

CITY-PUZZLE: JOINING SPLINTERS, INFRASTRUCTURES AND OTHER URBAN PIECES

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Abstract

Portugal, as the westernmost country in Europe, is axially structured from a large population concentration and economic activities and, naturally, through an urban development which is situated predominantly on its western coast.

Considering these multi-level aspects of urban transformation as well as the several actors which have direct influence in the shape and dynamics of urban and metropolitan development, the paper will mostly address topics regarding the large scale features which impact directly in the configuration of edgy areas in Lisbon, previously characterized by spatial and functional disjunction, and the identification of morphologies, as they progressed in time and space.

The interpretation goes hand in hand with an idea on how the morphologies identified in each period in time, have considered urban planning models and the city's cultural references.

For this, the extremely steeped Valley of Chelas, characterized by urban splintering and superposition of major infrastructures was considered as of relevance for a future metropolitan centrality, opposed to its usual oblivious nature, which has been marked by dereliction and social segregation.

1. SHAPING THE CITY

The Tagus Estuary is a metropolitan central open space that is a catalyst for essential situations that impact on creating the city, morphologically, economically, culturally, and socially. A close examination of the urban formation of Lisbon, in an attempt to understand its open spaces as potential planning and project instruments, unveils the prominent position of its public spaces, not just from an aesthetic and social perspective, but also from the viewpoint of the infrastructure of the city itself and of its future development.

In the context of its own physiography, the urban growth of Lisbon was shaped from opportunities created by the Tagus Estuary, namely the deepest trenches, which determined a marked growth of the area around the harbour. In a stratified manner, the urban formation of the city can be understood as a superposition of complementary layers:

- Main axis forming a harbour and river waterfront, crossed by a spinal column expanding to the north;
- An external ring characterised by a rural mosaic in transformation, between the expansion of the sedimented city and its successive administrative borders.

2. A METHODOLOGICAL APPROACH

Given metropolitan Lisbon's current urbanistic scenario, a concept for the urban project whose main instrument in characterising identity and structuring growth is the unoccupied space is seen as relevant. This also acts as the agent that articulates the territorial and urban scales. As part of ongoing research (ETSAB-UPC, Barcelona/ FA-UTL, Lisbon), important premises have been defined: a. the potential of unoccupied spaces as instruments for urban control; b. case studies which reveal a certain degree of future impact or an emerging transformation. Specifically, natural and urban areas that are still unoccupied but which will house major infrastructures in the near future were selected: the New International Airport of Lisbon, the high speed train, and a new local skeleton network formed by a metropolitan tramway.

The present research stemmed from the need to systematise and further examine a vast number of overarching questions about the morphogenesis of metropolitan Lisbon, and about the forms of territorial intervention which have conditioned and determined its present state of development.

The first part of the research focused entirely on the morphogenic interpretation of metropolitan Lisbon (Morgado, 2005). It was organised in five consecutive periods (1860, 1940, 1965, 1992 and 2001), through the morphological identification of non-occupied spaces in accordance with the same matrix – water, land and artificial creation – and with a thematic cartographic production (scales 1:100000 and 1:25000).

From the late 19th century to the mid-20th century, the spatial configuration created by the infrastructures – railways, national roads, docklands and harbours – inducted significant dynamics in the still incipient metropolitan area of Lisbon. The opportunities created by the development of a system of infrastructures promoted an intensive use of the territory and originated a pre-metropolitan configuration. As a result a productivist land use model and a new urban conceptualization, with metropolitan value, started to be developed.

The cartography of 1965 shows a radial structure converging into Lisbon and the Tagus Estuary, reinforcing its current status as metropolitan centre,

national centre and European centrality. Regarding land use, large specialised areas emerged, namely industrial, dependent on a direct link to Lisbon and, especially, on the Port of Lisbon infrastructural ring around the Tagus Estuary.

In the 1990s, a consistent metropolitan structure gains shape combined with the renewing of land use opportunities. Democracy in 1974 and the entry of Portugal into the European Union in 1986 opened new political and economic perspectives. Changes in the productive system promoted the obsolescence of industrial and dock areas in central places, the emergence of new forms of centrality, correlated with a knowledge-based economy, integrated in a highway network.

In the Lisbon Metropolitan Area – a metropolitan association of municipalities institutionalised in 1991 – a polycentric system of alternative urban centre begins to develop, supported and integrated by an increasingly dense transport and road network system.

Thus, the radial structure developed into a network system of motorways, creating opportunities for new growth areas along the main axis built by the train in previous periods. As a result, functional complementarities start to develop, between urban centres and the metropolitan centre – Lisbon and the Tagus Estuary. As a consequence, new land uses and functions, previously located in the traditional urban centres, emerged in high connectivity areas and external rings, together with new dense and specialised uses, such as shopping centres and malls. Under high mobility patterns, dimmer urban tissues gained central functions, competing with Lisbon, and shaping a polycentric metropolitan network.

As the 20th century ends, European metropolises reach an advanced development stage, both in terms of achieving high levels of spatial and functional articulation between centres and promoting innovative uses in their territories. Therefore, from 2001 onwards, Lisbon metropolis gains and consolidates its shape, influence and role in the conurbation of Lisbon-Galicia, along the Atlantic coast. This new reality points towards even more complex transformations, to include several concatenated metropolitan formations. This increasing and extensive urban growth, together with the integration into higher network systems, determines a drastic decrease of continually unoccupied space. At the same time, a landscape homogenisation gains shape contributing to undifferentiated territories with poor urban references.

Further research introduced new questions which, based on a morphogenetic reading of the pre-established metropolitan scale, led to various case studies on a scale which allowed the constitution of an urban morphology

interpretation according to identical criteria, but now adapted to a more circumscribed scale.

In this context, the city of Lisbon, one of the case studies in progress, plays a key role, and a study of its urban formation has already been conducted using new sources (cartography, urbanism and planning).

Research is being conducted on specific areas of Lisbon, namely the Valley of Chelas, in the heart of Lisbon, which will be further examined so that its potential as an urban project can be evaluatedⁱⁱ.

3. MORPHOGENESIS OF THE CITY

This interpretation of the urban formation of Lisbon aims to understand the way the city has been shaped. The work resorted to the formulation of its own interpretative guide, which identified morphologies as they progressed in time and space.

The present research allowed the identification of the following: 1. The processes of transformation of rustic structures into urban ones; 2. The nature of their own transformation; 3. The persistence of pre-existing structures and how they were assimilated by new ones; 4. Their importance in the formation of tissues; and finally, 5. It allowed us to identify distinct morphologies, stressing the morphogenesis of the city from the morphological characteristics of open spaces.

Open space and its different structures can provide a lot of the answers to our understanding of the urban formation of Lisbon, for which reason they lie at the root of our explanation for the formation of their morphology, taking into account the following key aspects:

- **Topography and hydrography:** by highlighting the relationship between watercourses and parallel lines and the development of the main infrastructured lines, the configuration of open spaces and of tissues (enclosed monastery areas, parks and gardens, rustic matrices), the importance of the morphology of the land (valleys, hills) and of water (the various coastal lines and the influence of the Tagus in the formation of the city);
- **The transformation matrices:** urban and rural plot division of land and different forms of parcels in accordance with the topography, forms of aggregation (namely, of the built space in its relationship with urban fabric

and land uses, including – blocks of buildings and other urban units, disperse building); public space layouts (including urban types such as plazas, street boulevards and gardens, as well as other types of open spaces and their correlation with major urban elements and outstanding buildings).

This interpretation goes hand in hand with a reflection on the relationship between the morphologies identified in each period in time (1903-37; 1937-49; 1949-71; 1971-87; 1987-2008, in progress), urban planning models and the city and architecture theoretical and cultural references, in their various movements, specifically:

- Rustic pre-existing structures and the form in which they were integrated into the urbanisation process, particularly in the pre-industrial period.
- Industrialisation and the expansion of the city in the 19th century – the formation of a green belt, circumscribed by two ring roads which set the administrative boundaries of Lisbon, in distinct periods of time, the last one dating from the end of the 19th century;
- The shaping of the modern city – modernist disjunction, formation of zoning areas and of specialised areas located predominantly in this green belt and whose somehow disperse urbanization results in a landscape of rustic origins which are becoming obsolete, Post-modern period and obsolescence of industrial and rustic uses, abandonment and transformation of central spaces and the search for new programmes for the city;
- Post-industrialisation and new approaches to collective space; urban projects through public space, the urban and environmental regeneration, miscegenation of uses and technological innovation.

4. TWO AXIS AND A RING

The Tagus Estuary was the major driver for the urban development of the Lisbon metropolitan area, with regard to the location of the various urban settings on its left and right banks and, particularly in the case of the latter, by fostering the creation of an urban formation which shaped the modern configuration of the city of Lisbon.

Therefore, in addition to the interpretative model for creating the metropolitan structure, this work proposes the study of specific situations arguing that the unoccupied space should be the basis for the articulation between metropolitan planning and the urban project.

The development of new forms of intervention in the city from the middle of the 19th century allowed for the possibility of planned innovation in the city of Lisbon, generally resorting to very interesting urban plans. The several varied urban plans for the city, particularly the plan for expansion to the north and improvements to the harbour (Ressano Garcia, up to 1903), which made clear references to Haussmann's interventions in Paris, allowed an initial qualification of the urban space by including new typologies for public spaces that complemented existing squares and plazas (development of an axis of great architectonic interest between Terreiro do Paço, which limits the city from the Tagus Estuary, through the Old Town – *Baixa Pombalina* - reconstructed by the Marquis of Pombal up to the north, including the new boulevards in *Avenidas Novas* - New Avenues).

At the same time as it attempted to bestow the city with new, more cosmopolitan urban areas, appropriate to a European city, Ressano Garcia widened the area around the port, giving origin to new artificialised areas in the margins of the city which were vital to a major port city and which nowadays constitute privileged ground for urban intervention from the viewpoint of the qualification of public space and urban regeneration.

Nowadays, the Tagus Estuary, which has a major harbour infrastructure appropriate to a city which was, in the past, the capital of an overseas empire, has been subjected to several changes with the purpose of readjusting its initial vocation to a more urban usage, including leisure purposes, benefiting not only Lisbon but equally other cities with waterfronts.

As a consequence, the qualification of the urban space through new proposals of public space has improved and shaped the Tagus Estuary, which has become an area that is both functional and highly qualified from a landscape perspective, with symbolic and strong identifying features that can characterize it as the *metropolitan plaza* (Morgado, 2005).

A close examination of the urban formation of Lisbon, in an attempt to understand its open spaces as potential planning and project instruments, unveils the prominent position of its public spaces, not just from an aesthetic and social perspective, but also from the viewpoint of the infrastructure of the city itself and of its future development.

The consolidation of knowledge regarding the various forms of urban planning and design is a fundamental objective of the present work, as it aims to provide an understanding of how the different planning models of the city also conditioned, or gave origin to, both qualified open spaces and residual urban voids.

The option chosen for this analysis included essentially the observation and identification of morphologies which could, in a systematic form, highlight transformation processes of the city at specific periods of time. This analysis resorted basically to the production of a thematic cartography in which characteristic areas of a particular functional and formal coherence are identified, and contact points with the main plans for the city of Lisbon are established.

In a preliminary phase that is still currently in progress, several categories of urban forms have been identified, with a view to future conceptualization as part of Theory of Urbanism. In the systemization of the categories, several large scale city structuring elements were taken into consideration, as well as their desegregation into more specific and detailed morphologies.

In the context of its own physiography, the urban growth of Lisbon was shaped from opportunities created by the Tagus Estuary, namely the deepest trenches, which determined a marked growth of the area around the harbour. In a stratified manner, the urban formation of the city can be understood as a superposition of complementary layers:

- An external ring belt characterised by a rural mosaic in transformation, between the expansion of the sedimented city and its successive administrative borders;
- Main axis forming a harbour and river waterfront, crossed by a spinal column expanding to the north.

The consolidation of knowledge with reference to the various forms of urban planning and design is a fundamental objective of the present work, as it aims to provide an understanding of how the different planning models of the city also conditioned, or gave origin to, both qualified open spaces and residual urban voids. The methodological approach included the identification of morphologies which could, in a systematic form, draw attention to transformation processes of the city at specific periods of time.

Several categories of urban forms have been identified and it has been observed that the belt is mostly transformed by these following patterns:

- Characteristic open spaces: spaces with a precise identity that appear as part of an urban design project (such as public gardens), or as part of an 'idea for the city' (such as Monsanto Park), or as single elements in architectonic groups (as erudite gardens in palaces).

- **Rural Matrix:** distinct forms of rural parcelling and of related land uses which register their progressive transformation and occupation by the urban space, as well as the features which will influence the formation of urban tissues.
- **Infrastructural lines** –forms of linear development in which the role of infrastructuring is fundamental, such as the embankments on the harbour and transportation infrastructures and other public facilities.
- **Specific Uses** – areas for specialised and frequently mono-functional land uses, indispensable to the city's structural functioning and with clear morphological characteristics, such as public facilities areas; cemeteries, industrial and military zones.

The axes, in contrast, are mostly impelled by:

- **Urban Fabrics** – in their various forms of occupation in the context of the city, expressed through several approaches to urban space, as well as by growth areas that were planned and built.
- **Potential Uses** – which are mainly driven by planning in its different types, especially areas that are reserved for future land uses (housing, industry and facilities) and, more recently, areas for urban regeneration.

In the urban formation of the city of Lisbon, mainly through the development of the road system and the intervention of Ressano Garcia in the 19th century, together with the successive external and internal ring roads, the compact nucleus of the city is surrounded by a transitional belt which began to be formed by farms and small towns in the outskirts of Lisbon with two types of fundamental landscapes (Atlantic and Mediterranean), which determines the different forms of land division and agriculture and, consequently, conditions urban development.

The intersection of these axes with the green belt, anchored on an older central part of Lisbon, contributed towards the definition of four sector identities with increasingly more specific characteristics regarding urban form and transformation, and which are regarded as the transition point to the urban areas of adjacent municipalities (Oeiras, Amadora, Odivelas and Loures, respectively): Belém/Monsanto sector; Benfica/Campo Grande sector; Lumiar/Airport sector; Olivais/Chelas sector.

Following our interpretation of the urban formation of Lisbon and corresponding identification of the four sectors with their own specific

characteristics, we have selected the Valley of Chelas as the object of more detailed study.

5. BORDERING TERRITORY

The Valley of Chelas, which lies both in the transitional rural belt of the City of Lisbon and in the potential axis with Barreiro, is a border area of Lisbon and part of the rustic green belt characterised by the urban development of the first half of the 20th century, where the most relevant urban experiments took place.

This belt was included in several city plans, resorting to urbanism concepts related to the City Beautiful movement, and was reserved for infrastructures and Urban Parks and Woods, of which *Campo Grande* (included in Ressano Garcia's plan, but in a shorter version than the one originally planned) was the only park to see the light. Later, the Monsanto Forest, which was part of the De Gröer plan, was created in the late 1930s. In this context, key references, such as Abercrombie's Greater London Plan or Olmstead's innovations in various American cities, such as Chicago, played a fundamental role.

For several reasons, this green belt was never created. Quite the opposite: the differences between the various sectors deepened and widened even further the existing gap, given that the road system benefited mostly the centripetal radial structure of Lisbon, to the detriment of the strengthening of a transversal north/south type of road system, which anyway had been proposed in Meyer-Heine Master Plan for the City (1967-76). The transversal structure was set up in part with the new underground line to the Expo'98 (May 1998) Station and Interface, with the Chelas station and, more recently, it was included again in the Lisbon Municipal Master Plan. This fact was a major contribution to the recognition of this area as being equally part of the city, and it increased accessibility by public transport and by car. This had hitherto been an area of social housing whose residents, of low income and mixed social and ethnic origins, had restricted mobility, a factor which contributed to the strong segregation of this area in relation to the city of Lisbon. This area to the Western side of the city was characterised by social conflict and by the miscegenation of uses and urban forms, which had their origin in the contrasts between an industrial waterfront (Xabregas and Marvila), discontinued spaces between residential and industrial zoned occupations (Chelas) and, over the past 10 years,

the latest measures for the re-conversion of industrial areas (Expo Park and Western Urban Rehabilitation Society/SRU - Lisboa Oriental).

In this particular case, research focused on how urban master plans for the city conditioned and gave origin to unoccupied space (vacant, derelict and brownfield areas), mostly comparing the various master plans for the city (Ressano Garcia, 1903; De Gröer, 1948; GEU, 1954-59; Meyer-Heine, 1967-76; Lisbon Council/CML and the ongoing revision) with the Chelas and Olivais urban plans and the implementation of major infrastructures (railways and the future high speed train).

The area under study is located precisely in this rural belt – rustic space with specific characteristics and whose urbanisation process evolved in an atomised form and resorted to the introduction of new urban occupations which were perfectly delimited and whose projects revealed specific characteristics (with exemplary references in the context of the history and theory of urbanism, such as the city-garden, modern architecture international congresses/ CIAM and Team X), but which were equally autonomous in a city bordering territory organised from rustic structures bearing distinct characteristics (common farms as well as leisure farms, with gardens and palaces of high architectonic erudition).

Accordingly, this area stands out in the city of Lisbon due to its special discontinuities, which were basically caused by intermittent urban interventions in the 20th century, although, in themselves, they constitute good examples of the innovation and quality of the projects and of the architects who authored them, and started a certain type of territorial urbanisation which was different from the traditional approach, creating urban continuities of which the axis Baixa (Low Downtown) – Avenidas Novas (New Avenues)/Alvalade, and more recently the Alta de Lisboa (High Part of Lisbon, Airport Area) are models and equally relevant in the context of urban experimentation.

The Valley of Chelas has always been considered an infrastructural reserve of the City, as well as a privileged one for industrial type occupations (port and others). Presently, several interventions are planned which will certainly lead to major transformations in these discontinued spaces of a sectoral nature.

Nevertheless, the planned interventions, of different impact and characteristics, highly uncertain as to their future configuration or even accomplishment, are, for the most part, independent from each other, and the high structuring of open space, including their infrastructural and open space

dimensions, may become the topic of an urban project with a high planning capacity in a fragile area.

Besides, the available spaces surrounding the areas of highest density, which between the 1960s and the 1990s were fully occupied by slums and thus affected by serious safety and social exclusion related problems (due to the rural exodus and the end of the Portuguese colonies in Africa) have been subject to landscape intervention, resulting in the creation of various urban parks with facilities and commerce, hosting important cultural events /such as Rock in Rio Lisbon, although they still lack a global articulation project. The most recent toponomy has recouped the references to the old Estates, as opposed to the more aseptic designations of the second half of the 20th century (such as Zones J, I, N).

Besides these collective spaces and transformations, the following interventions, which may eventually occur, were considered: high speed train, potential new crossings over the Tagus river, like the Chelas-Barreiro bridge and other options, the location of major facilities, such as the Portuguese Cancer Institute (*Instituto Português de Oncologia/IPO*) and the All Saints Hospital (*Hospital de Todos os Santos*) and the potential relocation of the present Lisbon International Airport outside the city limits, probably in Benavente.

It is this uncertainty, together with the pre-existing rustic matrix, zoned interventions and infrastructured lines for specific purposes (which were unsuccessfully articulated superimpositions carried out sequentially in time), that originated the poor structuring and lack of urban coherence of the Valley of Chelas, both within itself and in relation to the context of the city.

The Valley of Chelas, which has always been an important reference in the context of architectonic and urban experimentation and innovation, inevitably finds its projects postponed, and the interventions that are actually made are always of a sectoral nature or, on the contrary, of an infrastructural character, in the form of motorways and railways. Above all, it is fragmented and disconnected, which increasingly poses more difficulties for any future truly coherent project, which is always in the pipeline but never actually put into practice. Although of a residual nature as an object of intervention, the Valley of Chelas is also central in terms of its potential in the context of metropolitan networks, where urban growth occurs by coalescence, stimulated by the development of the Vila-Franca de Xira industrial axis.

Actually, it will certainly become one of the most important metropolitan centralities with the Third Bridge and direct link to the Lisbon's Central Station for high speed train.

This creates a significant urban porosity and encourages a network of available spaces lacking coherence which, in themselves, constitute a major opportunity for urban connections and for continuities through new projects for public space, which, in this context, may be perceived as a major infrastructure of the city.

6. CONCLUSIONS

The present study has allowed us to consolidate the idea that the city of Lisbon has always been, for a variety of reasons (cultural, social, political and administrative), the object of more qualified studies and interventions in the context of national architecture and urbanism. However, from the 1990s onwards, while its metropolitan area underwent a consolidation process, from a functional, morphological and economic perspective, its study was systematically left behind in favour of projects which sometimes served different agendas. Focused interventions on a more metropolitan scale have been preferred, such as in the Lisbon metropolitan area, on other emerging municipalities, which in terms of centrality were alternative to Lisbon. The same applies to the options to study its urban fabrics, which were more qualified from a project perspective, but were already consolidated and relatively old.

The evolution and nature of urban territories in European metropolises, mostly in Southern Europe, have contributed towards this situation, and, as a result of this evolution, so has the lack of adaptation of current urban intervention forms (urban design, urban and spatial planning) to areas whose characteristics are not always clearly of an urban nature, in a context in which the city is not exclusively perceived as a result of the expansion over rural areas.

In fact, and with the exception of a few specific examples (such as Expo 98), over the past ten years Lisbon has not been subject to any structuring urban interventions based on the Idea of the City. In terms of innovation, architectonic and urban space quality, it does not show any specific particularities in recent years, although some examples of regeneration and qualification of interesting public space can be mentioned (the waterfront area, for example).

It has equally been noted that the study of the urban formation of Lisbon, besides focusing on the more compact areas, has left out the city's peripheral territory, which has a rustic basis and presents a mixture of occupation forms of high urban innovation. In reality, the major urban experiences of the 20th century have occurred in *green belt* and are often rooted in small villages, of

which the following are easily identifiable: the social boroughs of the *Estado Novo* (1933-1974), which followed the city garden model; the new areas of the modern city, such as North and South Olivais; and, in the conceptual transition to more recent interventions, the Chelas and Telheiras Master/Urban Plans. More recently, atomised and discontinued proposals in the form of mega-structures of high metropolitan impact (large buildings and infrastructures or parks) are also examples of the above.

Interventions as part of a process of regeneration of decayed and obsolete areas give back to the city zones of privilege, through land use innovation and qualification of urban space. Fundamentally, at the external belt of Lisbon identical situations can be identified. Given their morphological characteristics, these areas could benefit the whole city had they not been systematically excluded from the city planning projects' main goals, except when considered as building zones.

At the level of intervention in the city, it is also observed that there is an urgent need for a new kind of town planning approach, of a spatial and design nature, capable of regenerating land use and restoring the landscape morphological coherence. In precise terms, in the context of urban space and planning, this should be achieved through the contraction of discontinuous and residual spaces which could become both anchors and control mechanisms for new projects of urban occupation.

Thus, and mostly from the beginning of the 20th century, the study of urbanistic formation in an urban context, alongside the concepts associated with its production, has demonstrated that architects and urban planners are intervening increasingly less, as they become more conciliatory in a territory whose circumstances extend well beyond the capacity for intervention in the city on a global scale.

Indeed, it was in the period up to the middle of the 20th century that we find the most meaningful and innovative references to the idea of city and which in fact led to new urban forms, whereas, at present, the intellectual effort has been focusing on the attempt to understand the urban phenomenon on a metropolis which goes beyond our capacity for efficient intervention. Within this set of circumstances, innovation takes place mostly through resorting to processes which act at the level of economical, social and infra-structural dynamics, while relying less on the conception of new forms of urban space (for example, authors such as Patrick Geddes, Frank Lloyd Wright and Le Corbusier, who have proposed innovative models based on typological and technological innovation, and authors like Melvin Webber and, much more recently, Edward

Soja, Joel Garreau, Indovina, Rem Koolhaas, who presented interpretations of urban phenomena on regional scales). In this context, public space does not always appear as the structuring element of the urban fabrics of conventional cities, or as a support (modernist dialectics figure/background) as in the modern model.

Basically, public space extends as an articulation element which “glues” together urban splinters, forming an extensive patchwork over which, in our opinion, new opportunities for a project and coherence of the contemporary city unfold.

These contrasting phenomena between macro and micro scales, which are generalized in European cities and more specifically in North American cities, can also be found in Lisbon.

Urban intervention, from what can be observed and read, balances between large-scale projects resorting to very abstract models which do not take into account the morphological coherence of the territory – urban, natural, rural (patterns, zoning and infrastructure) – and interventions of urban acupuncture in derelict and extremely central key areas (see emerging topics which include a combination of urban sprawl and urban shrinkage).

Nevertheless, it is also noted that the instruments that are now available (particularly GIS) enable us to intervene on a metropolitan city scale, and resort to a new urban language, using contemporary public space concepts and introducing new scales in the field of Urban Design.

A new idea of city would include innovative approaches in the field of intervention in collective spaces, as a means of improving and defining the articulation between spaces which are predominantly built and the ones remaining clearly open.

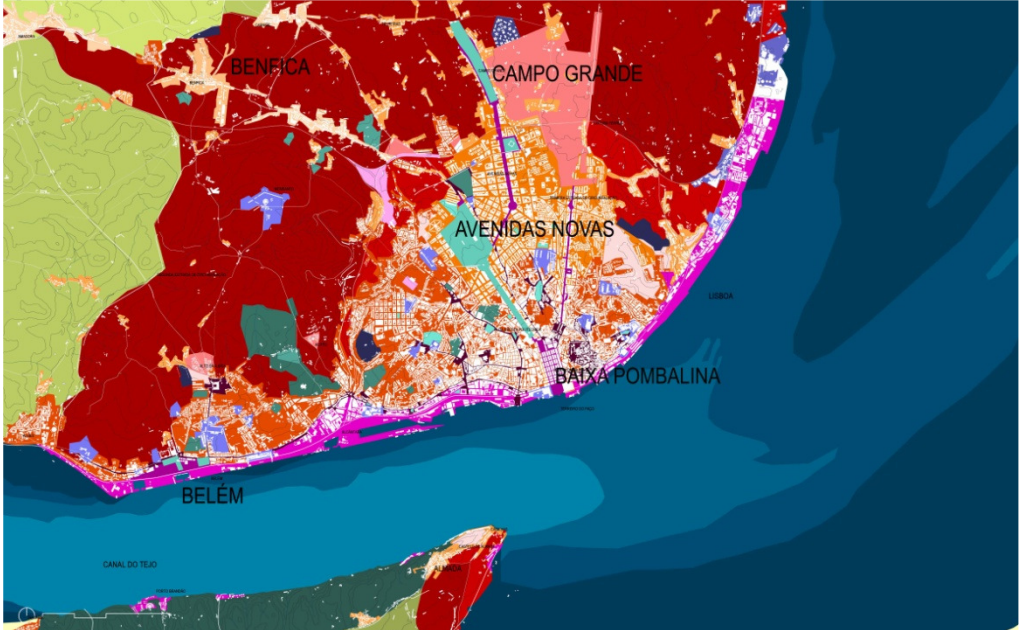


Figure 1. Lisbon 1940, Source: Morgado, 2005.

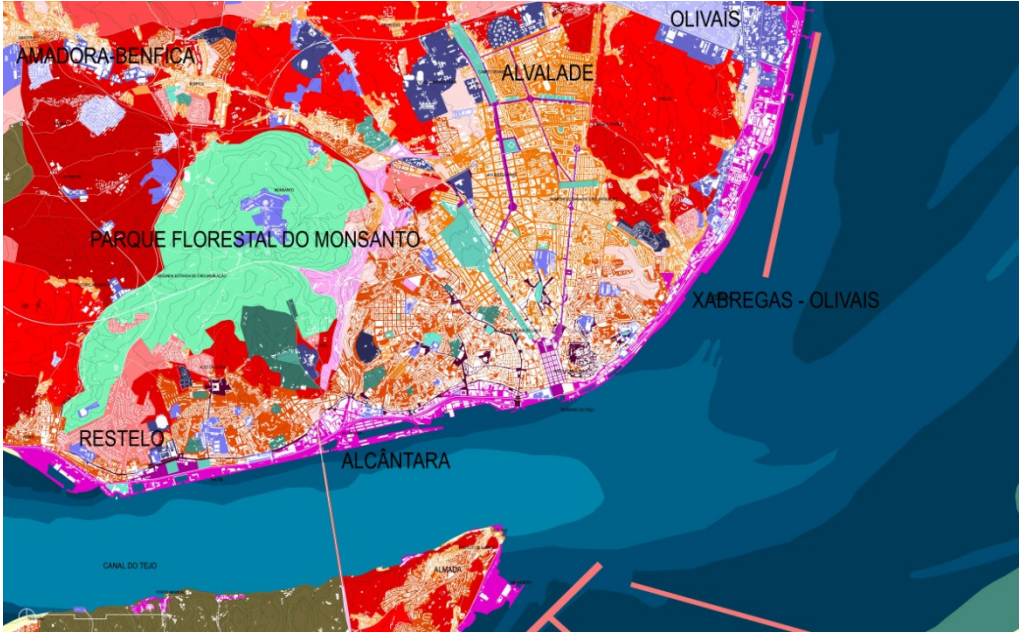


Figure 2. Lisbon 1965, Source: Morgado, 2005.

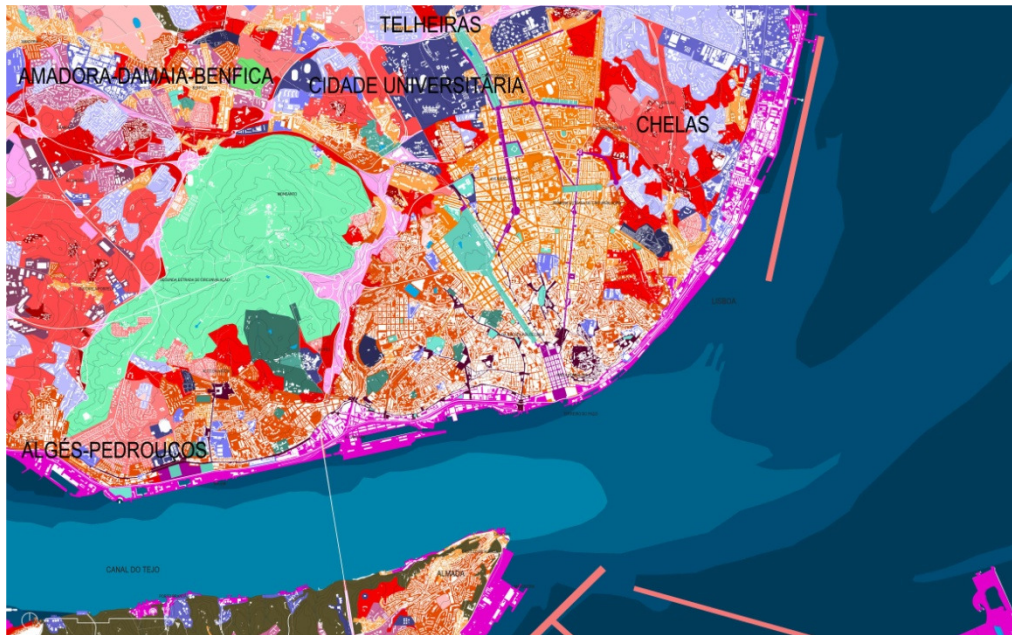


Figure 3. Lisbon 1992, Source: Morgado, 2005.

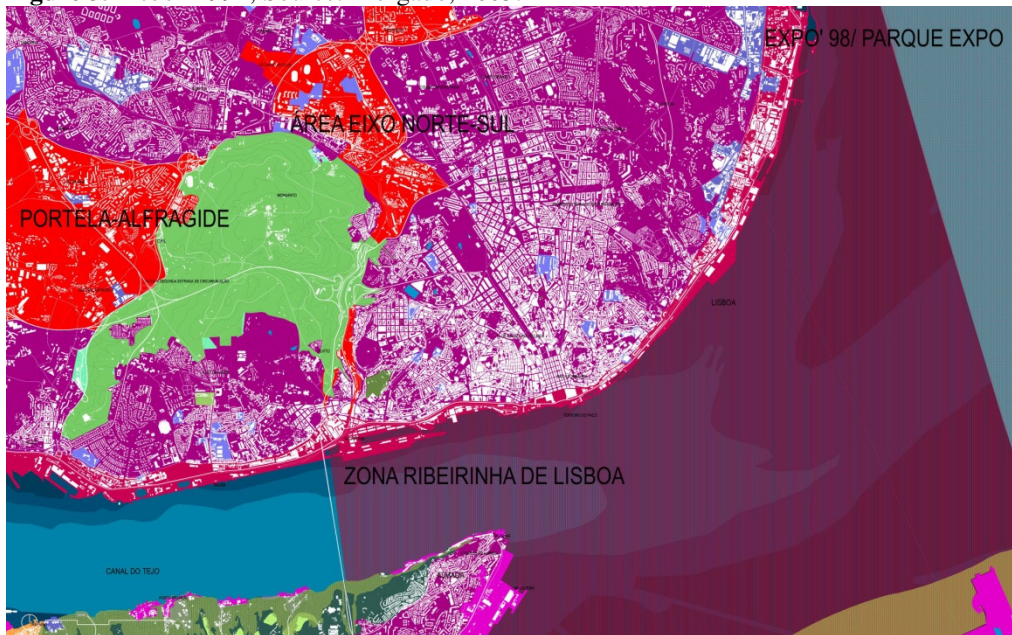


Figure 5. Lisbon 2001, Source: Morgado, 2005.

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