ID 1430 | BORDERS AND DOMAINS OF PUBLIC SPACE FOR OPERATIONAL SUSTAINABILITY IN CAMPOLIDE

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1 INTRODUCTION

The present research intends to study and understand the problematic of the requalification of the public spaces in territories of high level of urban fragmentation. This phenomenon affects contemporary cities and takes place, essentially, by the forms of urban growth confronted with topographic factors and strong infrastructural presence. In this sense, we understand that the great advances of knowledge and technology, over the last two centuries, have caused profound changes in the urban landscape of the contemporary western cities. These transformations in the territory caused by the effects of the Industrial Revolution, mainly in 19th century, development of the railway systems which are assumed as an important socio-economic factor for the region they serve. However, its rigidity and low permeability has contributed to the creation of disarticulate spaces, only a few points of interface and relationship with the land crossing. On the other hand, the fluidity and permeability of road networks allow the rapid rise of these in the urban space. In the second half of the 20th century, it emphasizes a greater variety of functions at street level, where it reveals new ranges and road hierarchies. Thus, the street gains new meaning, assuming as a public space of greater complexity where there is a greater ambiguity of its areas and forms of control. The urban design trends have pointed to a broad and inclusive accessibility, masking many of the forces that promote arrays. It is therefore important to understand how the public spaces contribute effectively to social and economic cohesion. And, in this way, it appears the need to explore the boundaries and rules of use of these spaces beyond the constraints of their public / private control. It is this duality that we confront registration property, infrastructural barriers, difficulties in managing, sharing and overlapping of their areas. Thus, there is a need to increase public space requalification policies that consider systems of evaluation and project orientation supported by an operational sustainability. Where promote intervention strategies with interdisciplinary compromises and recognition of public space as dialog space and mediation of interests. In this way, a methodological support for research development is outlined, with a systematization of the theoretical problems of framing the design processes, the impact of accessibility infrastructures and the public space in fragmented territories. In this, emphasis is placed on understanding and critical reading on the operational capability of sustainability policies. For this, we proceed to historical cartography analysis, legislation and urbanization processes as key study and evaluation tools. In this context, it is assumed Campolide in Lisbon, as a territory test for defining a set of strategies that articulate the issues of urban fragmentation, with new types of public space and contemplating guiding factors for a sustainable intervention. In this perspective, a greater sensitivity to a landscape supported in various infrastructure systems is intended, which aims to better use of green systems and agricultural productivity by integrating them in urban renewal processes.

2 INFRASTRUCTURES, URBAN FRAGMENTATION AND SPACES OF OPPORTUNITY

The lack of enough road infrastructures and the consequent impairment of terrestrial mobility systems were, until the 19th century, a considerable obstacle to the growth of urban areas (Salgueiro, 1992). Only with the Industrial Revolution, it is that the street and the road had great changes, both at ground level and underground, gaining a scale and a completely new functional dimension. Thus, the introduction of industrialization allowed the rapid technological advancement and the development of accessibility of infrastructure, leading to the appearance of mechanical transport for public use in cities (such as tramways, electric cars, elevators and funiculars). At the end of the 20th century, a new revolution confronts the inactivity of urban forms and the organization of territories with the development of a huge network of infrastructures, information flows, goods and people. This was, in a way, advanced the concept of Plug-in City (proposed in 1964 by the Archigram group) that combined the architecture, technology and

society. Plug-in City (FIGURE 1) is not intended to build a city but a mega structure in constant evolution, incorporating residences, transportation and other essential services. These projects and ideas, even though they were never built, motivated several debates, offering a new approach to urbanism, reversing traditional perceptions of the role of the city's infrastructure.

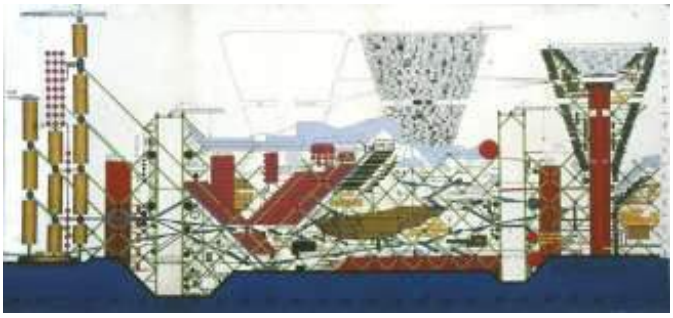


FIGURE 1 - Mega structure of the City Plug-in,designed by Peter Cook of the Archigram group, 1964
Source: www.archdaily.com/399329/ad-classics-theplug-in-city-peter-cook-archigr

This new form of conceptual approach highlighted several concepts related to the phenomenon of urban fragmentation, where Splintering Urbanism stood out (Graham e Marvim, 2001). This refers to how the accessibility infrastructures fragment the life and the urban fabric at the expense of certain interests. On the one hand, boost urban territorial expansion, but on the other, rise spaces without identity and with an absence of meaning. Therefore, it is important to thinking about the articulation of the fragmented, the divided and discontinuous (Jauregui 2004) through intervention strategies such as overlapping, hybridization and encompassing or concealment (Donini, 2008), camouflage, detachment, assimilation and fusion, pointing to the last one as the most promising and interesting strategy (Smets, 2010). These intervention processes allow greater cooperation between engineering, architecture and urban planning. Accessibility infrastructures play a key role in planning and urban design, as a determining element of urbanization (Solà-Morales, 1997) and essential process in conjunction with the surroundings (Allen, 1998). Thus, the relationship between these infrastructures unfold according to diversified logics, in which the mobility and circulation networks may now assume the role of infrastructure for urban growth and aggregation, and may represent a role of consolidation, reconfiguration or re-articulation urban fabrics (Allen, 1998). If on a large scale, these systems promote and connect privileged communication and connection spaces, with a number of urban capital gains (flexibility and speed, independence, transport of certain goods, etc.), on a more local scale, they create several disarticulate spaces between them and their surroundings. It is thus necessary to rethink urban design at different scales where it ensures a better dialogue between spaces, through better coordination and integration of the various systems of accessibility and infrastructure of urban public space. In this sense, we are presented, in La Ville Franchisée (Mangin, 2004), a vision on the conception of urban planning (FIGURE 2). Here we present the concept urbanisme du réel which is evident the predominance of the car as a means of promoting urban sprawl, plus the high level of zoning that make, in the author's opinion, the weaker and individualized city. It develops a virtuous and ecological urban model that aims to promote public transport and soft modes, and the linear urbanization as a base and preserving green corridors. But this model, l urbanisme du fantasme, as the name implies was seen as extremely utopian, since it promotes a city totally without cars. Thus, Mangin suggests a urbanisme du possible with a design that integrates and connects public spaces and accessibility infrastructure. Not only through the implementation of some restrictions on the movement of individual transport, as well as the promotion of public transport.

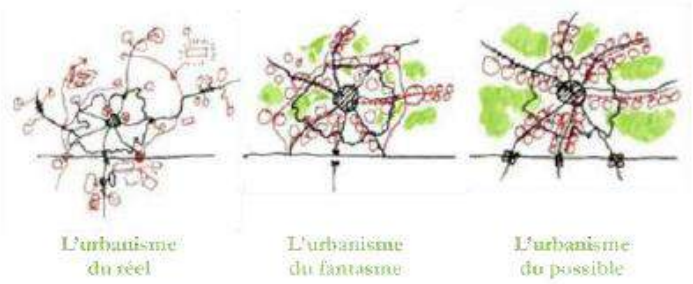


FIGURE 2 – Urban planning models proposed by David Mangin
Source: Mangin, David (2004). La Ville franchisée. Paris: Éditions de La Villette

Urban design should therefore be a process based on objective and well defined strategies, and its success depends on the consistency of the program, the degree of knowledge of the place, the methodology used, market analysis capabilities, as well as, the degree of involvement and community mobilization (Brandão, 2002). There are several authors who have been devoting himself to the study and design of public spaces, the main concern dialogue between the spaces and social life in cities. In Life Between Buildings: Using Public Space (Gehl, 1996) is presented to us the relationship between the usage patterns of spaces and spatial properties of physical environments, using the human dimension as the main analytical tool. And, later in Cities for People (Gehl, 2010), explains the methods and tools used in the conversion of certain urban public spaces, but always in a leisure and recreational perspective.

However, it is evident the need to improve the design and quality not only these spaces, as well as the introduction of components related to agriculture in an urban context (Lehmann, 2012). Thus, it is intended to introduce sustainability issues in cities. Rogers (1997) presents the fragility of the ecosystem in Cities for a Small Planet, highlighting the predominantly quantitative nature of the urban expansion process, to the detriment of the social quality aspect of the city's public spaces. Public spaces, according to the author, are the main urban elements from city reading, referring to public spaces where we felt like part of this, as is the case of Victorio Gallery Emmanuelle in Milan, the Ramblas of Barcelona, or the parks from London. Rogers also alludes to the importance of multifunctional spaces in intervention proposals in urban fabrics, since these are spaces that promote the coexistence of diverse activities and people. Also stresses the urgency of creating formal and informal venues, to ensure social interaction between people. And in this sense, become the fairest city, beautiful, creative and exposed to the open trial vision, as well as ecological and diverse.

3 SUSTAINABILITY AND URBAN PROJECT, CONTRIBUTIONS TO A PROJECTUAL OPERATIONAL

Over the past decades, the concepts associated with sustainability have revealed new approach places the issues of urban design and growth models and territorial development. The accelerated changes and speeds of communication and information about them have contributed to a greater awareness about their impacts and risks. This phenomenon leads to more critical reflection on the processes involved in the territory, especially for large infrastructure and forms of urban growth. The consumption of resources needed to support urban sprawl, especially after the energy crises of the seventies, has led to a greater sensitivity about the sustainability of our way of life (Rogers, 1997). Our cities represent some of the most extraordinary civilization achievements, but also weaknesses that demonstrate the risks of imbalances in relation to content and stakeholders that compose it. Not only the implementation capacity of buildings and infrastructure, but mainly to maintenance, monitoring use and even its transformation or demolition (Ferreira, 2016). Approaches to sustainability issues, although not new, gain new momentum in the 80's of the 20th century, the way they are currently framed. In this context, we intend to increase new insight into interventions in the territory, contemplating a more inclusive approach in the design process, reflected in lifestyle, considering the reference Leading the Inclusive City – Place-based Inovation for a Bounded Planet (Hambleton, 2015). Among the most basic pillars of sustainability are distinguished approaches on aspects of social, economic and environmental equity. However, despite the vast literature on the subject and even some reference legislation, there is a certain ambiguity and vagueness about the direction of change and the principles and policies operating of sustainability. In the perspective of the architect and urban planner matter consider, on the one hand, an integrated and generic view on the principles of sustainability. But on the other, establish a set of strategies and guidelines to report on the methodologies to consider the nature of a sustainable project. The concerns about some of the aspects of sustainability issues in the territory and the project are significant in historical references.

From the contents of the Vitruvius, considering the utopias of the sixteenth century, the social conceptions of the 19th century, where a community of Fourier, as Howard's Garden City, or even modernist avant¬gardes of the early twentieth century, with a radiant city of Corbusier or Broadacre City of Wrigth, among others. In the late 20th century, other theories attempt to find themselves by evoking specific spaces on sustainability, with particular emphasis on neoliberal ideas through utopias like Laissez-faire Town and On the City Celebration (Roseta, 1999). In addition to the various theories, sustainability discourses have been accompanied by the growing importance of urban resilience, eco-development, and the creation of various certification systems, such as Leadership in Energy and Environmental Design

(LEED). The latter are a space of opportunity to guide a more operational character about the sustainability applied to the architectural project and with some expectations about the possibilities of extension for the urban project. Among various contributions in this regard, it stands out even contents of report Try This Way. A series of articulated concepts to sustainability, point to the growing social awareness of the forms and processes to design and manage the territory and its resources. The resilience emerges as the need to assess the responsiveness of urban ecosystems to adverse situations and injury of urban dynamics, aimed at creating a stronger society, secure and confident, particularly when it is systematically confronted with critical scenarios, either by direct experience or by widespread access to information in almost real time. The eco-development issues focus on the need to ensure the basic needs of the population through adequate and appropriate technology to each environment, considering the different levels of complexity (Filho, 1993). The various concepts show the concern for well-being and solidarity with future generations, with great relevance to the environmental dimension. Among the various dimensions of sustainability into the design process, the environmental issue is one of the most relevant, polarizing the main attention. Considering its importance, we seek, however, an approach that integrates a greater range of factors. In this sense, we identify issues that highlight the importance of local intervention, the recognition of their network of relationships, showing on the one hand, the environmental context and energy (wind, sun, water) and on the other, human dynamics, where functions and mobility are particularly prominent. The emergence of a multifunctional and multidimensional city (Ferreira, 2016) or encourage diverse urban form is an idea reflected by authors such as Wheeler in Planning for Sustainability (2003). The question of analysis and design of scales, highlights the importance of local and global relations, but also the human comfort of consciousness, from its communal existence the areas of privacy, this is from the region, city, neighborhood, home. With the growth of cities, and more than half the world's population living in urban areas also puts up the challenge of ensuring the supply of the companies of the future, changing the traditional dialectic of rural versus urban and appealing to new paradigms that show that urban issues such as urban rurality? or rurbanization ?. In this context, it is recognized the importance of works such as Food and the City -Urban Agriculture and the New Food Revolution (King, 2012), or trends in edible landscaping policies, the challenges of sustainable urban agriculture, and a new food culture. These approaches and new urban-rural commitments are explored in Food City (Lim, 2014) and Future Cities (Ween, 2014) stressing the possibilities of green scaffolding or vertical gardens (Birkeland, 2008). In this context, it is important to rethink the ways of allotment and registration. Since the knowledge and historical recognition of its transformation can be an essential source for new change tests. Among the most relevant aspects of the need to bring rural and urban, there is the route that foods currently make from the place of production to the final consumer. This factor is a sensitive point to the models and processes of urban and metropolitan growth (Steel, 2013) evidencing the emergence of new relations and conceptions between city, agriculture and landscape. There is a need to risk processes and methodologies that contribute to develop design guidelines aware of new commitments on an operational sustainability. It is the context of each project one of the key aspects to start equating the guidelines, case studies are particularly relevant compared to generic positions or sustainability policies. Within the main challenges is the awareness of the relations between local actions and their global effects. Thus, the means of production relocation decisions for large distances from urban areas, which concentrates the largest population percentages, is one of the key factors of territorial and human sustainability. The primary factor, directly related to environmental issues and climate change, mainly by energy costs representing the transport of goods, shows a large increase in ecological footprint. In addition to this, home ¬work travel and alternative means of mobility are also representative of environmental impacts, including the reduction of comfort and human well -being. In this context, the quality of public spaces, the relationship between the various transport systems and the quality of the forms of urban production are other factors to consider in territorial planning and design processes. Sustainability has a strong cultural component, which also highlights the issue of its relations with heritage, questioning both the sense of preservation and innovation. Thus, inheritances should be an opportunity to integrate heritage with new constructions, where the old and the new constitute a challenge and an opportunity to balance the times and their forms, with a view to improving public spaces and good Social welfare (Rodwell, 2007). The various places and their contexts are the result of interpretations and summaries made with looks that have not integrated the fullness of its construction and designed to meet requirements that are likely to be quickly overcome and it is in this context that should emerge a positive view of the value of sustainability ¬humility in relation to past and solidarity with the future. Starting from the construction of an interpretive basis of the surrounding territory to intervene and production of summaries of the most important elements highlighting the existing content in strategic and plan documents, it is essential to produce guiding elements for a sustainable intervention that emerges from a critical reading of the context of each place and the meaning of your

project. We propose a compromise between the existing elements and recognition of its book value, environmental constraints, the infrastructure systems, among others, such as mobility, transport systems and public spaces network in the context of the framework of climate zones and factors social and economic conditions. A set of several factors should contribute to increase the knowledge of the territory and report on the development of a sustainable design options.

4 THE CAMPOLIDE PLACE, OPPORTUNITIES AND INTERVENTION STRATEGIES FOR A SUSTAINABLE TERRITORY

The unique features and biophysical conditions of Lisbon, as the valleys, the hills, the presence of the river and the irregular topography of the city, has always marked its urban expansion, particularly for the northern area. Marked by the potential of its location and defensive and commercial offered by topography and by sea, Lisbon was conquering surrounding rural territory, to its urban expansion, transforming the old neighborhoods in new urban areas (Salgueiro, 1992). Among the various areas of the city, Campolide is an opportunity territory, highlighting features that reflect the constraints of the traditional models of urban sprawl. This area of the city is currently an urban area still keeping some traces of rurality, which testify to its importance in the supply of goods and water to Lisbon. Between the Parque Florestal de Monsanto (forest park) and the consolidated city, its morphological structure includes a significant diversity of urban fabric and some gaps still to be defined. Among the various forms of urban occupation, are distinguished neighborhoods of single-family houses -small isolated areas with identity and own urban design, in contrast, the great bourgeois avenues and highways crossing, crossing old to the center connecting paths of city and separating some urbanization polygons. However, it is necessary to go back a little in time to understand its morphogenesis and the opportunities that this territory offers. In the middle of the 19th century, this territory consisted of two more concentrated settlements -one near the Quinta de Estevão Pinto (Campolide de Baixo) and another on the Cruz das Almas (Campolide de Cima) -and another more dispersed settlement along the Rua de Campolide (FIGURE 3), as well as the remarkable presence of the Vale de Alcântara (JFC, 2017). This valley, characterized as the most important physio-hydrographic element of the present city of Lisbon (Magalhães, 2007), has always been a strong barrier to the continuity of its urban morphology.

Legend:
1 Rua de Campolide
2 Cruz das Almas
3 Quinta de Estevão

FIGURE 3 - Topographical map of Lisbon and its suburbs, Duarte José Fava, 1807
Source: CML, LxLAB Adaptation

The first infrastructure that allowed the crossing of the accentuated slope of the valley dates back to the 18th century, with the construction of the Aqueduto das Águas Livres (FIGURE 4) still today the main reference element of Campolide (JFC, 2017), and even the city of Lisbon. The boundary of this territory was created by the administrative reform in the early 60's, and covers an area of 2.77 km2 where currently live 4,460 inhabitants. In 1960, Campolide had about 33,000 inhabitants, losing 50% of its population in 50 years (Censos, 2011).

FIGURA 4 - View over the agricultural fields of Campolide and the Aqueduto das Águas Livres Watercolor print on paper, of English origin, from the 18th century - Source: JFC

This phenomenon relates essentially to the decay of the main income of the activity of the population ¬agriculture -in part by the great economic and industrial momentum in the middle of 19th century. This technological advance allows, therefore, the implementation of accessibility infrastructures, both rail and road, in most European cities. Portugal, after a period of political unrest that marked the beginning of this century, tried to catch up with other European countries by modernizing the country's administration and economic development. It called, therefore, the period of Regeneration, being created a new ministry, of Public Works, which Melo de Fontes Pereira took charge. This new government gives the main impulse in the transformation of the territory from its infrastructural dimension. The implementation of a specific ministry for public works provided an administrative reform based on the definition of municipalities where the municipal authorities now have greater autonomy and responsibility, in addition to increasing the number of roads. Throughout this process, it starts the construction of the first Estrada de Circunvalação (ring road) of Lisbon, associating two functions: fiscal and military. This would consolidate a new territorial scope that had long exceeded the boundaries of Fernandina walls, past physical expressions of an administrative and space limit. The creation of this road establishes a location criterion associated with areas of adjacency and transition, accommodating new spaces of industrial development and equipment, which were excluded from the old center of the city (França, 1997). A part of Campolide was within the city limits and another out of doors (JFC, 2017). The relationship between being inside or be outside the administrative area of the city was reorganized in terms of a progressive specialization and functional segregation, but also of hierarchy and social differentiation. The need to make the most of property, therefore, leading the 19th century, Bourgeois to open urbanization fronts that would respond to the needs of urban growth and value the peripheral lands. With the first attempt to legislate urban planning in Lisbon, there is a need to draw up a Plano Geral de Melhoramentos de Lisboa (general improvement plan). This, despite not having immediate consequences, made it possible for the town interventions were seen as a set and influenced the urbanization of the late 19th century. Ressano Garcia, a Paris trained architect, thus defines a clear strategy for upgrading and expanding the city, defining the most comprehensive first plan for Lisbon (França, 2000). However, it is with industrialization and the great influx of people to the cities becomes an important business object. Land becomes a source of income and status (Salgueiro, 1992), and increases the value discrepancy between rural and urban land. The value of the latter results, essentially, from the relative location of the land and the type of activity (density and use) it may contain. However, it is the transformation of a rural land into urban land that generates substantial value added. Thus, the spaces along the Vale de Alcântara, until there intended to agriculture, are quickly transformed to supporting the implementation of a circular rail infrastructure in Lisbon, the Linha de Cintura. This converged on the valley territory (like Alcântara), not only because of the low value of land expropriation but also by topographical and hydrological facilities. This solution is recurrent in several European cities, where urban valleys and watercourses host major works of accessibility infrastructures (Rasmussen, 1967). In this context, relatively rigid design solutions are developed in the face of the slope and radius curvature limitations of the railway technology. The Linha de Cintura is, therefore, a disarticulate element of the surrounding and without specific preoccupations with architecture and urbanism. In the years of its construction, this element crosses lands outside the city still uncompromising urbanization and, with this, with a low social and economic dynamics. However, with the urban sprawl of Lisbon, this infrastructure has become an integral part of various planning areas and urbanization projects. Although there was a certain indifference to the presence of this new infrastructure in a space that would be crossed by the expansion of Avenidas Novas, functioning as a kind of dorsal, and not as a dorsal column, of the various

urbanizations at the time of development. A more integrated view of the various structural elements of the city is achieved with the architect and urbanist plan Étienne de Gröer which defined the major city development lines, with great emphasis on the area of Campolide. The landfill for the Avenida de Ceuta (where the Ribeira de Alcântara was developed, which was therefore converted into a caneiro), the Duarte Pacheco viaduct and the creation of a forest park in Monsanto with 900ha. These objectives defined much of what is now the city of Lisbon, although many have not been fully implemented, inducing new intentions and ideas for territorial planning. The works for the construction of the Avenida Gulbenkian, between 1960 and 1970, set out in Groër Plan, taking to population decline in Campolide, since they were evicted 540 families of the districts of Ribeira de Alcântara, part of the Calçada dos Mestres and Quinta do Tarujo. The intensity of urban expansion from Lisbon to the North is increasingly visible, but the projects for this are no more than utopias, some of them already since the time of the Marquês de Pombal, but have never materialized. Among the various proposals boldest reflected in this area, there is the extension of Avenida da Liberdade, understood as a process of building an identity for the new century Lisbon (Silva, 1931). The acceleration of urban transformation and social change, in large cities and towns, came to question deeply, methods and planning processes used in the 60s and 70s saw Lisbon thus its urban planning develop in witnessing proposals specific areas for the city with particular dynamics in the 1990s. These established the spatial organization model and the development strategy, as well as the classification of the soil and the rules and parameters applicable to the occupation, use and transformation of the soil (CML,1995). The infrastructural corridor present at the bottom and along the Vale de Alcântara, with emphasis on the North-South roadway and the railway infrastructure Linha de Cintura, on the one hand, has impacts on the population density of the parish; on the other, contribute to the modernization of a network accessibility that extends outside the city limits, allowing metropolitan and regional connections. Development of infrastructure, besides causing profound changes in the urban landscape and cause disruptions with older structural axis of the city is reflected in the identity transformation from places like Campolide, particularly fragmentation effects along the Rua de Campolide. In the late 20th century, began to develop in programs and cross-cutting urban projects that promote connection and mobility through redevelopment of public space and pedestrian accessibility programs, the introduction of energy efficiency programs in both public space as in municipal buildings and With urban projects, including green corridors (CML, 2012). One of the first references of a green corridor crossing Campolide, is a proposal elaborated by the Architect Gonçalo Ribeiro Telles (in 1976) denominated Green Corridor of Monsanto and, more recently, a complementary project that aims at the connection between the zone of Campolide and Alcântara. However, it is important to note the lack of cohesion in the design of such projects, as for its long intervention area can create spaces dispersed and fragmented among themselves (Pereira, 2016). Campolide became thus a transition area with a high level of urban fragmentation and planning models scattered and disconnected, as are the plan of the layout of the cases of Avenidas Novas and development of the urban environment from Avenida José Malhoa, ending abruptly in the Twin Towers. In this territory, the diversity of planning processes and forms of urbanization that gave support to the urban expansion were also evidenced, considering the specificity of the geomorphologic context and the technological developments (FIGURE 5).

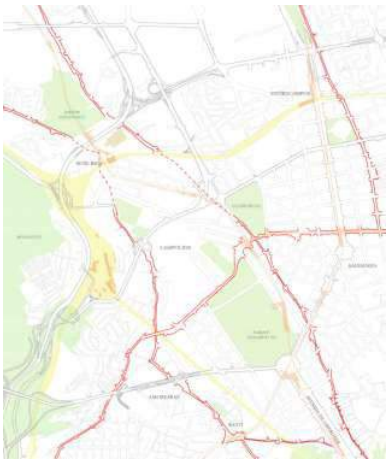


FIGURE 5 - Campolide framework in the city of Lisbon, with emphasis on the relation of accessibility infrastructures and public spaces - Source: CML, LxLAB Adaptation

In this sense, Campolide is assumed as an object of study and reflection for the definition of a set of strategies aimed at solving the problems mentioned above. Within the design and development of an approach strategy to project a sustainable aspect, we chose the environmental component in conjunction with accessibility issues, transportation and public space as the main guiding elements. These, however, are not associable from issues related to land use, heritage and urban regeneration, as well as the social component. The approaches to sustainable urban project necessarily include different content in functions of the scales of analysis. There is also the difficulty of transposing the policies and the principles of sustainability for the territory. In this way, the need emerges of a metolodological construction adjusted to the specificities of each place. The place of Campolide, of great rural and agricultural tradition, shows the importance of its ecological structure due to the low level of edification in some areas of this territory, and

assuming as a strategic space for new models of urban-agricultural occupation. The proximity of the green lung of the city, the Parque Florestal de Monsanto in Campolide reveals the need to understand the meaning of these hinge green patches and its impact on the design of the territory, having regard to its peripheral nature (FIGURE 6). This has resulted in a network of green corridors that are based on the interconnection of various areas of the city, such as the Monsanto Green Corridor and the Alcântara Valley Corridor. This network, however, is subject to constraints of inherited urban forms and achievement possibilities of permeable areas, as well as, a vision on the relationship between ecology and landscape. The ecological system of the city (FIGURE 7), being a complex system, should look for new commitments between the natural environmental aspects and human activities. In this sense, the protection of environmental values and resources should point to the need for an integrated vision between green systems, humid systems and built urban structure, considering the natural and anthrop risks, namely, areas with vulnerability to floods, susceptibility to direct effect of tide, susceptibility of occurrences of mass movements in slopes and soil seismic vulnerability.

FIGURE 6 – Planning Plan - Municipal Ecological Structure, Municipal Master Plan of Lisbon, 2014
Source: CML, LxLAB Adaptation |

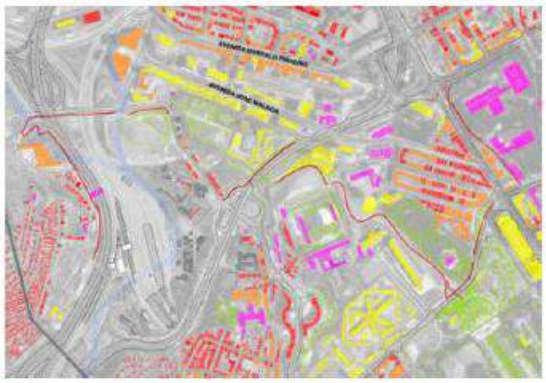
FIGURE 7 – Detail of the Planning Plan - Natural and Antropical Risks, Municipal Master Plan of Lisbon, 2014
Source: CML

The geomorphology that synthesized one of the main orientations of the forms of human occupation constituted, on the one hand, a condition of urban expansion and, on the other hand, induced the technological development for its overcoming through new infrastructural systems. Thus, the use of soil (FIGURE 8) evidences successive achievements on geomorphology reflected in the different models and forms of structuring the territory. These processes are visible from the compact historical city to the expansion of the bourgeois city or to the diversity of the urbanization polygons of the peripheral areas. In the process of urban expansion there is also the proliferation of public recreation areas and landscape framing, without an integrated strategy of the ecological aspect. Among the values to be taken in the areas of sustainability, heritage is assumed as one of the very important factors for identity construction of communities. The heritage (FIGURE 9) is a key factor to be considered in urban regeneration strategies, considering the recognition criteria and the articulation between pre-existences and new intervention proposals.

FIGURE 8 - Detail of the Planning Plan - Urban Space Qualification, Lisbon Municipal Master Plan, 2014
Source: CML

FIGURE 9 - Classified and envisaged patrimony, in the Town Planning Plan - Qualification of the Urban Area, Municipal Master Plan of Lisbon, 2014
Source: CML, LxLAB Adaptation

The models of urban growth and definition of urban structure has implications for mobility and accessibility systems and impact on energy consumption and CO2 emissions. Thus, it is essential to an evaluation of the effectiveness of the integrated form of transport systems and the importance of it in the quality of urban life. So Campolide presents itself as an area of opportunity to promote a critical view of the relationship between urban form, mobility systems and human appropriation of spaces. This territory was established as a border area between various forms of urban consolidation showing significant levels of fragmentation. These are particularly relevant in the project of public spaces and their forms of connection and mobility systems, mainly due to the discontinuities of the human scale. In this context, we propose some urban project intervention strategies, with more specific implications for the accessibility infrastructure and the public space where the introduction of sustainable operational measures is foreseen. In this way, it is intended to increase the functional diversity at the street level, considering its crossing character or smaller flows, as well as the valuation of exceptional elements at the level of the building. In the specific case of Campolide, it is intended to introduce public space strategies that include greater coordination between various factors. Comparing the avenues Bordalo Pinheiro and José Malhoa there is, despite the similarities of their profile, highly diversified urban environments (FIGURE 10). This last has a lower functional diversity, as well as a lower permeability to the level of deployment. Another factor is related to the large scale of the building, which also dominates, in this last avenue, buildings of services and hotels.



Thus, it is necessary to promote the inclusion of various activities at the level of ground floors, achieved through financial incentives and qualification of public space in an integrated manner. The design process of these territories emerge in a way still very segregated and linked to a very narrow interpretation of zoning, and they lack some sensitivity on the borders of the various land use. Thus, the design of the green corridor takes refuge in reducing ecological argument, ignoring the complexity and diversity of

contexts that involve, particularly the relationship with the public parks south of Avenida José Malhoa with Jardim da Administia International. The very idea of continuity underlying a corridor is not recognized at the level of the environments it should provide, yet assumes itself as a forced connection of fragments of green spaces.

FIGURE 10 - Comparing Avenida José Malhoa and Avenida Bordalo Pinheiro
Source: LxLAB Adaptation

The vision of public spaces in the ecological character or landscaping in the city has raised new questions related to its productive potential. In this context, Campolide presents itself as a territory of opportunity to dilute the effects of urban fragmentation, through the use of accessibility infrastructures such as agricultural production corridors -green scaffolding. There are also possibilities for defining new forms of appropriation of the less compact spaces of transition, which are quite significant in Campolide, where the fragility of articulation in the mobility issues is greater. Here, too, there are some uncertainties in terms of transport interfaces, and there is a huge untapped potential for creating or optimizing distribution networks for products, services and people.

5 CONCLUSIONS

The issues of urban fragmentation highlighting the infrastructural support have been the subject of increasing attention. These, however, are faced with constraints arising from urban conditions underlying its nature, showing a certain segregation of uses, which include security issues. These areas are revealing, often as a corridor spaces, this feature has been made more as a constraint than an opportunity to establish relationships and intermediate connections in the various urban scales. The idea of territorial infra-structuring also often appears detached from the environmental issue, or even an integrated approach within the general and operating principles of sustainability. Many of the interstitial spaces of infrastructure corridors, assume a generic urban voids, urbanization of polygons, without a strategic vision that articulates the relationship of infrastructure corridors with areas of ecological value and agricultural, contributing to strengthening urban resilience and promotion an effective ecological development. Campolide, for their territorial nature, either as historic agricultural nature in the outskirts of the city or by the latest infrastructural crossing is a challenge to test intervention strategies and principles. The forms of urban growth in this area reflect the limitations of traditional models of territorial occupation when faced with topography difficulties, or with urban borders of a more dispersed nature or subject to the effects of infrastructural fragmentation, resulting from rail, road or even the establishment of large green spots as in the case of Parque Florestal de Monsanto – an urban park. In this sense, our central contribution, as well as critical reflection on the problems presented, focuses on a set of sustainable nature guidelines to consider in fragmented areas and imprecise uses, such as in Campolide, considering that these territories are an opportunity to rethink the urban design today.

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ID 1441 | BRINGING LIFE BACK TO STREETS THROUGH LANDSCAPE DESIGNS: A CASE STUDY IN SUZHOU INDUSTIAL PARK, CHINA

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ABSTRACT: Previous research shows that the quality of street space would determine the outdoor activities, public health conditions and people's perception of place identity. This paper explores how the existing street landscape can be re-designed to bring public life back to streets – a concern arising in city regeneration. Due to the rapid urbanization in the last three decades in China, streets in major cities were often designed and built to prioritize and facilitate vehicular circulation. Although the well-known design principle – streets should be designed towards pedestrian-friendly – has been incorporated into textbooks and street design guidance. Less attention has been paid to the pedestrian's needs in practice. As a result, existing streets are often lack social activities. Public space design has now become a major concern of the Chinese public. How can existing streets be redesigned to bring life back to the streets in residential areas, especially in a given urban context with gated communities? To answer this question, a wide range of literature has been reviewed. Key factors that would contribute to a vibrant street life have been summarized into a design framework. Then a design research has been conducted to verify the effectiveness of these key factors, based on a case study in Suzhou Industrial Park, China. It is expected that the research findings would inform the retrofits of existing streets in the city regeneration process.

1 INTRODUCTION

This design research aims to explore landscape design strategies that can bring life back to the streets in residential areas, especially in a given urban context with gated communities. It is expected that some findings would be used to inform the retrofits of existing streets during city regeneration.

1.1 THE IMPORTANCE OF STREET LIFE

In this paper, street is distinct from road. Street with a sense of life leads to a livable, safe, sustainable and healthy city. Gehl (2011) highlighted the importance of the street life from a social perspective. His research showed that pedestrian-oriented street with mixed use frontage was safer than street with few people and activities. Wu (2013) agreed with this statement, and further explained that more people showed up and gathered on the streets would prevent criminal behaviors. Ashihara (2006) stated abundant street activities could be a substitute of physical wall in communities. Frequent meeting and occasional discussions on the street would allow inhabitants to be more familiar with their neighbors (Zayed 2016). Additionally, once walking become as a part of people's daily life, health related benefits would be brought to the public. As mentioned by Nieuwenhuijsen and Khreis (2016), strengthening outdoor