figure 23 Lagoa Linear Park Project – CC section.
Source: Designed by the PET team.

Figure 24 Lagoa Linear Park Project – DD section.
Source: Designed by the PET team.

Figure 25 Lagoa Linear Park Project – Sector 3.
Source: Designed by the PET team.

Figure 26 Lagoa Linear Park Project – EE section.
Source: Designed by the PET team.

Figure 27 Lagoa Linear Park Project – FF section.
Source: Designed by the PET team.

Figure 28 Lagoa Linear Park Project – Sector 4.
Source: Designed by the PET team.

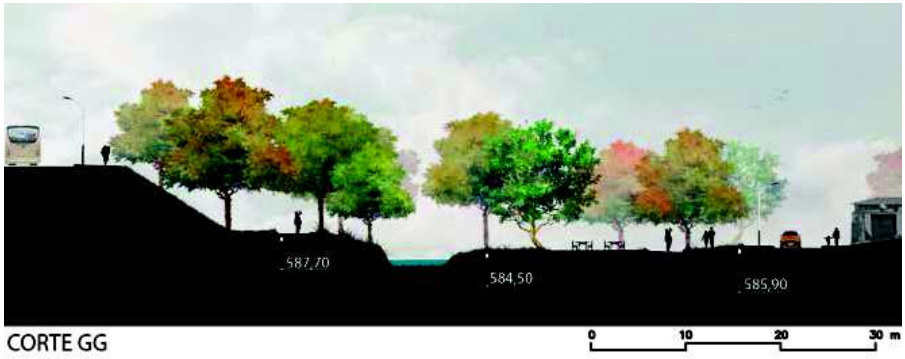

Figure 29 Lagoa Linear Park Project – GG section.
Source: Designed by the PET team.

Figure 30 Lagoa Linear Park Project – HH section.
Source: Designed by the PET team.

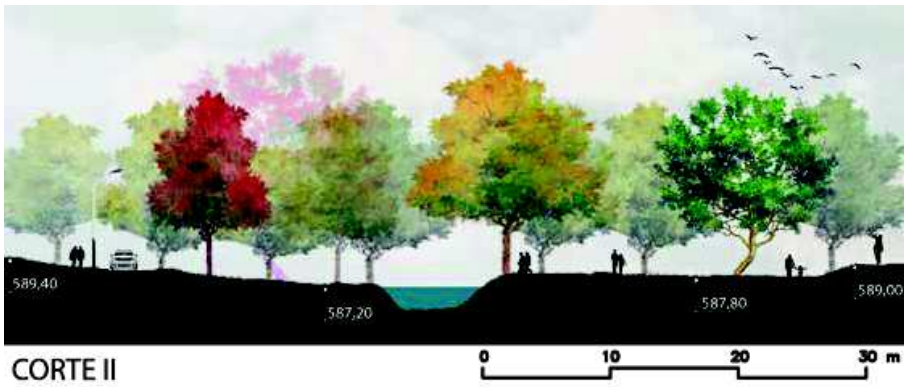

Figure 31 Lagoa Linear Park Project – II section.
Source: Designed by the PET team.

Figure 32 Lagoa Linear Park Project – Sector 5.
Source: Designed by the PET team.

Figure 33 Lagoa Linear Park Project – JJ section.
Source: Designed by the PET team.

Figure 34 Lagoa Linear Park Project – KK section.
Source: Designed by the PET team.

The whole process involving the work presented in this paper shows how unprepared the municipal administration of Campinas (SP) is to devise a reflection on consistent urban planning, resulting in projects capable of meeting the demands of the communities concerned. It also reveals the superficiality of the knowledge of public officials on the physical and social aspects of areas where linear parks are proposed in the PDM.

The project team was able to discuss aspects provided for in the environmental planning of the city as to the social reality of the location where the project should be implemented. The confrontation between what is good on a community level and what is good on a landscape level, in the context of a river basin, raised important reflections on the treatment of urban APPs.

This work was not intended to prepare the executive project of the Lagoa linear park. The team was interested in the systemic discussion of the theme and in the investigation of its relevance for the teaching of project and urban design. This process demonstrated that the training of architecture and city planning students can be enlarged and deepened by direct contact with communities and municipal managers in the development of projects that combine research and extension.

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