# Digital Cities and Spatial Justice

Antonio Angelo Martins da Fonseca
Antonio Puentes
Brais Estévez Vilariño
(ed.)

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***Editors***

Antonio Angelo Martins da Fonseca

Antonio Puentes

Brais Estévez Vilariño

2017

***Layout***

Xosé Lois Piñeira

***Design***

Karén Manukyan

***Print***

Tórculo Artes Graficas S.A.

***ISBN***

978-84-697-4984-5

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## Foreword

The IGU Urban Commission is pleased to organize its annual meeting in collaboration with the Department of Geography – Geoscience Institute of the University Federal of Salvador de Bahia. The very active support of the University of Santiago de Compostella to this organization was also very helpful to overcome different issues we encountered.

The venue is very symbolic because of the prestige of Milton Santos, who developed initially his program in the University Federal of Salvador de Bahia and who allowed the world to better understand spatial inequalities in Brazil and more generally in the developing world. The Department of Geography – Geoscience Institute of the University Federal of Salvador de Bahia, which accounts for the inheritance of this geography leader, is therefore one of the best places in the world to renew the debates, thanks to the visions of southern countries.

The focused thematic on "Digital cities and spatial justice" was chosen in agreement with the local institutions and corresponds at the same time to the main trends in Brazilian urban geography, as well as to a real need to analyse this new process in Brazilian cities as well as in other cities of the world. The expansion process of urbanization and the transformation of cities towards more sustainable and "smarter cities" often lead to increase spatial injustice. Digitalization of urban societies could improve urban equality, offering equal chance and potential to all citizens. But most of the time, on the contrary, it contributes to deepen the social divisions in cities. Smart cities are mostly implemented for richer citizens rejecting away the most vulnerable population.

Digital cities and spatial justice gather many challenges that are at the core of the objectives of our commission. We aim at encouraging geographical research on the new Urban Challenges emerging in an increasingly Complex World, and to

further the exchange of findings among urban geographers from many countries. Brazilian cities, in particular, with their distinctive processes and problems, are very representative of the major features of the modern world. The comparative global context allows to focus on their properties, the social, economical and environmental issues they raise, and to evaluate the utility of political and societal solutions to their problems. Contribution of the geographical methods and concepts to urban issues, focuses on how such features, as differential spatial proximity, segregation, cohesion, environmental and governance factors are transforming the character and vitality of urban places and are creating new challenges that need to be overcome. Particular attention will be paid to the use of multi-scale approaches in analysing changes and to such features as: the differential diffusion of innovations, hierarchies, networks, concentrations, segregations, and renovations, and more which alter both urban systems and the internal structures of cities. Contributions are very diverse leading to underline the numerous aspects of urban positive and negative aspects under the transformations of the digital society. This diversity makes this meeting a success.

Céline Rozenblat

*President IGU Urban Commission*

## Salvador:Transformations With Spatial (in)Justices

There is a growing complexity in the face of expansion of the urban society that imposes new challenges to geography and city governments. Therefore, the theme Digital Cities and Spatial Justice is pertinent, challenging and current as it makes us reflect about the importance and possibilities of the digital technologies of information and communication for the reduction of spatial injustice in urban centers.

And this event is due to the expansion of the urbanization process to the various parts of the planet and the emergence of new spatial arrangements such as global city-regions, intelligent cities, digital cities, post-metropolis, new metropolitan spaces, etc., which is being followed, dialectally, by the extension of other spatial arrangements that points to the maintenance and growth of spatial injustices such as socio-spatial peripheries with the subnormal dwellings (without drinking water, sewerage system and basic services to the population), lack of public transportation, increased violence and criminality.

The city of Salvador is a "laboratory" to discuss Digital Cities and Spatial Justice. In the same way that it is a "laboratory" in which juxtaposed and superposed forms of spatial arrangements coexist which has been accumulating since the XIV century when Salvador emerges as a metropolis, agro-export based, to the current days with the industrial/touristic metropolization process, that has generated a complex city-region, characterized by functional and symbolic cohesion and constituted by Salvador and its Metropolitan Region (Santos, 1999; Haesbaert, 2010).

And this cumulative process of spatial arrangements at the same time that is a reflex, is a condition for the maintenance and growth of spatial injustices, as shown by Pereira, Silva, & Carvalho (2017, p. 204) when they refer to the metropolis of Bahia:

*...brings as legacy for the next decades intense social and spatial segregation, severe problems of mobility, housing and transport policies which deepen the socio-spatial segregation and boost the urban dispersion, environmental problems that are aggravated by the lack of metropolitan planning and the absence of adequate and coordinated public policies that can face the urban and metropolitan problems.*

And even considering that a situation of spatial inequality cannot always be considered as a spatial injustice, it is fundamental to adopt a new institutional arrangement and new governance instruments so that the distribution of public services, access to the rights and democracy can be ensured in the best way possible to the point of not harming the disadvantaged. This presupposes an equitable distribution of the services in the space.

In this sense, the discussion about Digital Cities and Spatial Justice will be for the Brazilians, and specifically, for the Salvador citizens, one more opportunity to reflect and discuss alternatives aiming a future without a spatial (in)justice condition which has been maintained in the past and present of Salvador and its Metropolitan Region.

## References

HAESBAERT, R. (2010). *Regional-global.* Bertrand Brasil: Rio de Janeiro.

PEREIRA, G. C., SILVA, S. C. B. M., CARVALHO, I. M. M. (2017). *Salvador no século XXI: transformações demográficas, sociais, urbanas e metropolitanas – cenários e desafios*. LETRA Capital: Rio de Janeiro.

SANTOS, M. (1999). "Modo de produção técnico-científico e diferenciação espacial". *Território*, nº 6.

Antonio Angelo Martins da Fonseca
*Universidade Federal de Bahia*

# Urban social justice guidelines in illiberal times

Wayne K. D. Davies

*University of Calgary*

## Abstract

*In recent years there has been a decline in the numbers of progressive policies that have so transformed levels of redistributive social justice in the last century. Most blame the negative changes on the growth in Neo-Liberal policies. However the increase of illiberal values and actions are becoming as important, based on greater support for contributionist ideas, intolerances, and some of the negative effects of new digital technologies. Although there have been a number of different incremental approaches to improve levels of social justice, such as basic needs provision, principles for greater justice, and communicative action, most are either aspirational or do not link to specific policy actions. In contrast Fainstein identified guiding principles for specific incremental policy actions to provide more just decision-making in cities based on the Rawlsian principle of fairness. These guidelines are extended, together with a review of problems that reduce the capacity of cities to improve social justice.*

## 1. Introduction

Attempts to provide more social justice in urban places has been the concern of philosophers and urban theorists from the time of the Greek City States onwards. However, progress is often limited because of an initial failure to clarify several issues. One is the need to differentiate between the Types of Justice, where the focus should be on Redistributive Justice, addressing the unequal division of goods, services and influence, not Retributive Justice, dealing with those who transgress against the laws of society, although what and how much to redistribute has been an intractable historical problem. A second issue is the whether the application of social justice is through Incremental or Transformative approaches. The former relates to the accumulation of small changes, in this case to help the disadvantaged, the latter to policies that change the whole society to achieve some aim, as seen in communist and totalitarian governments. A third issue relates to the Principles

or Criteria of Social Justice that are the basis of redistribution. One of the most influential of these ideas has been the principle of fairness to achieve greater social justice, as promoted by John Rawls (1971) in his Theory of Justice. The final issue is one of Scale, the level at which social justice policies can be applied, for it must be recognized that policies at the national, or even international and regional levels, usually have more power to improve justice than those at urban levels, except in independent city states. Given these alternatives it is the objective of this review not to provide case studies of social justice improvements in cities. Rather it is to contribute to the development of a normative set of concepts and practical ideas to improve social justice based on the principle of fairness that may not only help the disadvantaged in democratic societies using the principle of fairness but also teach students how to be aware of the problems. The study is restricted to incremental approaches at the urban scale, since transformative ones have usually reduced civil and political rights to achieve their aims, and recognizes that progress must also be made at the national level.

## 2. Problems of a Declining Social Justice

In the developed democratic world the 1970s saw the beginning of a decline in the extent of progressive, liberal legislation that for over a century provided increased political and civil rights for their populations and greater economic gains for the majority, despite interruptions by war and economic downturns. However many other countries had barely started on this this progressive path. One result of this change has been the increasing levels of inequality and reduced social mobility since the 1980s that have been indexed and explained in many recent books (Mount 2005, Piketty 2014). The increasing inequalities in the western world are usually attributed to the application of Neo-Liberal ideas from the late 1970s (Harvey 2005), ideas that set out to reduce the stagnation of the period by promoting market and profit-making forces as the major ethic for human actions, removing

regulations and increasing privatization, a process aided by greater globalization and ease of communication. Although growth did occur in many areas, the changes have led to an increasing concentration of wealth and hence higher inequality, as well as higher levels of immigration to many developed countries. Certainly many of the gains of the progressive era are still present in developed countries, but increasing numbers feel they are less well-off, have experienced reductions in social justice, feel ignored by the elite and political parties and disturbed by high immigration of people from different cultures. Fewer attempts have been made to assist those disadvantaged by the loss of jobs, either to cheaper locations in developing countries or through the increase in the automation of many industrial process in particular – a problem that will intensify in the next decade, - while the growth of corruption and declines in civil liberties in some countries intensifies problems. But the growth of populist anger and economic inequalities cannot be explained only by Neo-Liberal policies. Three new forces have also emerged to intensify these changes, creating what can be seen as an increase in Illiberalism in developed countries which makes progress in social justice progress more difficult.

One is an increasing support for what the Canadian philosopher, Charles Taylor (1991), called a Contributionist ideology. This is based on the belief that differential income extraction and hence wealth gaps, is a prize for those with particular talents or skills. It rejects the alternative view of Rawls (1971) that natural talents in a society, and the education that develops them, should be seen as a common asset for society as a whole that promotes greater fairness and equality. The contributionist ideology may be a modern version of older acceptance of the value of stratified societies based on inherited wealth or family status, but it is now used to justify excessive compensation rates for the managerial classes and those who own capital and have created new technologically-based businesses. It can also lead to a selfish elitism that not only accepts inequality but may also be averse to increasing civil rights and supporting more spending on the disadvantaged, as seen recent the

British Social Attitudes surveys (B.S.A 2013).

A second contribution to the growth of illiberalism can be seen in the increasing levels of social intolerance in many countries. This is especially seen in increasingly negative attitudes to minorities in some countries, especially ethnic or religious ones, let alone the reluctance to give equal rights to women and gendered minorities. It is also seen in selfish nationalism, where other nations are demonized, and internal problems are blamed upon targeted minorities. These attitudes has been helped by the radical anti-democratic values of some religious and other groups who seek through violence to impose their own anti-liberal values, as seen in recent terrorist acts, which unfortunately leads some to demonize the peaceful majority of such religions. Certainly not enough attention has been paid to the control of immigration to ensure that reasonable numbers of the new migrants can be accommodated without problems, which has allowed resentment of newcomers to flourish. But in addition there are increasing signs of intolerances to those with different political views in some countries which has led some governments to remove those with different views from government employment, sending some to jail on spurious charges in the name of increasing order in society, which is often heading to totalitarianism. These intolerances have been increased by the conscious propagation of false information, which were strikingly seen by the actions of the eventual winners in the 2016 US elections and the Brexit referendum in the UK, where some demagogic politicians and media outlets have deliberately stirred up the resentments of many due to recent societal changes, increased public discourtesies and rudeness, and reduced the level of tolerance to people from different backgrounds. Moreover, by criticising mainstream media outlets that try to produce evidence-based information as producing so-called 'false news', they assail the integrities of investigations, resulting in what is becoming known as a post-truth society. Yet we must be careful. Mishra (2016), in the Age of Anger, has shown that the addition of progressive policies from the Enlightenment onward,

has not been a simple progress to emancipation and fairness, dignity and reason for all. Conservative opposition was often present. But more significantly he argues that illiberal attitudes have always existed, although their impacts were reduced when people obtained more political and civil rights and achieved economic and educational gains. Yet remember that during the progressive period, minorities or native peoples in what were colonized territories were excluded, or only marginally benefitted, from the liberal progress. So illiberalism is not new. Sadly, it has been deliberately cultivated by some in recent years.

A third contribution to the current growth of illiberalism can also be attributed in part to some of our new technologies. Our new digital devices are not neutral. Certainly, they do have the ability to propagate liberal values though quicker communication and greater access to knowledge, and to our ability to manage and use more data for a variety of purposes. But it is increasingly clear that increasing numbers either do not read much in depth or ignore news from reputable, checked sources such as major newspapers, which have declined in readership. Instead, digital devices enable people to quickly scan headlines and also allow wider connections to like-minded people, creating bubbles of self-interested groups, many of which propagate their own values that are far from liberal. These are frequently based on their irrationalities, their perceived wrongs or even on false information deliberately created by some politicians and some media outlets. Such trends are helped by conservative forces with the money and influence able to use the new technologies to influence opinion against progressive values. Moreover, many countries with totalitarian leanings already restrict press freedom and manipulate access to social media to control news and manipulate opinion for their own ends, not for the benefit of progress and improving life for the majority. More specifically in the context of urbanism, although advocates of Smart Cities stress the increased availability of knowledge and the interconnectedness of things` as producing a more efficient future, there are as many disadvantages as advantages, seen by our limited public

access to the increased volume of data, or influence in how it is used. In addition, our open interconnectivity is increasing our vulnerability to cyber-attacks that can corrupt our computer systems and cause considerable damage to our infrastructures and ways of life. Hence, as writers such as Eugeny Morozov (2011, 2013) has shown, we need to be more aware that these new devices have disadvantages and can become the tool for an erosion of civil rights and for mass surveillance, repression and the ease of circulation of false information, just as George Orwell (1948) warned in his chilling dystopian novel, 1984. Obviously this is an extreme case, but represents a warning. So some of these technological changes have the ability, like the increase in contributionist ideology and intolerances, hinder our ability to justify and improve levels of social justice.

## 3. Towards Greater Social Justice

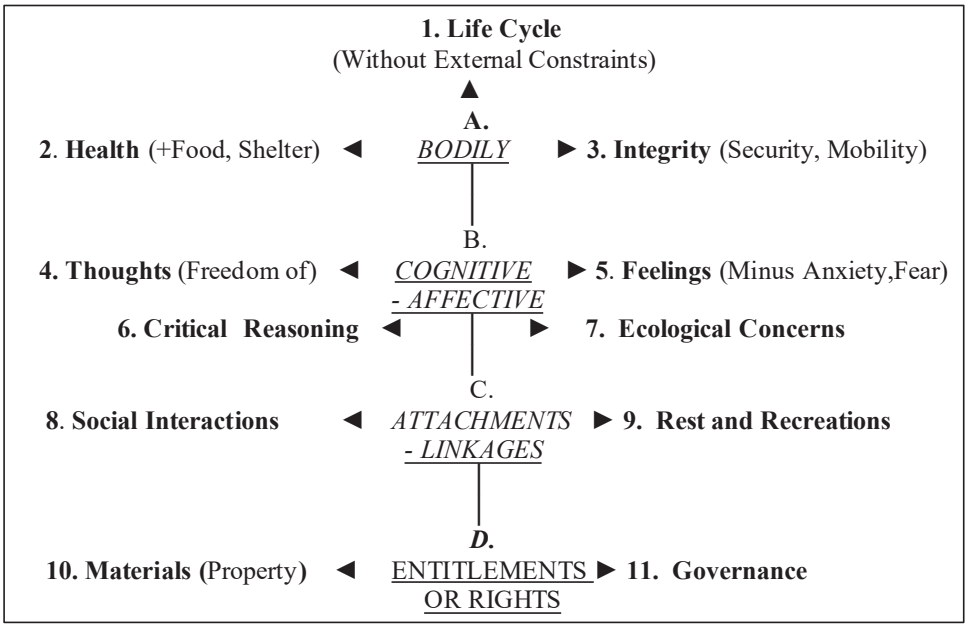
Although these trends make attempts to create justice more difficult, it must be recognized that many alternative approaches to creating greater social justice in cities have been suggested. Geographers such as Harvey (1973) have pioneered approaches that show how deep societal or structural processes influence urban variations and create injustice. But in the specific context of specific recommendations to improve social justice through incremental means three fundamental approaches have been proposed, although some overlap.

The most comprehensive comes from Capability Approaches (Nussbaum 2011) that seek to identify the various Basic Needs of people to increase their well-being which can also be used to study the enabling factors to help people and governments to improve their lives by creating greater access and justice. Although hundreds of specific needs can be identified in this voluminous literature, a useful summary into ten general categories of capabilities has been made by Nussbaum. These are rephrased and are summarized in a Fig. 1 within four broad domains or categories of basic needs, described as Bodily, Cognitive-Affective Capacities,

Affiliations, and Entitlements or Rights. Each of these has a subset of more specific features, which in the Health category involves fundamentals like food, shelter, medicine etc to maintain life.

A second identifies a series of what may be called Principles for Greater Justice, as seen in the work of many urban theorists which Davies (2005, Table 3.1) argued could be summarized as applying to the improvement of Political Rights and Participation, Needs Provision and Environmental Improvement. Within this genre a more specific but still aspirational set of principles can be seen in the 2007 Atlanta Rights to the City Alliance (RTA 2012) and its continuing work. Many of these were inspired by recognition of the suppression of minorities or working classes, in some cases because of the structural inequalities of capitalism, as well as Lefebvre's (1968, 1995) 'rights to the city' ideas, although as Purcell (2002) has noted, the concept is far from clear.

**Figure 1. Basic Capabilities for Well-Being: General Categories**



A third approach comes from Habermas's (1989) Communicative Action ideas, namely methods to improve communication between people, transparency in decision-making, and by effectively incorporating affected stakeholders, improving decisions made in cities (Healey 1997). Although all these approaches have many useful advantages in identifying areas of action, they have weaknesses in terms of guidance for specific policy actions and many go beyond the ability of cities to implement the ideas. This led Fainstein (2010) in her Just City book, to suggest a series of Guiding Principles to create more urban-based social justice in decision-making in democratic societies, principles based on the Rawlsian concept of fairness. She identified three broad domains of ideas – Democracy, Equity and Diversity - within which 14 specific guidelines for urban policies were described. The first two domains relate to the liberal ideas of increasing political and civil rights, while the need to promote diversity is seen as improving the quality and also the variety of urban life, often seen as the essence of cities. Fainstein uses 'equity' as a principle for fairness or even-handedness, with the aim of ensuring policies do not reward one group at the expense of others, or those better off, so nobody is worse off at the end of any policy. This seemed more appropriate than the more familiar word 'equality' which leads to the question of `how equal in enough`, and implies a comprehensive levelling of society that will provoke opposition. In Theme Cities, Davies (2015) extended the ideas to 23 specific policy areas. Many guidelines have origins in previous ideas of justice, but are specifically aimed at introducing fairness, not economic gain or other reasons, as guiding principles in urban decision-making. Table 1 is a rephrased summary of these ideas, with the additions to Fainstein's guides in italics.

**Table 1: Guiding Principles for Just Cities**

| DOMAINS | SPECIFIC GUIDES IN DECISION-MAKING |
|---|---|
| DEMOCRACY | Add advocates in specialist areas (law, planning) to help communities |
| | Broader consultation is needed for all plans or redevelopments |
| | City consultations must be two-way, not informational, to those affected |
| | Decision–making at all levels should be transparent and justified |
| | Encouragement of greater participation improves city politics and life |
| | Fairness to others, not bias of own interests, should be promoted |
| | Greater power delegation can help communities to be more effective |
| | Hindrances to disenfranchisement of residents need to be removed |
| EQUITY IN | Housing availability and application of safety standards |
| | Economic developments to improve lives and opportunities |
| | Levelling access to, and reducing costs of transit |
| | Business & population relocations should compensate those affected |
| | Large project scrutiny is needed to ensure there are no losers |
| | Environmental protection and sustainability |
| | Social needs provision for all groups |
| DIVERSITY | Mixed land uses should be encouraged |
| | Inclusiveness promotion to increase understandings |
| | Spaces for public activities need to be available and accessible |
| | Transformation of segregated areas into mixed ones |
| | Reduction of neighbourhood social barriers |
| | Understanding and helping the needs of different groups |
| | Safe spaces and contact sites for distinct groups are essential |
| | Treating & resolving behavioural differences between groups |

The size of this paper makes it impossible to deal with these in detail, though some examples will be made in the presentation. The objective is to provide a more comprehensive list of policy decision-making in urban jurisdictions to achieve greater democracy, for relatively few vote or participate in most cities, to reduce the helpless feelings surrounding attempts at creating equity, and to reduce the mistrust between diverse groups that increase intolerances.

## 4. Problems of Application in Urban Areas

The list of guidelines can certainly be expanded to provide a more comprehensive set of criteria to increase social justice through policies enacted in cities. But it must also be emphasised that urban areas have a number of problems in their ability to resist current trends to creating greater social justice, of which six are especially important. The most significant is the Restricted Powers of urban places, since they are subordinate to regional and national entities, usually with mandates to only deal with specific issues, which frequently excludes many powers, especially dealing with taxing or legal abilities, thereby limiting their scope for action and needing progress at other government scales. The second is the need to Encompass the Basic Needs of the Capabilities approach that are missing or poorly dealt with in urban places and can be dealt with at this scale. A third problem is to find ways of countering Socially Negative Effects, that come not simply from Neo-Liberalism, but increasingly the Illiberal forces that have been identified. A fourth issue involves solving, or at least mitigating, Intergenerational Equities, especially as societies age and the number of working people decline and the numbers of aged increase, with fewer working people and greater demands on taxes and social services to cope with elderly people. A fifth problem is to resolve the impact of the Social Dialectics of Justice. These are the injustices produced by spatiality, not just describing the existence of variations, rather the recognition that the social constructions of space, such as the processes that concentrate poor in areas, increases

their disadvantages because of the generational effects of poor schooling, health, crime etc. Another is the way that the increasing concentration of financial services and administration in very large cities, as well as the wealthy, in city centres means few of the lower paid yet essential working classes, whether police, nurses, teachers etc can afford to live there, decreasing the social effectiveness of places. A sixth problem is linked to the Territorial Limits on urban places that can be illustrated by two examples. One is the effect of localism in the spatial jurisdiction of urban places, their limited areas of administration, at a time of increasing spatial mobility, which can be reduced in part by creating regional agencies to more effectively deal with problems such as sprawl, transport or environmental improvements that need policies being applied to more than most city areas. A second involves scales beyond the city, such as recognizing that third world workers in sweat shops are exploited in the provision of goods bought in first world cities. Another can be seen in the increasing growth of voluntary networks of urban centres throughout the world, to share information on specific topics, whether climate change policies or winter city problems, in order to use the experience of other cities to produce more effective, evidence-based policies in their own jurisdiction (Davies 2015, Chapter 1). All six of these problems affect the ability of urban areas to improve the extent of social justice in their jurisdictions. Yet some cities have found ways around these problems, finding ways to resist the forces that reduce our ability to create more Just Cities, rather than only describing, or being indifferent, to them.

## 5. Conclusions

There can be little doubt that democracies in western countries are facing new problems that threaten to reduce the levels of social justice created in the liberal, progressive era that have already been eroded by Neo-Liberal policies. But to blame the changes only on capitalism and these policies ignores several new forces that are helping create a new Illiberalism that will make the current situation worse.

This is why there is a pressing need to counteract these trends and find ways in which the value of fairness can be used in a number of policy areas within cities to improve decision-making in order to create more just solutions, although additional policy areas need to be added to this provisional list. Of course some will see this deliberately incremental approach of applying fairness as a principle to base policy within capitalist societies as too slow to achieve real progress, believing that more transformative societal approaches would be more effective. But the evidence of most of history is that such approaches have created major losses in civil and political rights,which is why an incremental approach in a democratic society is seem as the most appropriate way forward here. So improving social justice at the urban scale should be a fundamental aim that needs more attention at this time, especially when problems such as sufficient jobs and increases in immigration levels from areas with different values are real ones have not been sufficiently addressed and need more focused policies to prevent increases in illiberalism. Yet cities are complex entities that can change rapidly. Hence if we want to create a more comprehensive urban geography, additional features to those of social justice are needed to create more liveable and sustainable urban places, such as health, safety, resilience from hazards etc, many of that have been summarized elsewhere (Davies 2015).

## 6. References

B.S.A (2013). Spending and Welfare. British Social Attitudes Survey, Annual Report, 30: Table 2-17 and Figure 2.3.

DAVIES, W. K. D. (2015). *Theme Cities: Solutions for Urban Planning*. Springer: Dordrecht and London.

FAINSTEIN, S. S. (2010). *The Just City.* Cornell University Press: Ithaca.

MISHRA, P. (2017). *In the Age of Anger: A History of the Present.* Farrar, Straus and Giroux: New York.

HARVEY, D. (1973). *Social Justice and the City.* Ed. Arnold: London.

HARVEY, D. (2005). *A Brief History of Neo-Liberalism*. Oxford University Press: Oxford.

HARVEY, D. (2013). *Rebel Cities: From the Right to the City to the Urban Revolution.* Verso: London

HEALEY, P. (1997). *Collaborative Planning.* Univ. of British Columbia Press: Vancouver.

MOUNT , F. *Mind the Gap.* Short Books: London.

MOROZOV, E. (2011). *Net Delusion: the Dark Side of Internet Freedom.* Public Affairs and Perseus: Philadelphia.

MOZOROV, E. (2013). *To Save Everything, Click Here: The Failure of Technical Solutionism.* Public Affairs: New York.

NUSSBAUM M. C. (2011). *Creating Capabilities.* Belknap: Cambridge.

ORWELL, G. (1948). *1984.* Houghton Mifflin Harcourt: New York.

PIKETTY, T. (2014). *Capital in the TwentyFirst Century.* Harvard Univ. Press: Cambridge.

# Urban expansion and housing inequality in São Paulo Metropolitan Region in the last 30 years: an approach from cartography and remote sensing

Julio C. Pedrassoli

*Universidade Federal de Bahia*

## Abstract

*How the changes in the spatial patterns of formal and informal housing over time in the São Paulo Metropolitan Region (SPMR) are detected and recorded by satellite images? The question guided the experiments in this article, whose objective to model how formal and informal housing-types dynamics are registered by the images and how these data are correlated to the urban geographic space production process, expressed by the land prices and the poverty peripheralization. The methodology uses a multitemporal Landsat database, from 1985 to 2016 with a 5-year collection interval, on which a Spectral Unmixing technic was applied using global reference endmembers to characterize the intrapixel proportion of substrate (bare soil and built areas), vegetation and shadows (dark surfaces). The temporal exchange patterns between the fractions were modelled by calculating the correlation coefficient between them over time, and validated with field information as the geocoded real estate historical points and the slums polygonal limits. The results show that the formal vertical housing production is detected by the model as an inverse correlation between the substrate and shadow fractions, with increasing shadows over substrate, suggesting that it can be used to detect the vertical accumulation areas along the time, while in precarious housing areas (slums and illegal neighbourhoods), the pattern is an inverse correlation between vegetation and substrate/shadows. In both cases, the fractions exchange patterns reflect the unique urban phenology of each housing-type and the inequality between them. Besides, they spatially correlate with the housing access determined by the land prices.*

## 1. Introduction

Historically, the housing geography of São Paulo Metropolitan Region (SPMR) has been shaped by expulsion of poverty to periphery. This logic is related to economic, political and ideologic factors, which balance together, along the time, to maintain this social status quo. Not surprisingly, in the SPMR the social periphery materializes, in most cases, in the geographic periphery, conforming a spatio-

temporal pattern where the poverty tends to increase as increases the distance from São Paulo city center.

In this context, the hypothesis assumed in this paper is: in the 30 years' time lapse considered, both regular and precarious housing in SPMR have a distinct behavior in terms of land change detection from satellite imagery. That can be detected, quantified and modeled as correlations between fractions extracted from these satellite images using the linear spectral unmixing method. It is represented by the spatio-temporal patterns variations detected by the correlation of the spectral endmembers extracted from the images, validated by official ancillary data gathered from real estate ventures, slums polygonal limits and census tracts.

## 2. Theoretical Background: Housing inequality and the Remote Sensing technics

Between 1991 and 2010, the Brazilian population living in slums rose from 3.1% to 6% of the total population. In raw data, this means that in 1991 the slum population was 4.400.000 people and in 2010 reached 11.400.000 people in precarious conditions of life and housing (IBGE 2010). During these 20 years, the Brazilian total population had an increase of about 20% while the resident population in "subnormal" conditions (slums and other precarious dwellings) increased by the order of 61% (IBGE 1991, 2000, 2010).

Considering the SPMR, in 2010 the number of slum dwellers was higher than 2,200,000 people, equivalent to 18.9% of the total population (IBGE 2010)[1]. For instance, between 1985 and 2013 the SPMR has accumulated 16.935 new real estate releases (over 90% vertical). In 2009, the average value of m² reached the highest value ever recorded in the series considered (in view of inflation corrected values);

1 Between 1991 and 2010, IBGE has change the methodology to identify and quantify the precarious areas, which explains the very high increase in the numbers. In the past, the slum dwellers have been underestimated, so, probably the number of slum dweller in 1991 was higher than the official register, and can explain the figure 1 shape.

and, from then on, the average value of m² resumes in a higher rate of increase than the number of releases per period as shows the Fig. 1.

For instance, between 1985 and 2013 the SPMR has accumulated 16.935 new real estate releases (over 90% vertical). In 2009, the average value of m² reached the highest value ever recorded in the series considered (in view of inflation corrected values); and, from then on, the average value of m² resumes in a higher rate of increase than the number of releases per period as shows the Fig. 1.For instance, between 1985 and 2013 the SPMR has accumulated 16.935 new real estate releases (over 90% vertical). In 2009, the average value of m² reached the highest value ever recorded in the series considered (in view of inflation corrected values); and, from then on, the average value of m² resumes in a higher rate of increase than the number of releases per period as shows the figure 1.

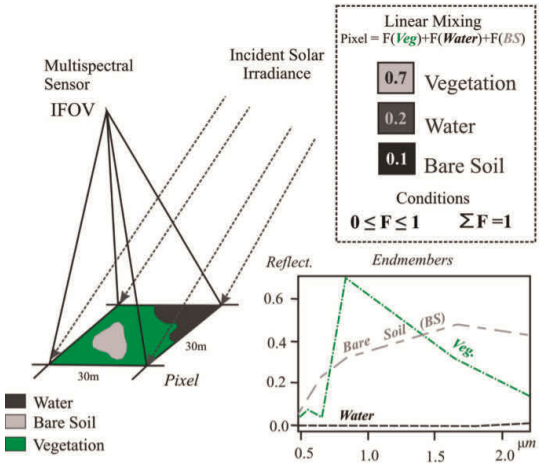
**Figure 1. Vertical Real Estate releases versus average raw selling prices by year in SPMR (1991 – 2010)**


*Source: CEM (2015), organized by the author.*

To understand and analyze these patterns changes in the urban physical structure, Remote Sensing techniques are very powerful: the satellite images can provide a consistent time series of spatial data, covering large regions as the SPMR, and allows the extraction of meaningful land physical parameters. The Landsat mission is the best fit for this paper purpose because it has been imaging the Earth since 1973, have a high spatial resolution (30 m per pixel) and two scenes together (path/row 219/76 and 219/77) are large enough to cover all the SPMR.

One effective method to obtain the physical parameters of land surface is the Linear Spectral Unmixing. It is based on the fact that the spectral response registered in the individual image pixel represents the linear contribution of each material that is inside of the Instantaneous Field of View (IFOV) of the sensor, best known as spatial resolution. The Figure 2 shows the Spectral Linear Mixing process.

**Figure 2. Perfect decomposition with a Linear Spectral Mixture Model (LSMM) on a 30m pixel formed by a mixture of 3 components: vegetation, water and soil. On this case the residual is zero.**



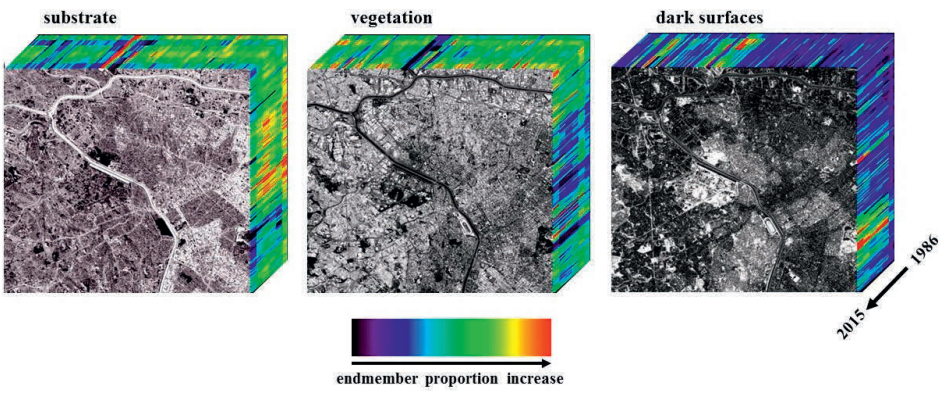

*Source: Kawakubo, F. S. (2010)*

The endmembers exchange over time can be modelled as correlations, where negative correlations indicate land use transformations and positive correlations indicate permanence of spatial-related processes. Besides that, we assume that the land physical patterns extracted by remote sensing reflect the socio-historical structure that drives the geographic space reproduction. The use of the linear spectral unmixing classification method in urban areas is largely used by researchers in various cities all around the globe: Adams et al. (1995); Kressler, et al. (1996); Small (2002); Albert et al. (2004); Lu at al. (2004, 2014); Rashed (2004, 2005); Nogueira et al. (2007); Powel et al. (2007); Eeng (2007); Kardi (2007); Myint et al. (2010); Sarapirome et al. (2010); Pérez Machado & Small (2012); Pedrassoli (2016).

## 3. Methodology

A Linear Spectral Unmixing algorithm was applied to each image, using three global spectral endmembers (Small & Milles: 2013): Vegetation, Dark (shadows and water or low albedo) and Substrate (constructed areas, bare soil or high albedo). As result, it was possible to extract the abundance of each reference endmembers for individual pixels in an image and construct a temporal-spectral cube (Fig. 3).

**Figure 3. São Paulo city downtown temporal-spectral cubes**



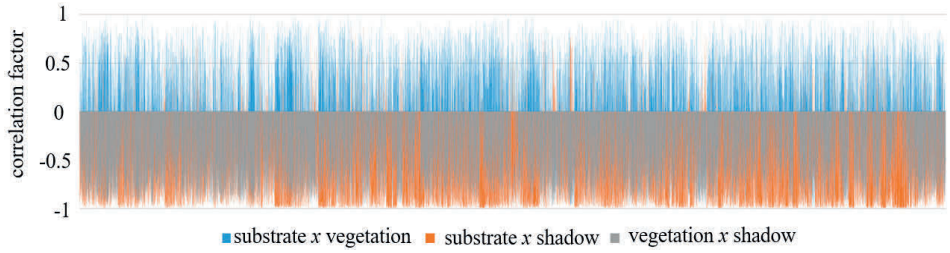

*Source: The author, from Landsat images digital processing*

The fractions temporal correlation coefficients allowed to differentiate the behavior of fractions exchange in the formal areas and precarious settlements, making possible to compare, spatially, how these changes patterns changes are related to the land price increase along the time. The expected output is the propose of a methodology model that shows the remote sensing capabilities to detect socio-political changes in the territory recorded in the spatial-temporal physical patterns changes in the urban continuum, thus discussing the usability of remote sensing technics in human geography.

## 4. Results and Conclusions: How cartography and remote sensing can show it?

The graphic analysis of the temporal correlation factors between the endmembers abundance shows that in most of the area that is being studied the vegetation and the substrate areas are inversely correlated with the shadows increasing. This fractions correlations variability can be seen on figure 4.

**Figure 4. Correlations between the extracted Endmembers (aggregated by census tracts): 1986 - 2015**

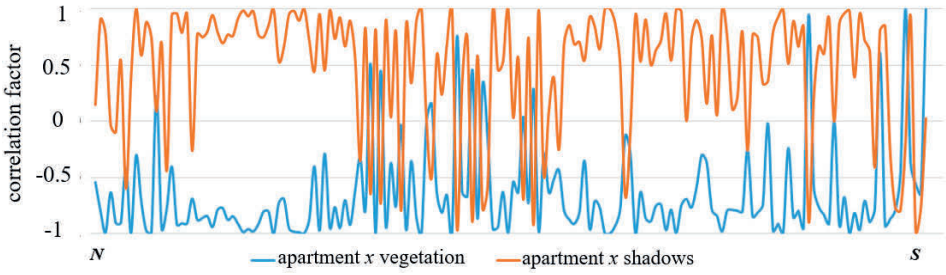



*Source: The author*

We assume as hypothesis that in verticalized areas there is a negative correlation between the dark and substrate fractions, indicating an increase of shadows detection over constructed areas, and that the more negative is the Pearson

correlation coefficient (over 0.60), more coincident are the data extracted from the image and geocoded real estate points. To test, firstly we validated it using the geocoded vertical real estate venture points database by aggregating the totals of apartments-type households accounted for in each census survey period. We consider that in 1991 the census survey contained all the vertical ventures (CEM) delivered until then and, from then on, we projected the cumulative value between 1991 - 2000 and 2000 - 2010 adding these accumulated to the base data obtained in the 1991 census. The projected data showed that the real estate ventures delivered corresponded to 96.3% of the total apartment-type by the IBGE in 2000 and to 94.7% of this type of domicile in 2010. The correlation between substrate or shadows fractions was calculated in relation to the increasing in the number of apartments-type households registered by the demographic census between 1991 and 2010 in the SPMR (Fig. 5).

**Figure 5. Correlations between the extracted Endmembers (aggregated by census tracts): 1986 - 2015**




*Source: The author*

Otherwise, in the case of slums and precarious areas, the results show a negative correlation between vegetation (that tends to zero with the advance of the time series) with the other two fractions. This similar specific fraction exchange trend in slums areas was earlier detected by Perez Machado (2012) and the author took advantage of this data detection behavior to identify areal slums expansion within

the SPMR.

From the perspective of the Linear Spectral Mixture Model the general case of informal housing areas can be defined as a positive spatiotemporal correlation between substrate and shadows fractions, with both growing, and a very steep decrease of vegetation fraction over time. The behaviors of formal and informal housing are exemplified in figures 6 and 7.

The logic that drives the poverty peripheralization of the SPMR results, at the end, in singular urban structures that are registered along the time by the satellite sensors. The land price spatial distribution is one of these evidences that connect human geography and remote sensing. Pasternack (2004) synthesize the persistent poverty peripheralization in the São Paulo city as "city of the rings", where there were defined five "circular rings" from the city center outwards that show how life and housing conditions get worse as they get farther away from the central ring.

**Figure 6. Fractions variance profile in a verticalization area (Maria Zélia Neighbourhood/São Paulo city)**

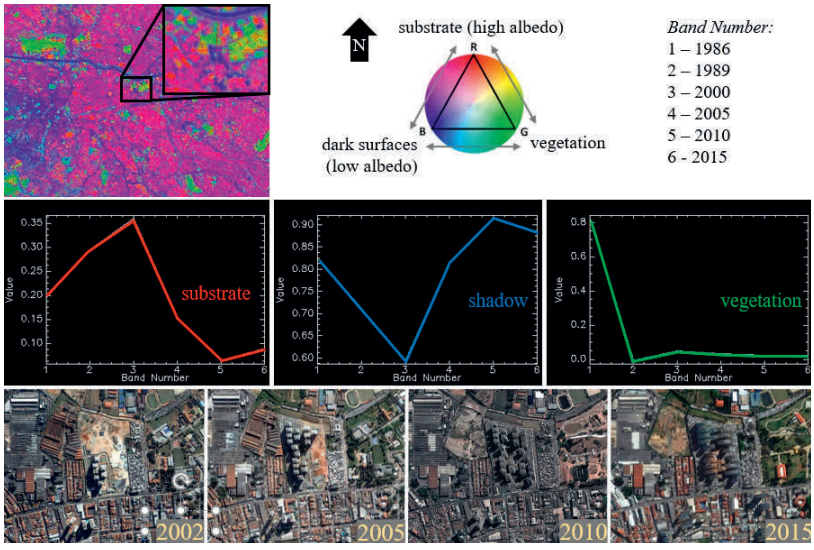
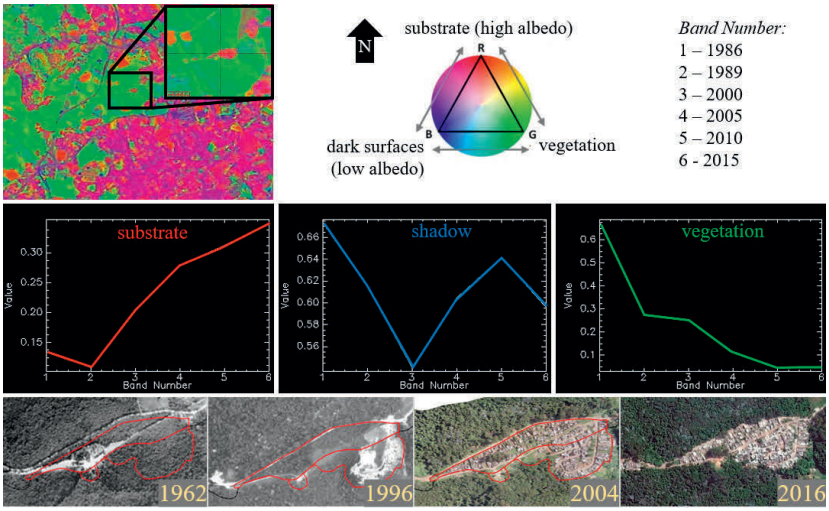


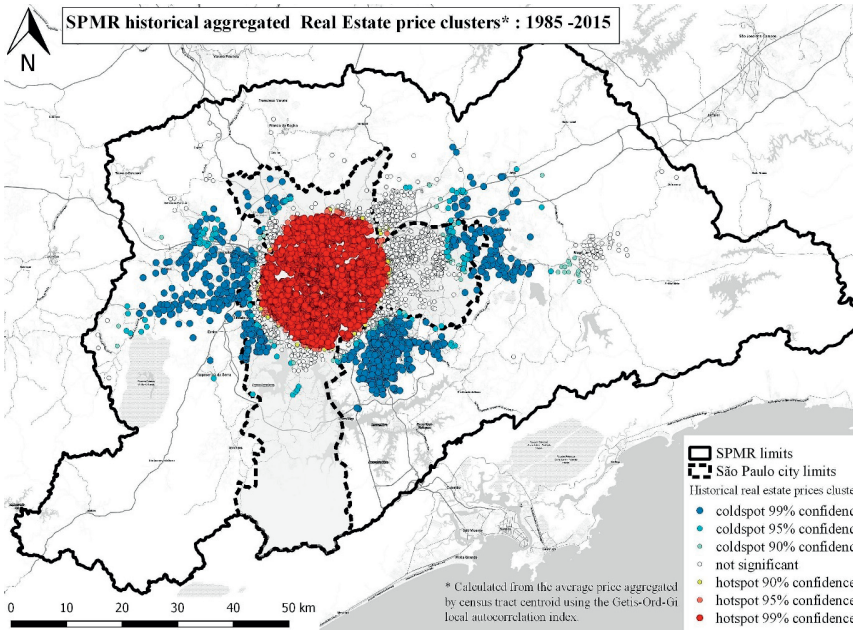
**Figure 7. Fractions variance profile in a slum area (Favela Nova Esperança/Taboão da Serra city)**




*Source: The author*

Is possible to expand Pasternack`s idea to coarse scales and suggest a "region of the rings", referring to the SPMR. In this case the real estate venture prices, historically aggregated, can show how the São Paulo City and the SPMR economic power was capable to get rid of the poverty in the center, and how accurate the idea of rings, in a spatial-time accumulation, is well shaped in the metropolitan scale too, as show figure 8.

**Figure 8. Historical price clusters in the SPMR by the Getis-Ord-Gi[2] algorithm**



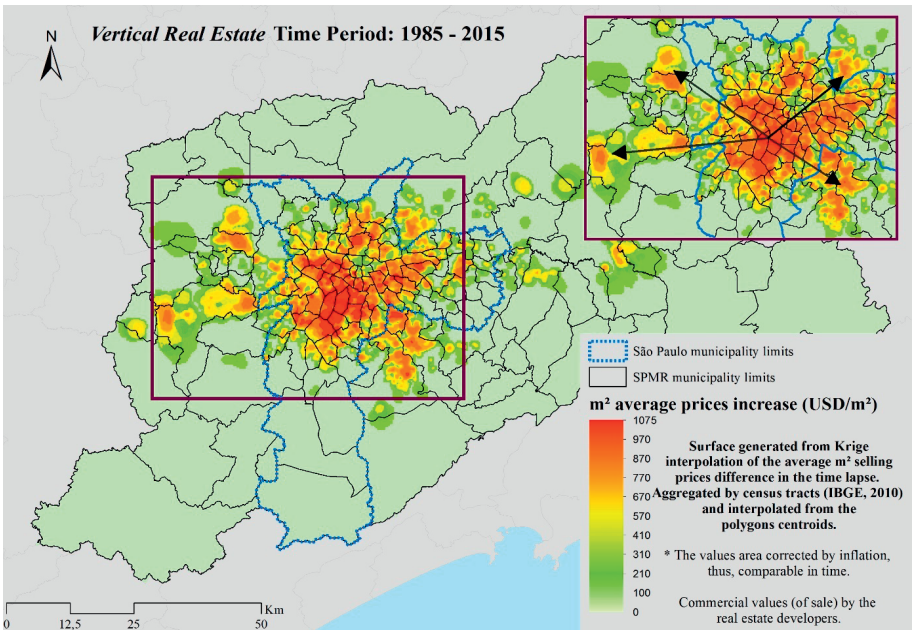

*Source: The author.*

In a time-change processual approach, Pérez Machado (2003) proposes a methodology called "isotimas" calculation. Per the author, the term isotimas originates from the radical Greek ektimo, which is the same to evaluate, assess, calculate, estimate, or recognize, indicating the value, price or cost. This concept, in general terms, translates the isolines maps, traditionally used for the spatial representation of natural continued phenomena to other dimensions, in this case applied to the land price.

2 The clusters are based in the z-score and p-value intervals of the data base. For more information about the clusters classes definition see http://pro.arcgis.com/en/pro-app/tool-reference/spatial-statistics/h-how-hot-spot-analysis-getis-ord-gi-spatial-stati.htm and for implementation in free software see https://github.com/danioxoli/ HotSpotAnalysis_Plugin. To easier interpretation, red colors represent clustered high values (prices) where the value itself can explain the point location, blue colors represent low value clusters, explained by the same processes. Not significant points cannot be explained by their values similarity, and, in this case, can be interpreted as a transition zone.

Applying the methodology developed by Pérez Machado to vertical real estate releases case, it was made the calculation, aggregating for census tracts, of the average difference values of m² sales prices for the 1987 and 2015 interval. Thus, it was extracted the geometric centroid of each census block and applied the interpolation of the values through a universal kriging method (Fig. 9).

**Figure 9. SPMR m² selling price increase: 1985 to 2015, visualized trough the isotimas method. USD currency exchange rate from 2015/12/31**

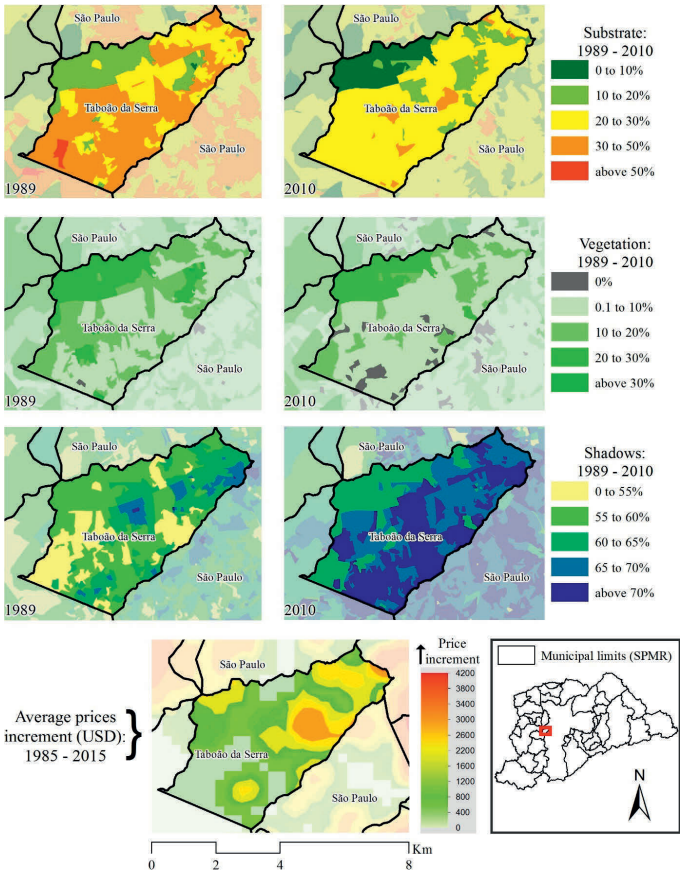



*Source: The author*

The prices increase map shows the movement of the land speculation process. This trend showed a strong spatial correlation with the real estate high-rise building. This also explains the growing space trend eviction over the slums to the increasingly peripheral areas.

The satellite images can tell this story too. As stated, the verticalized areas show an inverse correlation between substrate and shadow fractions and, at the same time, illustrate spatial correlation to the increased prices areas. So, the urban structure change shown on the imagery reflects the social and political alteration and variability, showing it up in the urban space. The Figure 10 represents the fractions change in the municipality of Taboão da Serra, located in the southwest part of the SPMR.

**Figure 10: Taboão da Serra town example: fractions alteration along the time compared to land price increase.**



Establishing correct relations between the physical changes in the territory (which satellites record) and the social actions and economic policies that direct such changes, it is possible to map the nuances of urban inequality and in addition, modeling this inequality trends in space and time. Resuming, the satellite images can be used to distinguish between regular and precarious housing areas and maps can be drawn to depict trends in urban spatial expansion, significantly increasing the empirical background to the classical urban geography analysis.

## 5. References

ADAMS, SABOL, D. E., KAPOS, V.; ALMEIDA FILHO, R., ROBERTS, D. A., SMITH, M. O. & GILLESPIE, A, R. (1995). "Classification of multispectral images based on fractions of endmembers: application to land cover change in the Brazilian Amazon". *Remote Sensing of Environment*, Elsevier Inc.

ALBERT, M., WEEKS, R. & COE, S. (2004). "Urban Land-Cover Change Analysis in Central Puget Sound". *Photogrammetric Engineering & Remote Sensing,* Vol. 70, nº 9, 1043-1052.

IBGE – Brazilian Institute of Geography and Statistics. *2010 Demographic Census: Aglomerados subnormais - Informações territoriais.* IBGE.

JENSEN, J, R. (2009). *Sensoriamento Remoto do Ambiente: Uma Perspectiva em Recursos Terrestres.* Editora Parênteses: São José dos Campos.

KARDI, T. (2007). "Remote sensing of urban areas: linear spectral unmixing of Landsat Thematic Mapper images acquired over Tartu (Estonia)". *Proc. Estonian Acad. Sci. Biol. Ecol.,* 56, 1, 19-32.

KAWAKUBO, F. S. (2010). *Metodologia de classificação de imagens multiespectrais aplicada ao mapeamento do uso da Terra e cobertura vegetal na Amazônia: Exemplo de caso na Região de São Félix do Xingu, no Pará*. Thesis.

FFLCH/USP: São Paulo.

KRESSLER, F. & STEINNOCHER, K. (1996). "Change detection in urban areas using satellite images and spectral mixture analysis". I*nternational Archives of Photogrammetry and Remote Sensing,* Vol. XXXI, Part B7.

LU, D. & WENG. Q. (2004). "Spectral Mixture Analysis of the Urban Landscape in Indianapolis with Landsat ETM+ Imagery." *Photogrammetric Engineering & Remote Sensing,* Vol. 70, nº 9, 1053-1062.

LU, D. (2014). "Monitoring bidecadal development of urban agglomeration with remote sensing images in the Jing-Jin-Tang area, China". J*ournal of Applied Remote Sensing,* Vol. 8.

MYINT, S. W. & OKIN, G. S. (2010). "Modeling Land-Cover Types Using Multiple Endmember Spectral Mixture Analysis in a Desert City". *GeoDa Center for Geospatial analysis and computation*. Working Paper.

NOGUEIRA, A. C. F., SANSON, F. & PESSOA, K. (2007). "A expansão urbana e demográfica da cidade de Manaus e seus impactos ambientais". *A nais X III Simpósio Brasileiro de Sensoriamento Remoto.* Florianópolis. Pp. 5427-5434.

PASTERNAK, S., BOGUS, L. M. M. (2004). *Como anda São Paulo: continuidades e descontinuidades na cidade dos anéis.* Núcleo de estudos e pesquisas urbanas, PUC/SP: São Paulo.

PEDRASSOLI, J. C. (2016). *Habitação e Sensoriamento Remoto: uma análise da expansão urbana na RMSP por meio de imagens de satélite aplicando o modelo linear de mistura espectral.* Thesis in Human Geography. University of São Paulo,: São Paulo.

PÉREZ MACHADO, R. P. (2004). "Isotimas: uma Metodologia para a Representação Cartográfica do Valor da Terra e Imóveis nas Metrópoles Latino americanas Utilizando Técnicas de Geoprocessamento". In CARLOS, A. F. A., OLIVEIRA, A. (Org.). *Geogra ias de São Paulo. Representação e crise da Metrópole.* 1 ed. Contexto: São Paulo. Pp. 315-336.

PÉREZ MACHADO, R. P. & SMALL, C. (2012). "Identifying multi-decadal changes in of the São Paulo Urban Agglomeration with mixed remote sensing techniques: Spectral Mixture Analysis and Night Lights". *EARSeL eProceedings* 12/2.

PÉREZ MACHADO, R. P. (2012). *Integração Geo-Escalar: Proposta de uma metodologia de identi icação de mudanças no uso, ocupação e cobertura do solo aplicando a tecnologia geoespacial.* FFLCH/USP: São Paulo.

POWELL, R. & ROBERTS, D. (2007). "Characterizing Urban Growth and Peri-Urban Landscape Change in Rondônia using Multiple Endmember Spectral Mixture Analysis". *Anais XIII Simpósio Brasileiro de Sensoriamento Remoto.* Florianópolis. Pp. 6933-6940.

RASHED, T. (2004). "Quantifying the ecological patterns of urban densification through multiple endmember spectral mixture analysis, lanscape metrics and fuzzy logics". *ISPRS Archives,* Vol. XXXV Part B7.

RASHED, T., WEEKS, J. R., STOW, D. & FUGATE, D. (2005). "Measuring temporal compositions of urban morphology through spectral mixture analysis: toward a soft approach to change analysis in crowded cities". I*nternational Journal of remote sensing,* 699-718.

SANTOS, M. A. (2006). *Natureza do Espaço: Técnica e Tempo, Razão e Emoção.* 4. ed. 2. Reimpressão. Editora da Universidade de São Paulo: São Paulo.

SARAPIROME, S. & KULRAT, C. (2010). “Comparison on urban classification using Landsat-TM and linear spectral mixture analysis extracted images: Nakhon Ratchasima municipal área, Thailand”. *Suranaree Journal of Science and Technology*, 17(4), 401-411.

SMALL, C. (2002). “Multitemporal analysis of urban reflectance”. *Remote Sensing of Environment,* 81, 427-442.

SMALL, C. & MILESI, C. (2013). “Multi-scale standardized spectral mixture models”. *Remote Sensing of Environment,* 136, 442-454.

WENG, F. (2012). *Mapping and Assessing Urban Impervious Areas Using Multiple Endmember Spectral Mixture Analysis: A Case Study in the City of Tampa, Florida*. University of South Florida.

# Remote sensing applications to identify and analyze slums over the São Paulo Metropolitan Area: a two case studies methodologies comparison

Reinaldo P. Pérez Machado

*Universidade de São Paulo*

Julio C. Pedrassoli

*Universidade Federal de Bahia*

## Abstract

*According to projections made by the UN in 2020 more than 1.5 million people will live in slums around the world. In Brazil, the number of slum dwellers jumped from 3.1% in 1991 to 6% of the total population in 2010. Currently, in the Metropolitan Region of São Paulo (MRSP), 18.9% of the population live in precarious clusters. Characterizing and mapping these areas is a key issue to reduce the pace of growth of socio-spatial inequalities. This article presents how remote sensing might be used for slum mapping and shows a comparison of two different methods applied to slum detection and mapping in São Paulo Metropolitan Region over the last decade: The Object Based Image Analysis (OBIA) and the Linear Spectral Mixture Model (LSMM). The first experiment was carried out in 2011, using OBIA to automatically identify two types of slums in Taboão da Serra using high resolution orthophotography. The second experiment was carried out in 2016, aiming to analyse the temporal evolution of the SPMR slums through the correlation between the fractions extracted from the LSMM in Landsat scenes. Results show that both approaches can be complementary: in the first case, information about the internal structure of the slums is obtained with more detail, while the second method allows the construction of a procedural description of the surge and development of such areas, especially when compared to the formal housing regions of the cities that comprise them.*

## 1. Introduction

Several definitions of socio-spatial segregation are presented in literature in the field of Geography. The definition of slums ("favelas", in Brazil) however, although there are several, is not yet consolidated for general use (Fig. 1). In part, this is due to the levels of understanding of a slum – Global and Local – and also because of the diversity levels of poverty and development all around the world.

**Figure 1. Local slum definitions: comparative table4**

| City/Country | oficial definition | non oficial definition |
|---|---|---|
| Nirobi - Kenya | no definition | Difficult areas which lack most basic services and infrastructure |
| Abidijan - Ivory Coast | Informal Practice, which are infractions of urban regulations in the process of access to lan | Den for highwaymen, drag addicts & the hang-outs of impoverished foreigners |
| Durban - South Africa | Previously Informal settlement degenerated to such an extent & needs to be rehabilitated | Bad area where unsociable activities occur |
| Metro Manilla - Philippines | Buildings or areas that are deteriorated, hazardous, unsanitary or lacking in standard conveniences | Physically disorganised collection of shelters made of light and often visually unappealing materials where poor people reside, narrower than sewers and associated with bad smell |
| Moscow - Russia | Shabby and dilapidated buildings, Morally outdated and deteriorated buildings | Baraks are primitive houses built usually for construction workers for the period of construction. |
| Bogotá - Colômbia | Urban settlements in which the occupation and development of the terrain occur with out any plan and without the corresponding permits and licenses officially required | Spontaneous settlements that do not fulfill the urban rules, and which concentrate migrants and poor population |
| Taboão da Serra - Brazil | Urban settlements that present one or more associated characteristics: land tenure; Urban precariousness; Precarious edilicia. | Occupation of public / private area characterized by lack of infrastructure, high density, low income families, historical absence of the State and strengthening of "parallel power". |

*Source: http://.ucl.ac.uk/dpu-projects/Global_Report/world_map.htm, 2004 and Lemma, 2005.(Adapted and complemented by the authors).*

At the global level, defining the meaning of a slum is restricted to the physical and legal characteristics of the settlement, excluding the more complex social dimensions, targeting the Millennium Development Goals (UN, 2003). Such an approach can be criticized when one considers the great heterogeneity and diversity of types and configurations of precarious settlements, which are established and consolidated in various parts of the world with singular configurations, associated with their own physical, social, economic and historical characteristics; and also when one considers that the availability of resources for monitoring and taking actions in these areas is different from place to place.

The slum conceptual definition is a challenge in itself. Thus, the identification and mapping of these areas face the same challenge: to define what a slum is, get the data (if available) that can describe and model the defined characteristics and apply a method to extract the target information.

The methodological approaches adopted in the slums mapping vary according to the specific interest of the information generated, which in turn has a direct

relation with the scale of mapping and its end as product. In general, the detection and mapping of these centers of precariousness are associated with the need for territorial management, especially in areas such as slums, where government action is often non-existent and ignored.

The aim of this paper is to show the potential use of image classification methods of moderate and very high spatial resolution images (orthophotos 25 cm GSD and Landsat scenes) through object based image analysis (OBIA) and Linear Spectral Unmixing (LSU) for slums detection and characterization in space and time, comparing the methods and the results obtained from slums mapping research efforts at the municipalities of Taboão da Serra - SP (2011) and São Paulo - SP (2016).

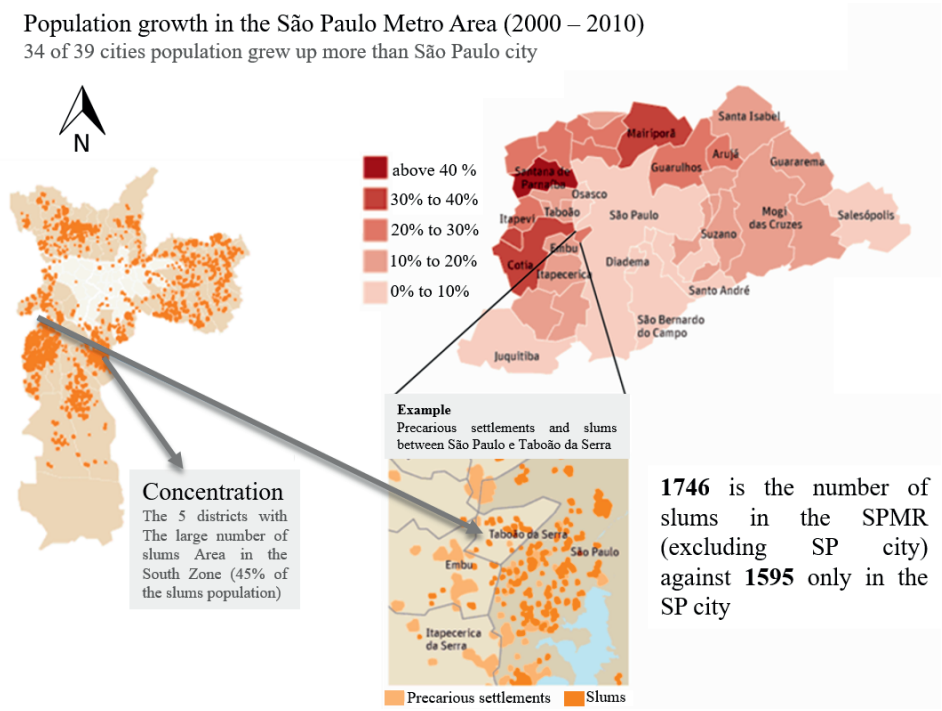
The study at Taboão da Serra was carried out in the context of preparation of its Municipal Housing Plan, and aimed to contribute locating, quantifying and contextualizing the slums located within the municipal boundaries limits. The technical approach was segmentation and OBIA classification of orthophotos to detect and to delimit the slums. In São Paulo city case, the slums mapping process was completed by means of using LSU over a Landsat scenes time series, from 1985 to 2015, aiming to understand the spatial-temporal variability of substrate, vegetation and dark surfaces in known slums areas. Both approaches can be complementary. The first one can generate very detailed information about a slum structure in a certain date, however the second approach can reveal how this slum internal structure changes over the time considering their internal components exchange.

## 1.1 The study area and the problem

Between 1991 and 2010 the Brazilian Population living in slums has jumped from 3.1 % to 6% of the total. In absolute numbers, this means that in 1991 the slum

population was 4.4 million people and in 2010 this population reached 11.4 million people (IBGE, 2010). Currently, in the São Paulo Metropolitan Region (SPMR), 18.9% of the population reside in subnormal clusters (IBGE, 2010). The spatial distribution of the slums and the population growth rates from 2000 to 2010 is shown in Figure 2.

**Figure 2. Population advancement and location of favelas in the metropolitan region of São Paulo, 2000 – 2010**




*Source: Folha online/IBGE/SEADE.(Adapted and complemented by the authors).*

This is not a problem only in Brazil, it is a global dilemma and is associated with the urbanization process and the increasing concentration of capital by a minority, which is directly reflected in the urban tissue shape and dynamics. The study of these poverty concentration areas, monitoring its development, evolution and

expansion, is a rising necessity in various locations around the world.

## 2. Slum mapping approaches: remote sensing as a tool

Some different approaches have been applied to map and analyze the slums of some cities all over the world, especially in developing countries. Community and participatory mapping methods and technics based on remote sensing are the most common methodologies present in the specific literature. In the strict case of slums detection over the Earth surface, the remote sensing products and the Geographic Information Systems (GIS), are certainly the most recurrent resource.

Sen, Joshi and Hobson (2003) describe the mapping, using GIS, of two slums in Pune and Sangli, India, based on information collected in association with a local feminist NGO. The slums of the two cases are compared as each represents a different approach and interest of the local governments: in the case of Pune there was a high interest of the authorities while in Sangli the interest was very low. The motivation for the construction of the GIS mapping of the two areas came from the blatant lack of integration of the favelas into the cities they belong to. And this is a recurring motivator for mapping slums: to put them on the map and to provide access to basic city services. A similar approach, to gather the available data and use GIS to put the slum in official map, was used by Sartori, Nembrini and Stauffer (2001), aiming to estimate the total population living in slums in the city ok Nairobi, Kenya.

Sliuzas and Kuffer (2008) dealt with the definition of poverty areas from 2001 census data in Delhi, India, and the association of this information with IKONOS and Terra ASTER satellites sensors data, seeking to correlate physical parameters from the images with the census data collection. The aim is to establish the basis for a methodology of identification of poverty areas by associating data coming from remote sensing to the demographic indicators. The methodology proposed by the

authors is based on two main questions: 1) How much the physical delimitation of the areas of poverty correspond to the multiple indices of deprivation? and 2) What is the degree of homogeneity considered in the preparation of census data? Some of the results point to the deficiency in information about poverty in countries like India and the difference in the slums physical delimitation when demographic data are compared to satellite images.

Netzband, Banzhaf, Höfer e Hannemann (2009), mapping precarious areas in Dhaka, Bangladesh, and Santiago do Chile, combined Quick Bird Images with ancillary data, extracting from the images the Normalized Difference Vegetation Index (NDVI) and calculating Urban Structure Types (UST) through Object Based Image Analysis (OBIA), to estimate how these indexes can be used to map the precariousness considering the urban structure. Some results point to the high-risk present in the mapped areas.

Hoffman (2006, 2008) discuss the challenge of detecting and mapping informal settlements and presents an approach based on multiresolution segmentation and OBIA applied to high spatial resolution orbital images. The author points to the ontology of the structure of precarious settlements, from which it is possible to define classification rules using computational support.

Hoffman uses computational tools to create the semantic network and internal relationships between its component elements. The Same author (2001) pointed out the basic concepts for detecting features in urban areas using OBIA with the support of segmentation algorithms: 1) The multiresolution segmentation process, where pixels are grouped, according to given parameters, into meaningful objects; 2) The creation of rules based on the spatial, spectral and contextual variables of each object of interest, through the representation of the knowledge ontology of the feature of interest; 3) The classification, which is the result of the process of defining objects and their characterization through the rules of the defined semantic

network and their interrelations.

Pérez Machado (2012) used a Linear Spectral Unmixing approach in Landsat images do identify and automate the slums delimitation in the São Paulo Metropolitan Area. The author calculates the abundance of three spectra endmembers (substrate, vegetation and shadows) in a decennial interval and uses the exchange thresholds between the endmembers, specifically the loss of vegetation and gain of substrate, to define the slums boundary in the south zone of São Paulo city.

Pedrassoli (2016), using a similar approach, modelled the slums space-time behaviour in São Paulo Metropolitan Region as fractions correlations in a 30 years Landsat images time series, showing that the slum areas are represented by an inverse strong temporal correlation between the substrate/shadow fractions and the vegetation fraction, with gain in the first two and a steep decay of the last.

Much of this technical discussion was also debated at the Expert Group Meeting on Slum Mapping, held in Enschede, The Netherlands, from 21 to 23 May 2008. Its objectives were: 1) Establish the necessary requirements for the mapping of slums for application in the UN Global Urban Observatory; 2) Present the state of the art of the methods used in very high-resolution orbital images applied to slum mapping; 3) Identify the most accessible methods for development continuity, knowledge transfer and capacity building.

The OBIA, Linear Spectral Unimixing, Lacunarity Analysis, etc, applied to slum mapping is in continuous testing and advance, trying to stablish an effective and reproducible flux to map and monitoring the slums over [the] space and time.

The remote sensing applied to slum mapping is recently and widely discussed by Kuffer et al. (2016). The authors analyzed 87 papers published in a fifteen years interval comparing the different image classification methods and the data aimed to be extracted in each paper. The results show that OBIA was the most

common process used in the analyzed papers (32.2%), followed by visual image interpretation (17.2%), texture/morphology analysis (16.1%), pixel-based approach (12.6%), machine learning (12.6%), contour model (4.6%) and statistical model (4.6%).

## 3. Methodology

An important instrument with a beneficial relationship between data acquisition time, implementation cost and the possibility of construct replicable methods is the Remote Sensing technology. The use of satellite imagery allows proper mapping of land use/land cover that can help with the identification of precarious settlements and its changes over time.

Nevertheless, the classical methods of image classification do not show good results when applied to high and very high spatial resolution images, and these are the ones that contain more visual detail and relevant information for the intra urban structure mapping, allowing the identification and characterization of slums.

Meantime, there are new paradigms of image classification based on the translation of human knowledge combining the definition of "geographic objects" for image classification (OBIA), incorporating the context and hierarchy. Besides that, the dimensional reduction of the spectral information in a comparable fashion over time, like LSU can do, brings in the ability to analyze the spatial-temporal patterns of specific spectral endmembers abundance in each image pixel. In this case, the result is an intra-pixel percentage for each reference endmember used in the calculations. The methodology here applied consists in the comparison of the two previous cited studies classification results.

The first case is the slum mapping in the town of Taboão da Serra, located in São Paulo Metropolitan Area, using very high-resolution images (2011 orthophotos, 25 cm Ground Sampling Distance – GSD) and applying the OBIA method to

delimitate two known slum areas in the city with distinct characteristics.

The first area was the Nova Esperança slum, a classical illegal occupation with lack of urbanistic structure and typical Brazilian slums housing-types. The second area is known as CDHU-Laguna, and it's a low income condominium where, at the time in 2011, the residents did not have the legal ownership of land.

Both areas are sampled as two different types of precariousness: urbanistic precariousness in the first case, and legal precariousness in the second. Both areas are presented in the Figure 3.

For each area there was constructed a set of classification rules aiming to automatically delineate the interest area. The basic workflow for OBIA is presented in Figure 4.

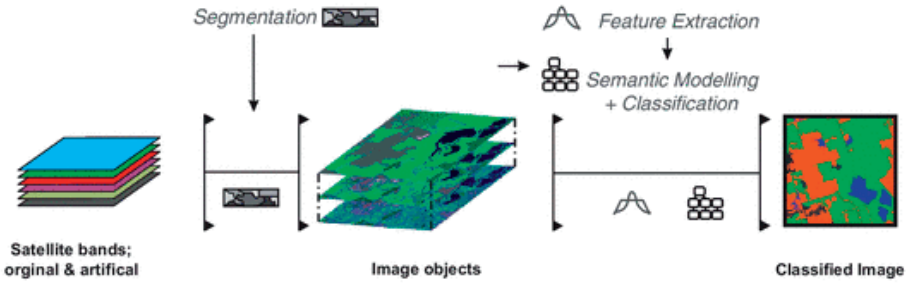
The second case slum mapping approach experiment was carried out in 2016, and aimed to develop a global model to represent the different spatial-temporal behavior of the formal housing-type (real estate venture) and the informal housing-type (slums) in the São Paulo Metropolitan Region.

**Figure 3. The tested areas in Taboão da Serra**

Nova Esperança slum | CDHU-Laguna condominium

*Source: Google Earth (organized by the authors)*

**Figure 4. OBIA workflow**



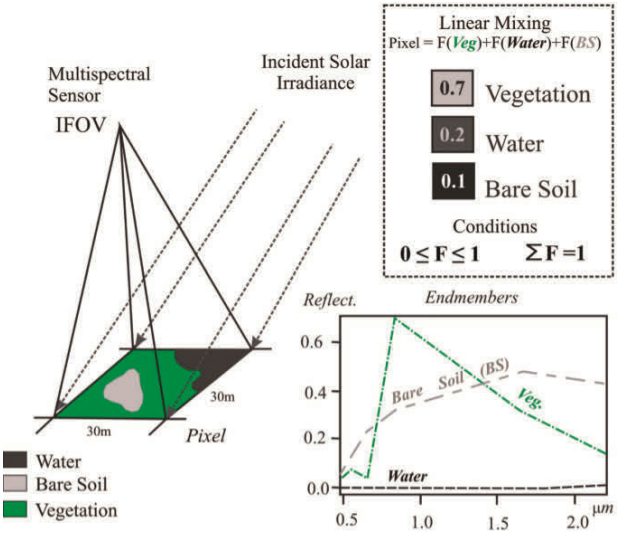

*Source: S, Nussbaaum, G. Menz. Page 29.*

In this case, the remote sensing technic applied was the use the Spectral Linear Unimixing with Global endmembers (Small and Millesi, 2013). A set of Landsat images, from 1985 to 2016 and with a temporal interval of 5 years each, were the input data used to extract the substrate, vegetation and shadows fractions and to process the temporal correlation between them, pixel by pixel.

In short, the spectral unmixing method extracts the contribution of each end-member used as reference to the spectral response in a pixel. That means that it is possible to estimate, accurately, the area covered by a certain land use class inside a pixel, or, intrapixel information. The Spectral Unmixing process is pictured in the Figure 5.

Both applied methods are not directly comparable in terms of accuracy or statistical results, but they can be compared in terms of the applicability and potential replication, especially in the context of a crescent need of slum mapping approaches.

**Figure 5. Perfect decomposition with a Linear Spectral Mixture Model (LSMM) on a 30m pixel formed by a mixture of 3 components: vegetation, water and bare soil. On this case, the residual is zero.**



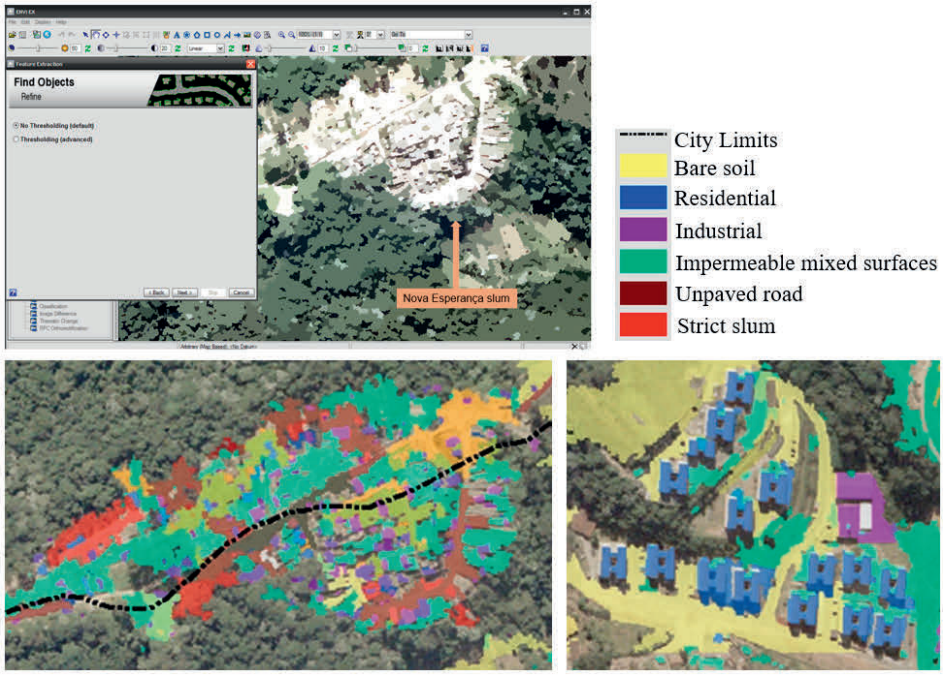

*Source: Kawakubo, F. S. (2010)*

## 4. Results

In Taboão da Serra the experiment used two precarious settlement test sites with distinct characteristics of precariousness: The Nova Esperança slum, which shows well-defined features of precarious urban infrastructure, and CDHU Laguna slum, which consists of a precarious area with proper urban infrastructure, however it lacks legal support as land regularization/tenure.

In both sites, the orthophotos were segmented to extract the most reliable shapes that compose the analysed slums. As for object classification purposes, the main characteristics used were textural and shape statistics. The segmentation and classification process is showed in figure 6.

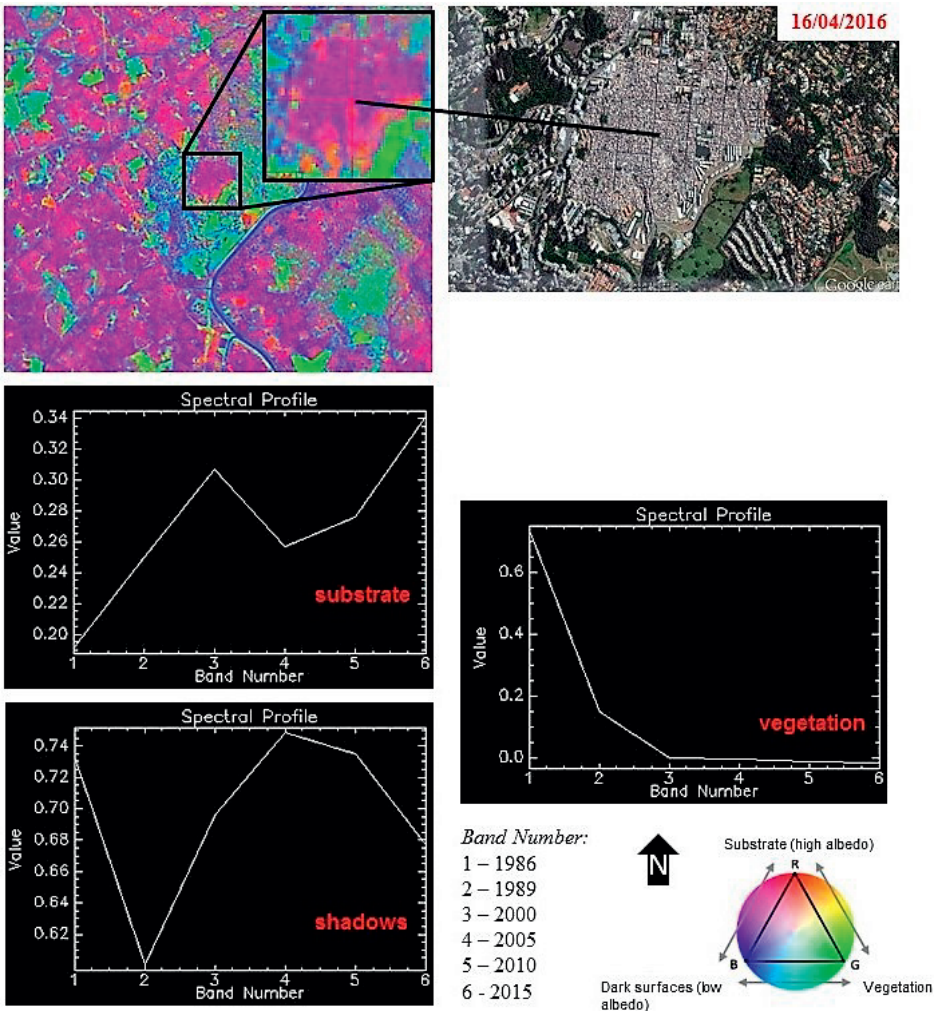
**Figure 6. OBIA classi ication process in Taboão da Serra**




*Source: Pedrassoli J. C. (2011)*

The results showed that the technique presents better results in the detection of areas with more explicit structural informality, reached 94.7% of overall accuracy based on previous slum polygons map obtained from visual interpretation. The lower accuracy of the method was in areas with better infrastructure but legal insecurity. Considering that the classification is relays on physical characteristics such as land use and reflectance of the materials, it demonstrates the limitation of the applied technique while detecting not explicit irregularities such as the legal uncertainty.

**Figure 7. Spectral endmembers variability in 30 years over the Paraisópolis slum – São Paulo city**




*Source: Pedrassoli J. C. (2016)*

The second experiment was conducted at São Paulo city, and in this case the objective was not only to detect the precarious areas in a certain moment of time, but was to determine the temporal variability of substrate, vegetation and shadows

over a 30 year´ period (1985 – 2015), comparing this behavior to formal neighborhoods development. The Linear Spectral Unmixing analysis using global spectra endmembers (Small & Millesi, 2013) was applied to seven Landsat Scenes. In the extracted image fractions, we calculated the temporal correlation involving each fraction. Several slums, all over the city, were analyzed and the results demonstrated that, in the time dimension, the vegetation fraction is negatively correlated with both substrate and shadows fractions, tending to zero along the time, as shows the example in Figure 7 in Paraisópolis slum.

## 5. Conclusions

One of the goals of this study is to explore the techniques limits considering remote sensing images as source of information. Additional and ancillary data such as income rates and other population characteristics provided by census demographics, master plans, and federal databases, among others, can certainly improve the capacity to identify those precarious settlements, as the references in this paper can attest.

Is noticeable that the precarious urban infrastructure of slums shows up a high spatial correlation with the environmental hazards that the population living at these areas is exposed. On the other hand, the heterogeneity of slums physical structure is still a challenge to satellite imagery classification techniques.

The need of a global inventory of slums is a challenge (Kuffer et. al, 2016), and still a challenge because the knowledge about the slum structure is still rather limited The same authors state that the best results reached in the bibliography are those who integrate methods in remote sensing. In this case we suggest a possible integration between the OBIA technique, which can obtain very detailed information about the urbanistic structure of the slums in a certain point of time, and the spatial-temporal analysis of how the slum structure changes along the time,

its temporal signature or phenology.

Nevertheless, as an essential indication for action in the face of the increasing phenomenon of informal and precarious occupations in the world, it is essential to keep the proper sequence, with spatial and temporal resolution compatible with the phenomenon and at the appropriate coincident scale and limits, and this requires the generation of data by the Governments through surveys also in these areas.

## 6.References

IBGE – Brazilian Institute of Geography and Statistics. 2*010 Demographic Census: Aglomerados subnormais - Informações territoriais*. IBGE.

KAWAKUBO, F. S. (2010). *Metodologia de classificação de imagens multiespectrais aplicada ao mapeamento do uso da Terra e cobertura vegetal na Amazônia: Exemplo de caso na Região de São Félix do Xingu, no Pará.* (PhD. Thesis in Physical Geography). FFLCH/USP: São Paulo.

HOFFMAN, P. (2001). "Detecting urban features from IKONOS data using an object-oriented approach". *Proceedings Algorithm*s. RSPS.

HOFFMAN, P., STROBL, J., BLASCHKE & KUX, H. (2006). *Detecting informal settlement from Quick Bird data in Rio de Janeiro using an object based approach*. [Available in ispace.researchstudio.at/downloads/2006/165_Hofmann_et_al.pdf].

KUFFER, M., PFEFFER, K. & SLIUZAS, R. (2016). "Slums from Space -15 Years of Slum Mapping Using Remote Sensing". *Remote Sens*, 8, 455.

LEMMA, T. (2005). *A Comparison of Methodologies for Monitoring Slum Conditions within Millennium Development Goals: The case study of Addis Ababa, Ethiopia.* Master Thesis: International Institute for Geo-Information Science and Earth Observation: The Netherlands.

NETZBAND, M., BANZHAF, E., HOFER, R., & HANNEMAN, K. (2009).”Identifying the poor in cities: how can remote sensing help to profile slums in fast growing cities and megacities? Using Geospatial Technology to identify vulnerable groups and their physical environment could enhance the search for equity in megacities”. *IHDP update*, 1.

HOFFMAN, P. (2008). *Detecting informal settlements using methods of object based image analysis.* Presentation at Expert Group on Slum Identification Using Geo-Information Technology. Enschede: The Netherlands.

PEDRASSOLI, J. C. (2016). *Habitação e Sensoriamento Remoto: uma análise da expansão urbana na RMSP por meio de imagens de satélite aplicando o modelo linear de mistura espectral.* University of São Paulo: São Paulo.

PEDRASSOLI, J. C. (2011). *Análise Orientada a Objeto para detecção de favelas e classificação do uso do solo em Taboão da Serra/SP.* Master Thesis. University of São Paulo: São Paulo.

PÉREZ MACHADO, R. P. (2012). Integração Geo-Escalar: Proposta de uma metodologia de identificação de mudanças no uso, ocupação e cobertura do solo aplicando a tecnologia geoespacial. FFLCH/USP: São Paulo.

SEN, S., HOBSON, J. & JOSHI, P. (2003). “The Pune slum census: Creating a socio-economic and spatial information base on a GIS for integrated and inclusive city development”. *Habitat International*, Vol. 27 (4), 595-611.

SLIUZAS, R. & KUFFER, M. (2008). “Analyzing the spatial heterogeneity of poverty using Remote Sensing, Typology of poverty areas using selected RS based Indicators”. *EARSeL Remote Sensing – New Challenges of High Resolution.* Jürgens, C. Ed.*:* Bochum.

SMALL, C. & MILESI, C. (2013). “Multi-scale standardized spectral mixture models”. *Remote Sensing of Environment* 136, 442-454.

UN-HABITAT (2003a). Slums of the world: The face of urban poverty in the new millennium. Global Report on Human Settlement

UN-HABITATI (2003b). The challenge of slums. Global Report on Human Settlement London: Earthscan Publications Ltd. [Available in www.ucl.ac.uk/dpu-projects/Global_Report/world_map.htm]

# Urban decline and deindustralization: Experiences in Spain[1]

Alejandro López González

*Universidad de León*

María José Piñeira Mantiñán

*Universidade de Santiago de Compostela*

## Abstract

*This paper is concerned two main points: public place and state of play (leisure) as an interaction in terms of case of Brazil and China. Public spaces are public goods even before the process of urbanization. Furthermore, it strives to provide a contrast between China and Brazil about the questions of public place, interaction between space and people in terms of state of play. The idea constraints on public space and class stratification are "loss of habitat" for the democratizing social effects of free play between adult strange. How do new unplanned public places and planned interactions in those spaces coexist in Brazilian megapolices? How a phenomenon of public leisure in Chinese art hubs zones acts as a re-emergence of interactions? The idea of play does a particularly interesting base for analyzing the use of public space; activities for utility the place to create a common sense and everyday "good shape". The State of Play is the use of a public built space for activities other than those for which the space was designed; specifically social interaction, communication and leisure. The State of Play also signifies manners of interaction, games or public ceremony conditioned by or arising out of a utilitarian public space.*

## 1. Theoretical Background

Developed societies are overwhelmingly urban societies. The majority of the population is centred on the city, as is most of the activity of non-agricultural economic sectors. Political and economic decision-making centres, as well as hubs that generate and disseminate innovations, are also located there, just as culture and information is predominantly urban. While all of this is true, there are nuances that involve differences between cities that are growing and others that are shrinking, between urban centres that are dying and outskirts that are expanding, between

1 This research has received funding from the State Programme for Research, Development and Technological Innovation oriented to the Challenges of Society (CSO2016-75236-C2-1-R).

metropolises whose centrality is increasing and urban regions that are a shadow of what they once were. This paper centres on the losers in this story, different types of cities that, to a greater or lesser extent, combine processes of economic decadence, demographic change, suburbanisation processes, structural transformations or environmental disorders (Pallagst, Martínez-Fernández and Wiechmann, 2014, 4).

Shrinking cities are urban areas that have experienced great socioeconomic difficulties, resulting in loss of population and employment, less quality in their neighbourhoods and social problems that may be considered symptoms of structural crisis (Hollander and Németh, 2011; Martínez-Fernandez et alii, 2012). They are, to a certain extent, an unpleasant reality in a culture that is largely focussed on growth (Hollander, Pallagst and Schwarz, 2009) but which is present in large areas of developed countries. East Germany is a paradigmatic case, where the complicated transition from a socialist economy to a capitalist one has resulted in the proliferation of cities that rely heavily on investments from supra-local authorities (Bontje, 2004; Bernt, 2009). Changes in production paradigms have also left a trail of cities in full decline, not only in the formerly prosperous industrial cities of the "Rust Belt" but also in cities linked to new technologies (Pallagst, 2009), Detroit being one of the cases where the urban crisis has peaked (Paddeu, 2014). Industrial relocation linked to globalisation and metropolitanisation has likewise had a considerable impact on cities in extensive areas of France and Britain (Cunningham-Sabot, 2009), turning localities specialising in a certain industrial branch or single industrial cluster into decadent cities.

This paper presents five examples of urban spaces that can be considered shrinking cities, whose process of decadence is at the same stage: industrial reconversion.

The reaction to the consequences of deindustrialisation, emigration and the resulting socio-environmental degradation can be divided into two periods:

an initial one covering the 1980s and 1990s, based almost entirely on public aid and common to all cases; a second one, starting in the late 1990s and running to the end of the last decade, with each case following a different course due to the implementation of particular solutions or, in the absence of such, to the reaction to incentives linked to the general economic situation. The former include Aviles and, to a certain degree, the left bank of the Ria of Bilbao (henceforth the left bank), while Ferrol, the Bay of Cadiz and Sagunto belong to the latter.

The first period was marked by the change from the inefficient regional development policy at the end of Franco's regime and during the years of the democratic transition, to a new model derived from the territorial repercussions of the industrial reconversion measures in industrial sectors hit by the crisis of the late 1970s (Fernández García, 1990). The central element of this entire narrative is so-called industrial reconversion, a series of measures timidly proposed by the government of the Union of the Democratic Centre but which would mainly be applied by the Spanish Socialist Workers' Party during the period 1983-1986. The objective was to reorganise the sectors in crisis –the steel industry, shipbuilding– proposing a series of measures aimed at offsetting the effects of closures and job cuts as well as stimulating the reindustrialisation of the affected areas (Martín Arce, 2006). These measures had a fairly severe impact on employment, while the effectiveness of the measures implemented by the central government to offset them was fairly doubtful (Fernández García, 1988 y 1997): the specific concepts devised for the areas affected by industrial reconversion, first Areas of Urgent Industrialisation and then Declining Industrial Areas, which were applied in the late 1980s and early 1990s, proved to be insufficient.

The second period marked a change of direction. The central administration took on a more secondary role while the Autonomous Regions became more visible, with different local solutions arising. This led us to change our narrative,

particularising it case by case.

Aviles is a striking example; Franco's industrial policy of the mid-20th century turned it into a laboratory for the model of factory development desired by the regime (Sánchez et alii, 2012). The locality was conceived as a factory city centred on the Ensidesa public steelworks, with smaller companies, mainly metal and chemical industries, springing up around it. Starting in the early 1980s, it experienced a profound crisis due to downsizing in the smaller companies, the dismantling of an important number of industrial facilities and the closure of a substantial part of the auxiliary companies. This resulted in the loss of population and employment, high unemployment rates, the appearance of large plots of unused land, as well as the city's evident physical, environmental and functional deterioration. The local reaction to such socioeconomic difficulties was late coming, consisting of specific investments in the industrial, urban development, social, cultural and even tourism fields (Benito del Pozo and López, 2008; Benito del Pozo and Piñeira, 2014; Benito del Pozo, 2016); the Niemeyer Centre was the landmark initiative of a series of relatively consistent measures, aimed at changing the Asturian city's image after the industrial crisis. All these measures strengthened the urban resilience resulting from the establishment of a new institutional framework favouring urban renewal (Sánchez Moral et alii, 2012 y 2015), thanks to the combination of commitment on the part of local players, collaboration from public administrations and the non-relocation of the many local companies acquired by multinationals (Arcelor-Mittal, Du Pont, Alcoa, Xsatra, Saint Gobain).

The left bank of the Ria of Bilbao is part of a more extensive complex, the Bilbao metropolitan area, and is where a large part of Biscay's industrial activity was centred during the 19th century and most of the last century. The crisis from 1970 to 1990 swept away the great industry located in this territory (Torres Enjuto, 1991), while the new factory activities that gradually appeared from the

mid-1990s onwards chose other locations within the metropolitan area (Esteban and Torres, 2006), leaving large plots of vacant land and a greatly affected and degraded social environment (Homobono, 2003). The left bank has only benefitted tangentially from initiatives favouring the revitalisation of the capital of Biscay (Garrido Martínez, 2004; Mas Serra, 2011), and although there are numerous examples of abandonment in the municipality of Bilbao (Sudupe Zabalo, 2013), this is the sector that has mainly suffered from the industrial crisis in the metropolitan area. The image of an area in crisis was intensified merely by comparing it with the prosperous, middle-class right bank, a sharp contrast due to the strong social segregation existing in the metropolitan territory (Antolín Iria et alii, 2010). Unlike Aviles, which we conceive as a whole, in the case of Bilbao we limit it to part of a more complex entity; and following the same argument, although there were specific territorial policies aimed at relaunching the metropolitan economy, these barely had a direct impact apart from proximity to an urban centre that has clearly overcome the industrial crisis of the 1980s.

The other three examples used in this paper are essentially characterised by deficient local solutions. In this regard, we will deal, on the one hand, with the Bay of Cadiz and Ferrol, truly examples of monoculture based on shipbuilding and the navy; and on the other hand, with Sagunto, a locality whose economy was centred on its blast furnace during the 20th century.

Ferrol was greatly affected by the restructuring of its shipyards, being the only Galician city to experience negative population growth decade after decade (Armas Quntá et alii, 2012), which places it in a position of evident weakness in the regional urban framework, in the face of the difficulties posed by the current prolonged economic recession (López González, 2015). This has resulted in zero urban vitality, only offset by some initiatives in the field of infrastructures and installations without any specific discourse or project behind them, leading some

authors to speak about the Detroit syndrome when referring to the city (Clemente Cubillas, 2017). The Bay of Cadiz was affected, from 1977 to 2005, by the chain of redundancies in the region's shipyards (Pérez de Guzmán, 2012), in addition to the failure of some industrial projects aimed at reindustrialising the region (the case of Delphi, an auxiliary company in the car industry). However, despite this and very high unemployment rates, its situation is different from that of the Galician city, due mainly to the lack of land in the municipality of Cadiz, leading to the migration of uses and activities to the territories of the Bay of Cadiz (Barragán, 1992; Suárez Japón, 2008).

Sagunto has many points in common with Aviles, due to being a factory city and basing its demographic expansion throughout the 20th century on the steel industry (Bodí, 2016; Quílez, 2013). Despite these important similarities, there are differences: Sagunto was truly an industrial monoculture with practically no other companies in other sectors; in Aviles, although gradually reduced in size, the blast furnace is still working, while in Sagunto only industrial ruins remain; in the Asturian city we have already seen that there are projects as well as an institutional and social context aimed at revitalising the city from within, while the Valencian locality has accepted the disappearance of its industrial fabric and, despite the social trauma caused by the closure (Revert, 2006), the public administrations' initiatives have been unfruitful, and sometimes a complete failure, even suggesting that the industrial ruins be reused as an implausible cultural venue (the unrealised City of Stage Arts, vid. Bodí and Santamarina, 2015).

## 2. Research matters

This paper's underlying hypothesis is that the demographic decline of cities affected by reconversion processes is intensified by acyclic behaviour, not benefiting from migratory flows during the growth period (2000-2008) and being especially hit by the economic recessions that followed the burst of Spain's housing bubble

(2008 onwards). This incapacity is substantiated by inflexible behaviours in the face of positive production growths in their surroundings and flexible ones in the face of production declines, a negative impact on hiring rates in nearby competing cities and a small impact of public-sector investments aimed at offsetting the lower level of development inherited from industrial reconversion.

This paper has the following research objectives:

a. Evaluating the demographic evolution of the cities under study during the 2008-2016 period, focussing especially on differences in growth and/or aging compared to geographical benchmarks (the respective provinces of which they form part).

b. The pull of surrounding economic dynamics may be an incentive for or obstacle to these cities' resurgence. We aim to measure the impact on these cities of the economic dynamics in the provinces where they are located.

c. Competition among cities may likewise be a stimulus or an impediment. Considering indicators such as the health of the employment market in nearby cities (A Coruña in the case of Ferrol, Oviedo in that of Aviles, Bilbao in that of the left bank of the River Nervión, Cadiz in the case of the Bay of Cadiz and Valencia in that of Sagunto), we aim to measure whether there is a positive or negative effect.

d. Finally, it should be indicated that Public Administrations are a leading actor in these cities. Government decisions triggered the deindustrialization process and it is up to these same Administrations to try to alleviate these unfavourable effects by means of subsidies and investments. Thirty years after the drastic reconversion measures, aid schemes still exist and public-sector actions are still being implemented. In this regard, we decided to measure the effectiveness of the different stimulation policies that have been implemented in the cities under study and analyse the role of the different actors therein, considering the elements of

consensus and conflict that exist in the city.

## 3. Methodology

The first step in the design of this paper consisted in delimiting the territory under study, which can be divided into five small areas; in some cases, they practically coincide with urban areas, while others are very specific sections of metropolitan areas. The criterion chosen to identify the territorial limits is the impact that the large factories that were reconverted in the 1980s had in the past. The former include Ferrol (municipalities of Fene, Ferrol, Narón and Neda); in this first case, the sector affected the most was shipbuilding. The second example is Aviles (municipalities of Aviles, Castrillón, Corvera de Asturias and Gozón), where the metal industry was mainly affected. The left bank of the River Nervión (Abanto-Zierbena, Barakaldo, Ortuella, Portugalete, Santutxi, Sestao and Trapagarán), where the booming metal industry and iron mining has practically disappeared. The Bay of Cadiz (El Puerto de Santa María, Puerto Real and San Fernando), a region where shipbuilding has been gradually declining since the mid-1980s. Finally, Sagunto (Canet d'Enberenguer, Sagunto), where there is now no trace of the blast furnace known as Altos Hornos del Mediterráneo.

This paper focusses on information covering the period 2008-2016, in order to study the mentioned territories' resistance to the current context of difficulties experienced by the Spanish economy as a whole. The consulted scientific literature shows that these localities, in the decades following the trauma of industrial reconversion, have experienced sluggish growth, being dependent, in the best of the cases, on the positive impact of nearby urban centres. We therefore used different dependent and independent variables to study their response to the difficulties. The following tables present the variables that were used, along with the corresponding descriptive statistics.

**Table 1: Variables applied to model**

| Variable | Type | Source | Calculation Procedure |
|---|---|---|---|
| Population (ln POB) | Dependent Logarithmic | National Statistics Institute | Logarithm of absolute population |
| Aging index difference compared to provincial value (GAPENV) | Independent Indexes | National Statistics Institute, authors | Difference between aging indexes of provincial area and its province |
| Difference in unemployment compared to provincial value (GAPUNEMP) | Independent Rates | State Employment Service, authors | Difference between unemployment rates of provincial area and its province |
| Difference in contracts compared to provincial value[ This variable is measured as the difference between hiring efficiency rates, expressed as the ratio of permanent to temporary contracts during the period.] (GAPHIRE) | Independent Rates | State Employment Service, authors | Difference between the ratio of permanent/ temporary contracts in the area under study and its province |
| Variation in regional Gross Domestic Product (VARGDP) | Independent Rates | National Statistics Institute | Inter-annual growth rate of regional GDP |
| Amount budgeted for industrial and mining areas in difficulty (ln BUDGET) | Independent Logarithmic | Ministry of the Treasury and Public Administrations | Logarithm of amount budgeted by the State (expressed in thousands of euros) for industrial and mining reconversion |
| Average distance in kilometres to reference urban centres (DIST) | Independent Kilometres | Authors | Average distance between the capitals of each municipality and the provincial reference centre |

*Soruce: The authors*

We applied panel data analysis with five subjects, the studied territories, and nine moments in time, corresponding to the years 2008 to 2016. The variables participating in the model include an independent one, population expressed in logarithms (ln POB); which is regressed in relation to five independent variables presented below. Three of them (GAPENV, GAPUNEMP, GAPHIRE) reflect the differential between the selected territories and the reference territorial scopes (provinces): the first is the difference in aging indexes, so that a positive value corresponds to greater weight of the oldest age group in the reference territories; the second is the difference in the unemployment rate[ Both unemployment and hiring figures were calculated using the data of a month with almost no seasonable fluctuation. In this case, we chose February, which is not affected by hiring peaks associated with the summer, Easter or Christmas.] based on the potentially active population, with a positive value likewise corresponding to higher unemployment in the regions under study; the third expresses the difference in the ratio of permanent to temporary contracts, with positive values corresponding to greater stability in job creation in the municipalities included in this study. VARGDP measures the growth or reduction of the economy of the Autonomous Regions where they are located, which is considered a proxy variable due to the lack of this type of data for each specific territory and province (in this case, we only had information up to 2014); BUDGET measures the amount budgeted by the Central Government to help industrial and mining areas in difficulty, which we expressed in logarithms (unfortunately, such amounts could not be individualised, so that the initiatives in these municipalities include nationwide projects[ However, the documents making up the budgets clarify that a substantial part of the amounts budgeted for reconversion and reindustrialisation were invested in the regions of Ferrol, the left bank of the River Nervión and the Bay of Cadiz. Similarly, they contain specific amounts from mining funds applied to projects in the left bank of the River Nervión and Aviles.]); DIST is a variable, expressed in kilometres, that measures the average

difference from each municipality to the reference centres (Cadiz, A Coruña, Oviedo, Valencia and Bilbao). The model specification is shown below:

$$\ln POB_{it} = \alpha_{it} + \beta_1 GAPENV_{it} + \beta_2 GAPUNEMP_{it} + \beta_3 GAPHIRE_{it} + \beta_4 VARGDP_{it} + \beta_5 lnBUDGET_{it} + \beta_6 DIST_{it} + \varepsilon_{it}$$

Where α is the regression constant, βj the regression coefficients corresponding to each independent variable and εit the errors, which we consider to be completely random following a mean normal distribution of zero and standard deviation of 1.

**Table 2: Descriptive statistics**

| | Mean | Minimum value | Maximum value | Standard deviation | Intra-group standard deviation | Inter-group standard deviation |
|---|---|---|---|---|---|---|
| POB | 162,430 | 70,952 | 254,400 | 67,799 | 1,495.5 | 74,938 |
| GAPENV | 0.00948 | -1.89 | 1.54 | 1.3084 | 0.16792 | 1.4356 |
| GAPUNEMP | 0.53422 | -3.02 | 2.82 | 1.6166 | 0.45002 | 1.7232 |
| GAPHIRE | -0.26 | -4.98 | 4.96 | 2.1672 | 1.5751 | 1.7275 |
| VARGDP | 0.079333 | -5.28 | 4.24 | 2.996 | 3.1036 | - |
| BUDGET | 1.478,4 | 971.1 | 2.244,1 | 476.63 | 499.9 | - |
| DIST | 29.017 | 11.54 | 48.48 | 13.10 | - | 14.15 |

*Source: The authors*

Table 2 quantifies the descriptive statistics of the different variables involved in the regression analysis. When applying panel techniques, we decided to break down standard deviation into three measurements: the first, which is an overall one, measures variability for all the data involved; the intra-group standard deviation only considers variability in time within a single subject; inter-group standard deviation limits the measuring of variability to the subjects, independently of time. This procedure is only applied in those variables where it makes sense to do so, since there are others that refer solely to different spaces (region, the entire country) or remain unaltered in time: in these cases, we omitted inter-group (ARGDP,

BUDGET) or intra-group (DIST) variability.

## 4. Results

The results are divided into two parts. The first is mainly descriptive, in which we analysis the behaviour of the regions under study during the period 2008-2016 according to demographic and socio-economic variables. The second is an estimation of the different regression models based on panel specification, the configuration of which was explained in the methodology section.

### 4.1 Data

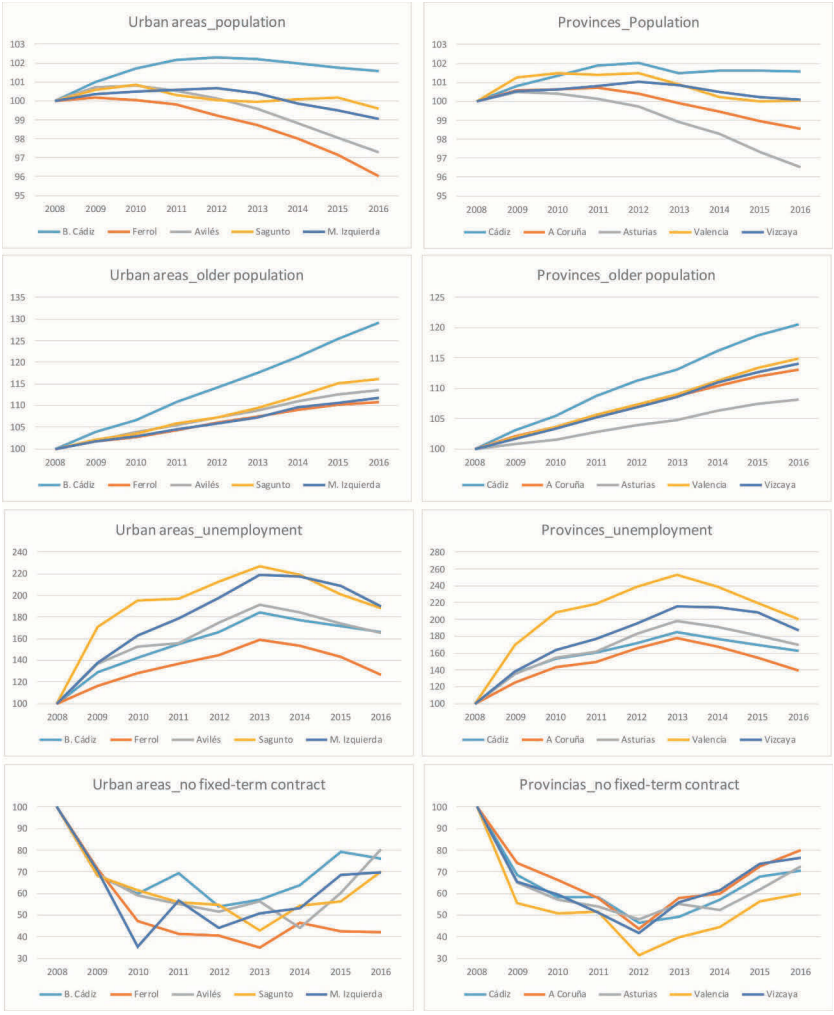
Figure 1 shows the evolution of some variables representing the demographic and socioeconomic dynamics of the studied urban areas (left) and the provinces where they are located (right). We selected total population, population aged 65 or over, the unemployed and permanent contracts, all of which were indexed such that 2008 is assigned the value 100 and the successive observations are recalculated in accordance with this value.

IIn recent years, now that time has passed since the years close to the decisions that gave way to the industrial crisis in these areas, the present crisis has barely affected the size of the population, at least in relation to the main figures. However, a more detailed analysis reveals the following nuances:

- There is great uniformity in the demographic growth of the studied territories and that of the provinces where they are located: the Bay of Cadiz grew slightly just like the province of Cadiz as a whole, the population of Aviles and Ferrol decreased, the same as their respective provinces; that of Sagunto and the left back of the River Nervión remained the same just like that of the provinces of Valencia and Biscay. This homogeneity reflects, from our point of view, an assimilation of these territories' demographic trends to their surroundings, which

can be explained as a result of the progressive disappearance of the differentiating feature of such spaces, due to the closure and/or downsizing of the large companies that used to be based there.

**Figure 1: Evolution of total population, elderly population, unemployment and permanent contracts from 2008 to 2016**




*Source: The authors*

• Despite the general nature of the current crisis, which affects both declining industrial areas and spaces that benefited from the years of the real-estate bubble, there is a clear distinction between areas in the north of the Iberian Peninsula and those on the Mediterranean coast and in the south: the former are decreasing while the latter are experiencing slight population growth. The differences indicated here basically reflect the disparities in development between the north of the Iberian Peninsula, which has barely benefited from the main development vector in contemporary Spain (tourism and services in general), compared to the strength of Spain's eastern and southern coastline, where tourism is mainly centred. These differences are highlighted by comparing population gains and losses from 1986 to 2006: the Bay of Cadiz and Sagunto overcame, at least from this point of view, the trauma of reconversion with substantial demographic increases (34.19% the former, 23.94% the latter); on the other hand, Ferrol, Aviles and the left bank of the River Nervión experienced substantial demographic losses (-9.85 %, -6.69 % and -15.01 %, respectively).

In relation to aging, the evolution of those aged 65 and over is linear: both in the studied areas and in their immediate geographical contexts, this group enjoyed sustained, regular growth, which only stood out in the case of the Bay of Cadiz. The differences stand out more in the aging indexes than in the indicated graph: the areas in the north of the Iberian Peninsula are visibly older (in 2016 Ferrol had an aging index of 24.76%, Aviles 23.50% and the left bank 23.07%), while this is a lesser demographic problem in the Bay of Cadiz and Sagunto (14.03% and 19.68%, respectively), once again reflecting the elderly north of the Iberian Peninsula compared to the younger Mediterranean coast.

The evolution of unemployment reflects the virulence of the current crisis and, unlike the demographic trend, the impact is greater in urban areas in the south and east of the Iberian Peninsula since the sector affected the most by the crisis,

construction, was closely linked to tourist and metropolitan regions. There are three standard behaviours: Sagunto and the left bank of the River Nervión have experienced a sharp rise in the number of unemployed, which doubled in both cases; a second group is made up of the Bay of Cadiz and Aviles, which at the height of the crisis (2013) had unemployment rates that were 80% higher than the baseline year; finally, in Ferrol the destruction of employment was relatively modest compared to the other cases, basically because the city was in such a weak condition that it did not have a significant business fabric. Like the other indicators, there are no large differences in this variable compared to the corresponding geographical contexts, with both cases evolving similarly. The final aspect with regard to unemployment is the balance after almost a decade of economic difficulties: in 2016 the Bay of Cadiz had 66.20% more unemployed than in 2008 (62.83% more in the case of its province), in Ferrol unemployment grew by 26.50% (39.69% in the province of A Coruña as a whole), in Aviles by 65.23% (69.94% in Asturias), in Sagunto by 88.25% (100.25% in the province of Valencia) and the left bank by 89.39% (87.44% in Biscay).

The last variable is permanent employment, an especially important aspect for three reasons: firstly, because the Spanish job market is widely dominated by precariousness in the form of the evident abuse of temporary contracts; secondly, because permanent employment is usually associated with industry (precisely the sector affected the most by the industrial reconversion measures of the 1980s); and thirdly, because the successive labour reforms resulting from the crisis have not favoured permanent contracts. The curve corresponding to permanent employment is symmetrical to that of unemployment; not only are jobs destroyed but there is no demand for labour or, at least, it is displaced towards precarious segments in the form of very short contracts. The period 2010-2013 was terrible; in all the analysed cases, the volumes of hiring basically remained below those of the baseline year, especially in that of Ferrol, which has not recovered from the decrease between

2008 and 2010, unlike the other cases that have experienced growth in the number of permanent contracts from 2014 onwards. Comparing these areas with their respective provinces reveals fairly similar behaviours, with the exception of Ferrol, which is always far behind the province of A Coruña as a whole. Similar to the case of unemployment, the final balance of the economic difficulties after the crisis highlights hiring volumes below those of the baseline year: 23.94% less in the Bay of Cadiz, 57.88% in Ferrol, 19.53% in Aviles, 29.96% in Sagunto and 30.37% in the left bank of the River Nervión (the decrease in hiring in their respective provinces was 29.32 %, 19.82 %, 27.35 %, 40.12 % and 25.61 %).

## 4.2 Model Estimation

Table 3 shows the results of the proposed regressions. Specifically, four models have been estimated. The first one uses the Ordinary Least Squares (OLS) technique, which is a pooled regression that does not take into account the data's time or space dimensions. Both dimensions can be processed during panel regressions, specifically three in our case: fixed effects, fixed effects with time effects and weighted least squares (WLS) for the variations in the errors per unit. In the case of regression due to fixed effects, we can control each territory's particular variables, which do not vary in time and are difficult to observe; the fixed effects with time effects is a variation of the previous model, introducing time events that have an equal impact on all the studied areas, such as the reforms implemented during the first term of the Popular Party (the time effects corresponding to the years 2012, 2013 and 2014 are all 1% significant). Finally, although we cannot discard the hypothesis of homoscedasticity, since the value of White's LM test is less than the critical value, we have introduced the estimation according to the weighted least squares technique.

**Table 3: Regression results (*1% significant **5% significant *10% significant)**

| | Fixed effects | Fixed effects with time effects | OLS | WLS |
|---|---|---|---|---|
| GAPENV | -0.01598 | 0.00222 | -0.29500*** | -0.24896*** |
| GAPUNEMP | -0.00352 | 0.00166 | 0.18072*** | 0.15066*** |
| GAPHIRE | 0.00117 | 0.00163* | -0.05514** | -0.04824** |
| VARGDP | -0.00080** | 0.00365* | -0.01079 | -0.00798 |
| Ln BUDGET | 0.00470* | 0.062789** | -0.01640 | 0.04195 |
| DIST | -0.00027 | 0.00601 | -0.02822*** | -0.02814*** |
| R2 | 0.99975 | 0.99985 | 0.68436 | 0.73675 |
| Corrected R2 | 0.39750 | 0.63249 | 0.63453 | 0.69519 |

*Source: Compiled by the authors*

From an econometric point of view, we have discarded the OLS estimation, since the joint significance test has an extremely low p-value. All of this led us to consider, in principle, the fixed effects estimation, which only considers significant the influence of VARGDP and BUDGET on the level of population in the studied areas (in the case of the former, it considers that a 1% increase in regional GDP results in a 0.08% decrease in the local population; in the case of the latter, a 1% increase in the amounted budgeted to aid reconversion and reindustrialisation results in a 0.0047% population growth). The main problem with this regression is that it only explains 39.75% of variability in the demographic size of the analysed areas under study. If we qualify this regression by using time effects or, in other words, if we implicitly introduce the structural reforms of the beginning of this decade, we obtain a model that is more explanatory (the corrected R2 is 0.63249), in which, apart from the aforementioned variables, the difference in the levels of provincial and local hiring is also statistically significant: according to this estimation, 1% growth in the regional economy results in a 0.365% rise in population, a 1% increase in the amount budgeted for reconversion and reindustrialisation results in a 0.063% rise in population and a 1% variation in the difference between provincial and local hir-

ing rates results in a 0.117% increase in mean population. Introducing an additional estimation, the WLS due to the variability in errors, presents a radically different scenario, which we will not comment on since they are affected by the OLS estimation's unsuitability to the available data; as in the case of the former estimation, the results are only included by way of information.

## 5. Conclusions

This paper has dealt with five candidates for shrinking cities, five examples in which the restructuring of their economic base had favoured sudden job cuts and, consequently, great difficulties for their urban development. The subsequent evolution of these cities has confirmed this impression in some cases, while others seem to have recovered their urban vitality, although possibly in very different conditions due to the industrial reconversion processes of the 1980s.

Four decades after the closures, or substantial job cuts, which affected the metal industry, shipbuilding, production of fertilisers or white goods, we analysed the impact of the 2008 crisis on these cities. We observed that Sagunto and the territories of the Bay of Cadiz had a more favourable image than other territories. Despite the severity of the crisis, it did not encounter a weakened socioeconomic and demographic fabric in these urban areas; their geographical location, in areas in which tourism and construction had become an important cornerstone, lessened the impact of the urban crisis that followed the restructuring of what used to be their main source of employment. On the other hand, in areas of northwest Spain (Aviles, Ferrol, left bank of the River Nervión), due to their continued link to the manufacturing industry and the scarce impact of the Spanish economy's booming sectors at the beginning of the century, the 2008 crisis hit such weakened territories especially hard, resulting in a disappointing demographic evolution.

This paper concludes with an econometric analysis aimed at measuring the in-

fluence on the population evolution of some factors such as aging, unemployment, permanent employment, GDP variation, the amount of public aid for industrial development and the distance to the main economic centres in the provinces where they are located. This is a panel analysis that combines subjects (urban areas) with time, and under different models we established two scenarios: a first one that uses aggregation models (OLS, WLS), which assigns greater weight to demographic, labour and distance variables; and a second one that is more credible statistically and takes into account each territory's particularities and the impacts of measures adopted at specific moments in time, which attributes greater significance to GDP variations in the regions where they are located and to the amounts budgeted by the State to industrial areas in difficulty.

## 6. Refrences

ANTOLÍN IRIA, E., FERNÁNDEZ SOBRADO, J. M. & LORENTE BILBAO, E. (2010). "Estrategias de renovación urbana y segregación residencial en Bilbao: apariencias y realidades." *Ciudad y Territorio. Estudios Territoriales*, Vol. XLII (263), 67-81.

ARMAS QUINTÁ, F. J., MIRAMONTES CARBALLADA, A. & ROYÉ, D. (2012). *Las ciudades y el sistema urbano. Reflexiones en tiempo de crisis.* Meubook: Santiago de Compostela. Pp. 9-28.

BARRAGÁN MUÑOZ, J. M. (1992). "La integración territorial y urbana de la Bahía de Cádiz en los ochenta: ¿una década pérdida?". *Cuadernos de Geografía*, Vol. 37, 129-138.

BENITO DEL POZO, P. & LÓPEZ GONZÁLEZ, A. (2008). "Patrimonio industrial y nuevas perspectivas funcionales para las ciudades en reestructuración." *Estudios Geográficos,* Vol. LXIX (264), 23-50.

BENITO DEL POZO, P. & PIÑEIRA MANTIÑÁN, M. J. (2014). "Industry and urban heritage". In *Kotze, N; Donaldson, R. & Visser, G.* (Eds.). *Life in a changing urban landscape.* University of Johannesburg: Johannesburg. Pp. 159-158.

BENITO DEL POZO, P. (2016). "Renovación urbana, herencia industrial y turismo: un proceso con elementos de éxito en Avilés (Asturias)." B*oletín de la Asociación de Geógrafos Españoles*, Vol. 72, 285-304.

BERNT, M. (2009). "Partnerships for demolition: the governance of urban renewal in East Germany's shrinking cities." I*nternational Journal of Urban and Regional Research,* Vol. 33 (3), 754-769.

BODÍ RAMIRO, J. & SANTAMARINA CAMPOS, B. (2015). "Políticas culturales y regímenes patrimoniales. Discursos y estrategias en la reconversión patrimonial del puerto de Sagunto." *Arxius*, Vol. 33, 41-56.

BODÍ RAMIRO, J. (2016). "Trabajo, identidad y memoria oral en el proceso de pa-trimonización industrial del puerto de Sagunto". In GEERT, F., ROIGÉ, X. & CONGET, L. (Coords.), *Usos políticos del patrimonio cultural*. Universidad de Barcelona: Barcelona. Pp. 171-188.

BONTJE, M. (2004). "Facing the challenge of shrinking cities in East Germany: The case of Leipzig." *GeoJournal*, Vol. 61, 13-21.

CLEMENTE CUBILLAS, E. (2011). F*errol, ayer y hoy. De la urbanización inicial del siglo XVIII a la actual ciudad del siglo XXI.* [Available at ruc.udc.es/dspace/bitstream/2183/13511/CC-133_art_1.pdf?sequence=1].

CUNNINGHAM-SABOT, E. (2009). "Shrinking cities in France and Great Britain: A silent process?". In PALLAGST, K. M. ET ALII. *The future of shrinking cities: problems, patterns and strategies of urban transformation in a global context.* University of California: Berkeley. Pp. 17-27.

ESTEBAN, M. & TORRES, C. (2006). "La industria en el área metropolitana de Bilbao". [Available in www.aecr.org/web/congresos/2006/ATVII/ATVII-20.pdf <consulted on June 13, 2017].

FERNÁNDEZ GARCÍA, A. (1989). "La reconversión industrial en España: impacto regional y transformaciones espaciales." *Ería*, 17, 191-200.

FERNÁNDEZ GARCÍA, A. (1990). "Las políticas estatales de desarrollo y su incidencia en las regiones cantábricas." *Ería*, Vol. 23, 253-264.

FERNÁNDEZ GARCÍA, A. (1997). "La nueva política estatal de desarrollo regional y sus efectos en Asturias (1985-1995)." *Ería*, Vol. 43, 238-242.

GARRIDO MARTÍNEZ, J. A. (2004). "El proceso de revitalización del Bilbao metropolitan." *Revista Internacional de Estudios Vascos,* Vol. 49 (1), 23-50.

HOLLANDER, J. B., PALLAGST, K. & SCHWARZ, T. (2009). "Planning shrinking cities." *Progress in Planning*, Vol. 72, 223-232. Doi:10.1016/j.progress.2009.09.001.

HOLLANDER, J. B. & NÉMETH, J. (2011). "The bounds of smart decline: a foundational theory for planning shrinking cities." *Housing Police Debate,* Vol. 21 (3), 349-367.

HOMOBONO, J. I. (2003). "Margen izquierda y zona minera (Bizkaia): un territorio metropolitano como escenario del cambio social." *Kobie (Serie Antropología Cultural)*, Vol. X, 91-104.

LÓPEZ GONZÁLEZ, A. (2015). "O impacto da crise nas cidades galegas: o reaxuste do tecido productivo". In LOIS, R. C. & PINO, D. (Coords). *A Galicia Urbana. Xerais.* Xerais: Vigo. Pp. 319-340

MARTÍN ARCE, J. M. (2006). "La fase dura de la reconversión industrial: 1983-

1986." *Historia del Presente*, Vol. 8, 61-101.

MARTÍNEZ-FERNÁNDEZ, C., AUDIRAC, I., FOL, S. & CUNNINGHAM--SABOT, E. (2012). "Shrinking cities: urban challenges of globalization." *International Journal of Urban and Regional Research,* 36 (2), 213-215.

MAS SERRA, E. (2011). "La revitalización del área metropolitana de Bilbao: la gestión del Bilbao Ría 2000. Aspectos territoriales." *Boletín de la Asociación de Geógrafos Españoles*, 55, 35-57.

PADDEU, F. (2012/4). "Faire face à la crise économique á Detroit: les pratiques alternatives au service d'une résilience urbaine?". *L'Information Géografique*, 78, 119-139.

PALLAGST. K. M. (2009). "Shrinking in the United States of America: Three cases, three planning stories". In PALLAGST, K. M. ET ALII. *The future of shrinking cities: problems, patterns and strategies of urban transformation in a global context.* University of California: Berkeley. Pp. 81-88.

PALLAGST, K., MARTÍNEZ-FERNÁNDEZ, C. & WIECHMANN, T. (2014). *Shrinking cities. International perspectives and policy implications.* Routledge,:- New York.

PASCUAL RUIZ-VALDEPEÑAS, H. (1992). "Reconversión y reestructuración industrial en Asturias." *Ería*, Vol. 28, 151-163.

PÉREZ DE GUZMÁN PADRÓN, S. (2012). "Negociación colectiva, acción sindical e intercambio político. Un planteamiento teórico apoyado en el análisis de las relaciones laborales en los astilleros de Cádiz." *Papers*, Vol. 97 (4), 773-794.

QUÍLEZ PARDO, A. M. (2013). "Paternalismo industrial y ciudad-fábrica. El caso del puerto de Sagunto durante el franquismo." *Saitabi. Revista de la Facultat*

*de Geografia i Història,* Vols. 62-62, pp. 241-255.

REVERT I ROLDAN, X. (2006). "Acción ciudadana ante el patrimonio desvalido. La regeneración social y patrimonial de la "ciudad-factoría" de Sagunto." PH *Boletín del Instituto Andaluz del Patrimonio Histórico*, Vol. 58, 117-119.

SÁNCHEZ MORAL, S., MÉNDEZ, R. & PRADA TRIGO, J. (2012). "Avilés, entre el declive y la revitalización: ¿en la génesis de un nuevo modelo de desarrollo?". *Boletín de la Asociación de Geógrafos Españoles,* 60, 321-347.

SÁNCHEZ MORAL, S., MÉNDEZ, R. & PRADA TRIGO, J. (2015). "Resurgent cities: local strategies and institutional networks counteracts shrinkage in Avilés (Spain)". *European Planning Studies,* Vol. 23, 33-52.

SUÁREZ JAPÓN, J. M. (2008). "Apuntes para una geografía humana de la bahía de Cádiz". *Revista atlántica-mediterránea de prehistoria y arqueología social,* Vol. 10, 489-505.

SUDUPE ZABALO, X. (2013). "El abandono en el paisaje de periferia y periurbano de Bilbao". *Espacio, Tiempo y Forma. Serie VI. Geografía,* Vols. 6-7, 227-256.

TORRES ENJUTO, C. (1991). "Diez años de reconversión industrial en Euskadi." *Boletín de la Asociación de Geógrafos Españoles*, Vol. 13, 165-186.

# The urban population of southern Europe in the first decade of the XXI century. The cases of Spain and Portugal

Ángel Miramontes Carballada

*Universidade de Santiago de Compostela*

## Abstract

*On a global scale, the EU (European Union) is one of the most urbanized areas. More than 75% of its population lives in urban areas, while urban land accounts for 25% of the European area. These and other characteristics raise a great deal of concern about the behaviour of the EU's urban and metropolitan areas. By 2020 it is estimated that 80% of Europeans live in urban areas and in some countries the proportion will exceed 90% of the population. So we are facing changes in land use, landscape modifications and transformations of the very significant medium. The cities of the EU extend and in turn reduce the distances-time between them. In fact, the urban expansion has been maintained since the last 50 or 60 years. This urban expansion is one of the main challenges to be studied within the current urban EU, as more and more European urban areas where the rate of change from rural to urban land use is higher than the rate of population growth. So in this work two objectives are proposed. The first is a delimitation of the urban areas of a territory of southern Europe formed by Spain and Portugal. As if it was a whole. As well as knowing the behaviour of some of its demographic variables from 2001 to 2011. The study is based on official statistical data that are worked and represented cartographically.*

## 1. Introduction

Traditionally in Europe three patterns or models of large urban areas are distinguished: the centre-periphery, the corridor-axis model and the network model. The centre-periphery model is clearly seen in Paris, London or Madrid. The axis model in the centre of Europe. While the polycentric network model is seen, for example, in the area of Belgium or the Netherlands (Gaspar, 1995; Serrano Martínez et al, 1994; Fujita et al, 1997; Sorribes Monrabal, 1999; Ferrão et al, 2002; Nechyba et al, 2002; Miles et al, 2003; Roca Cladera, 2003; Domínguez et al, 2004; EEA, 2006; Serrano Martínez, 2006; Eurostat, 2008; Veneri, 2010; Roca Cladera et al, 2011; Goerlich Gisbert et al, 2013).

Throughout the last decade of the XX century and the beginning of the XXI century, a series of initiatives, programs and even institutions focused on the study of urban areas in the EU were developed: the European Territorial Strategy, the Urban Audit project or ESPON (European Spatial Planning Observation Network) and the hierarchy of European cities according to their functions and demographic size.

According to UN data, 54% of the world's current population lives in urban areas and is expected to reach 66% by 2050. The largest increases will occur in India, China and Nigeria to a large extent by traditional factors such as population displacements from rural to urban areas and rising birth rates and absence of population policies.

On a global scale, the EU (European Union) is one of the most urbanized areas; more than 75% of its population lives in urban areas, while urban land accounts for 25% of the European area. These and other characteristics raise a great deal of concern about the behaviour of the EU's urban and metropolitan areas by 2020 it is estimated that 80% of Europeans live in urban areas and in some countries the proportion will exceed 90% of the population. So we are facing changes in land use, landscape modifications and transformations of the very significant medium. The cities of the EU extend and in turn reduce the distances-time between them. In fact, the urban expansion has been maintained since the last 50 or 60 years. This urban expansion is one of the main challenges to be studied within the current urban EU, as more and more European urban areas where the rate of change from rural to urban land use is higher than the rate of population growth.

In addition the population of Europe is moving towards the northwest. The GDP of the continent's most eastern countries seems to be booming, while the countryside and many smaller cities continue to depopulate at the expense of large urban agglomerations. The countries of southern Europe continue to suffer under

austerity and cities throughout the Mediterranean are, however, among the fastest growing in terms of population.

Within the countries of southern Europe are Spain and Portugal. This territory concentrates the 10% of the population of the EU, where its population presents a worrying process of aging. Life expectancy increases as the birth rate is decreasing. From the point of view of the education system there is a clear heterogeneity, since it presents a high school dropout rate. However, it is one of the territories where there are more people with higher education, an indicator that in turn creates an imbalance within the labour market, because its business network is not prepared to employ so-called superiors that, among other factors, cause in the Iberian Peninsula there is a high rate of unemployment. As well as, the reactivation of a strong process of emigration of qualified Spaniards and Portuguese to other countries. This is why a process of emigration is repeated that was always very present in the Iberian space in different periods of the twentieth century. Although with the difference that in those moments of the last century, they were people without qualification. In the first decade of the XXI century, Spain was a destination for a large number of immigrants who have now returned to their countries of origin (Ecuador, Bolivia, etc.). The welfare and employment situation is worrying in Spain and Portugal, as the unemployment rate or the percentage of the population at risk of poverty is among the highest in the EU. Analyzing the Iberian Peninsula together, the averages are slightly closer to those of the EU.

The study period selected, the first decade of the XXI century (2001 - 2011), has not been random, but is due to a period in which Europe was in full swing and economic development and since 2008 began a period of crisis that was much sharper in southern Europe and in countries such as Spain and Portugal. In addition to being the years in which the official sources of information are made with demographic data that will serve as a basis to know the present and future of

the Iberian population.

Finally, to indicate that the contents that are presented in this work are part of an extensive investigation[1] that began from the Research Group ANTE of the IDEGA of the USC (University of Santiago de Compostela) (Spain) and continued and ended in the Department of Geography of the University of Porto (Portugal). In this research, besides applying a methodology of delimitation of the urban areas of Spain and Portugal as if it was a single territory. The evolution and socioeconomic characteristics of urban areas were analyzed through the treatment and cartographic representation of a large number of socioeconomic indicators. Among those that are some of the demographic values that are exposed in the present work.

## 2. Presentation of the area of study: the Iberian Peninsula

The Iberian Peninsula has 583,832 km2 and almost all are occupied by the countries of Spain and Portugal, but also includes the country of Andorra and the British territory of Gibraltar. However in this work on the Iberian Peninsula, we only study the continental territory of Spain and Portugal. That yes, we study the territory of the Iberian Peninsula of Spain and Portugal as a single territory.

The Iberian Peninsula is located in southwest Europe, is surrounded by the Mediterranean Sea to the east and southeast, the Atlantic Ocean to the west and southwest, the Cantabrian Sea to the north and joined the rest of Europe by the northeast by the mountain system of the Pyrenees. To the south, the peninsula is separated from Africa (Morocco and Algeria) by the Mediterranean Sea and the Atlantic Ocean, large masses of water which in turn are separated by the Straits of Gibraltar (Fig. 1).

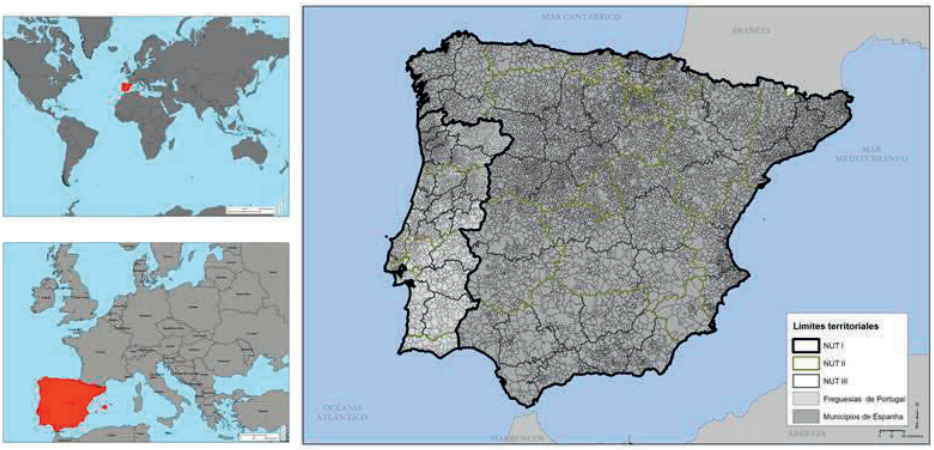
1Since the call for the National Research Plan of Spain 2010 to date, 3 projects were consecutively awarded to IDEGA-USC focused on this theme and coordinator by Rubén C. Lois González. The last and which is open is: New models of government of the cities, and intervention in the urban spaces in the postcrisis period. RETOS 2016, funded by the Ministry of Economy and Competitiveness. National Plan. Excellence R & D Project (reference: CSO2016-75236-C2-1-R)

Demographically, this territory accounts for 10.5% of the population of the European Union (53,321,000 out of the 507,162,000 habitants) (INE-Portugal, INE-Spain, 2014). Anyway, this percentage with the passage of the decades is estimated to fall, mainly due to the loss of population of Portugal that according to the projections in 2020 will have 10.1 million compared to 7.1 in 2080. While Spain, in the same period, will increase from 45.8 to 47.6. One of the factors that mark these demographic projections is that at present the population over 65 represents 18.5% in the Iberian Peninsula. While the European average is lower, with 17.8%. As a result, the Iberian Peninsula is one of the oldest areas with similar values to other areas in southern Europe (Italy 21.2 or Croatia, 18.1%). In this same line we can see that Spaniards have the longest life expectancy with an average of 82.5 years and in Portugal 80.4, compared to the European average of 80.3. As a result, Iberian space would exceed the European average with 81.4% (INE-Portugal, INE-Spain, 2014).

From the political-administrative point of view. Spain is a social and democratic state of law that has as political form the parliamentary monarchy. National sovereignty resides in the Spanish people from which emanate the powers of the State.

Spain is today what is called a State of autonomy, a formally unitary country that functions as a decentralized federation of autonomous communities, each with different levels of self-government. Those with a higher degree of self-management are: Catalonia, Galicia, Navarre and Basque Country. Today, Spain is considered to be one of the most decentralized European countries, since all its territories administer local health and education systems, as well as some aspects of the public budget. In the cases of the Basque Country and Navarre, they also manage their public financing without almost having the supervision of the Spanish central government. The peninsular Spain is organized territorially in 15 autonomous communities, which include 47 provinces and in turn these to 7.959 municipalities.

**Figure 1. Location of the Iberian Peninsula in the world, Europe and its main administrative divisions**




*Source: own elaboration*

In Portugal the main law is the constitution that regulates all the others. There are four organs of sovereignty that are the president of the republic, the Assembly of the Republic, the government and the courts. The country has a semipresidentialist regime that in the successive constitutional reforms is reducing the power of the president of the Republic.

The President of the Republic is the head of State, elected by universal suffrage for a term of five years. It has a triple function: it controls the activity of the government, is supreme commander of the armed forces and formally represents the Portuguese state abroad. The government is led by the prime minister, who has always been the leader of the most voted party in each legislative election and is appointed by the President of the Republic to form a government. The main administrative divisions of peninsular Portugal are its 18 districts, which are subdivided in turn into 278 municipalities and these again in 2,882 parishes.

As regards NUTS in the Iberian Peninsula, indicate that NUTS (Nomenclature

of Territorial Units for Statistics) are a series of territorial demarcations used by the European Union for statistical purposes, which were created by the European Statistical Office (Eurostat) for Give uniformity to European regional statistics and are used, inter alia, for the regional redistribution of EU structural funds. Although they were adopted in 1988, it was not until 2003 that they fully entered into force in the European Parliament's Rules of Procedure.

The NUTS classification criteria are based on existing administrative units in each of the EU member states. Territorial unit means a geographical region with an established administrative authority and with institutional and legal competence in its state. In addition NUTS levels in which an administrative unit is divided are dependent on population boundaries: NUTS 1 from 3 to 7 million inhabitants, NUTS 2 from 800,000 to 3 million and NUTS 3 from 150,000 to 800,000, but do not apply strictly.

Obtaining the code criteria of each of the NUTS, the significant thing is that the administrative structure of Spain and the one raised by the EU are quite similar. While Portugal is one of the cases that has had to modify its territorial units, to form a map more functional and comparable to the rest of the member countries of the EU. As for the relationship of NUTS in the Iberian Peninsula, the majority are in the Spanish part, mainly those of levels 1 and 2. While the number of those in level 3 is more balanced (table 1).

**Table 1. List of NUTS in the Iberian Peninsula**

| | **NUTS 1** | **NUTS 2** | **NUTS 3** |
|---|---|---|---|
| Spain (Iberian) | 6 | 15 | 47 |
| Portugal (Iberian) | 1 | 5 | 28 |
| Iberian Peninsula | 7 | 20 | 75 |

*Source: Own elaboration*

## 3. Brief approximation to the methodology of delimitation of urban areas

Methods of delimitation of European urban areas are generally based on statistical data and tend to follow the same pattern. It begins by selecting the central urban cores that meet the standard requirements of urban space and are added the adjacent areas that are related to the central core. The indicators most used to "relate" these areas are usually population, building volume, infrastructure, daily commuting to work, etc. Among the most significant examples in Spain are various works (Roca Cladera 2003, 2012, Serrano Martínez 2006, Boix Domenech, 2007, Feria Toribio, 2008 or Salom Carrasco et al 2010). These methodologies are heterogeneous, but follow a common objective, the delimitation of urban areas. After analyzing these and other international methodologies, the methodology is used to carry out this work, which can be defined as more official. The methodology used by the Spanish Government, specifically from the Ministry of Development in collaboration with different departments such as the National Institute of Statistics, for the realization of the Digital Atlas of Urban Areas in Spain.

The origin of this document, in paper and digital-web format, dates back to the end of 1998 coinciding in time with the European initiatives concerned with the study of urban areas. From its beginnings the Statistical Atlas of Housing in Spain was very well received by all the agents related to the study of socioeconomic phenomena. From that moment on, the Atlas has undergone four major updates, in the years 2000, 2004, 2006 and 2013. These updates have always maintained a structure and a main objective, centred in showing the territorial form of the Spanish urban areas using series of indicators of housing, services, infrastructure or urban planning. These statistical data, graphs and maps allow us to know the evolution of urban areas according to the values of their social and economic indicators (number of main dwellings, secondary dwellings, number of households, active population, etc.) (Ministerio de Fomento, 2009, 2014; Miramontes Carballada et al, 2014).

The criteria followed by the Spanish Ministry of Development to define each of the urban areas are the basis used to delimit the urban areas together of Spain and Portugal. The Ministry modified the criteria to delimit the territory in urban areas, but always maintained a clear differentiation between Large Urban Areas and Small Urban Areas (the rest of the territory is considered Non-Urban Areas in Spain are 7,056 municipalities representing 87 % of Spanish municipalities, with 19.3% of the population and 79.8% of the surface of Spain). The methodology used in the present work is related to the Great Urban Areas and the criteria for the delimitation of the Great Urban Areas in Spain and that are also used for the case of Portugal (Feria Toribio, 2004, 2008, Boix Domenech, 2007, Ministerio de Fomento, 2009, 2014) are the following:

- Central city: the parishes and municipalities with more than 50,000 habitants. In Spain within this category also include 3 provincial capitals that do not reach 50,000. They have an economic, social and, above all, political infrastructure that grants them this category.

- The central cities are joined by adjacent parishes and municipalities with socio-economic linkage and more than 1,000 habitants provided they meet one of the two criteria that are cited:

  * More than 100 hab/km2 and positive population growth from 1960 to the present.

  * More than 700 hab/km2

- They also took into account (in relation to the previous point) that the evolution in the number of dwellings was positive from 1960 to the present time.

- The latest delimitation analyzes also took into account the mobility of the population, thanks to data from the Labor and Geographic Mobility Survey.

For the delimitation of the Small Urban Areas, other criteria that were also considered important, such as the active population by economic sectors, were taken into account. The benchmark is to compare the percentage of active population devoted to the services sector, with the percentage of the active population dedicated to this sector in area 2 (municipalities between 20,000 and 50,000 habitants not included in area 1). All those municipalities that equal or exceed it would be included. As well as the host potential indicator, which takes into account the number of empty secondary homes, the average occupation rate of Spain and the population of the nucleus of the municipality. In this way, an estimate of the capacity of the municipality for seasonal floating population is obtained.

Each and every one of these criteria is applied in a stepwise and orderly manner. The municipalities and parishes that do not meet the first criterion are analyzed and the following successive are applied to them. This process was performed using a GIS (Geographic Information System) tool and was divided into two phases. In the first, the census and statistical information bases of Spain and Portugal were emptied at municipal and parish level, respectively. All this information was processed and codified. For a second phase to relate these statistical data to the territorial base, the map of the Iberian Peninsula. The process of creation and delimitation of urban areas is staggered, followed by the order of absolute population criteria, densities, population evolution, housing, labour mobility, etc. In spite of being a laborious process, among its positive points, is that it is verified how the different urban areas are growing and forming and it is clearly verified as far as the influence of the central cities. Throughout the process of configuring urban areas according to the criteria of the Spanish Ministry of Development, the results were contrasted with those of ESPON and Audit Urban on a European scale and on a Portuguese scale, with those of the National Statistical Institute of Portugal. As a result of the delimitation of the urban areas of the Iberian Peninsula, methodologies from Spain, Portugal and the EU were used.

## 4. Results

So this section is divided into two parts. The first shows the results of the delimitation of urban areas and in the second, some results of the demographic characteristics of this southern European territory are shown.

### 4.1 Delimitation of urban areas

The Iberian Peninsula is a territory that presents a model of settlement where territorial imbalances between urban and rural areas are still evident. As well as being a territory in which the processes of urbanization were later in reference to other European areas. However in the last years, it is detected that it is before a process of urbanization that was characterized by excessive and uncontrolled land consumption. Therefore it is important to delimit the urban areas and to apply a series of socioeconomic indicators that allow knowing their behaviour.

In the Iberian Peninsula a total of 89 urban areas were delimited, in Spain 76 and in Portugal 13. Within Spain they are located both on the coast and in the interior of the country and identify the most significant socio-economic axes: the Mediterranean, the Atlantic and the centrality of Madrid. In the case of Portugal, a clear interior-coastal imbalance is detected, as it is on the coast where the urban areas are located and, in particular, the attraction of the cities of Porto and Lisbon can be detected (Fig. 2).

By grouping the urban areas of the Iberian Peninsula according to the total number of habitants, almost half are within the range of 100,000 to 500,000 habitants, reason why within the Iberian territory the small and medium urban areas predominate according to the context of the EU. In fact, the two intervals of small cities of 10,000 to 100,000 and the mentioned one of the cities of 100,000 to 500,000 habitants represent 73% of the urban areas of the Iberian Peninsula. While large cities represent 10% and metropolises 7% of the total with urban

areas such as Madrid with 6 million habitants, Barcelona with 5 and Lisbon with 2.7, demographic values that could include them in the category of megalopolis. Nevertheless they are in a "step" below cities like New York, Buenos Aires or European like London and Paris.

**Figure 2. Territorial distribution of the urban areas of the Iberian Peninsula**


*Source: elaborated by the National Institutes of Statistics of Spain and Portugal (2014)*

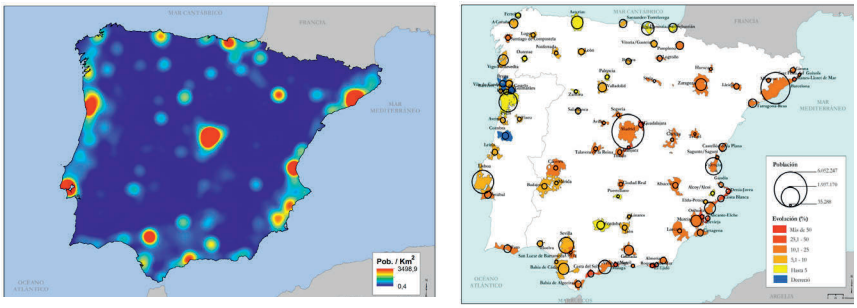
In the list of Iberian urban areas with more than 1 million habitants, there are 6 cases, 4 in Spain and 2 in Portugal. In the group of areas with more than 2.5 million habitants is Madrid with 6.052.247 habitants and a density of 2,094 hab/km2, Barcelona with 5,030,679 habitants and 1,538 hab/km2 and Lisbon with 2,720,483 habitants and 1.134 hab/km2. While those with 1 to 2.5 million are Porto with 1,937,170 habitants and 796 hab/km2, Valencia with 1,551,585 habitants and a density of 2,467 hab/km2 and Seville with 1,294,867 habitants and a density of population of 847 hab/km2 (INE-Portugal and INE-España, 2014). In the first group are the capitals of the countries (Madrid-Spain and Lisbon-Portugal), in addition to Barcelona. The centrality of the urban areas of Madrid and Lisbon as capital cities is reflected in the size of their population concentrations, their political, economic

polarity or hosts the headquarters of large business groups.

## 4.2 Some characteristics of the urban population of the Iberian Peninsula

We briefly show only 3 of the demographic variables studied: the demographic dynamics, the old population and the foreign population.

**Figure 3 and 4. Distribution of population in 2011 and evolution of the population of urban areas from 2001 to 2011 in the Iberian Peninsula**



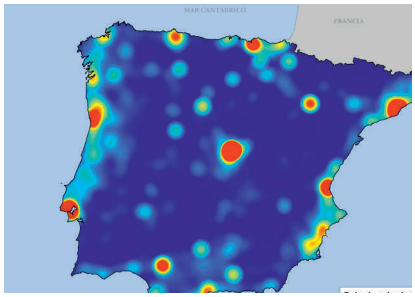

*Source: elaborated by the National Institutes of Statistics of Spain and Portugal (2014)*

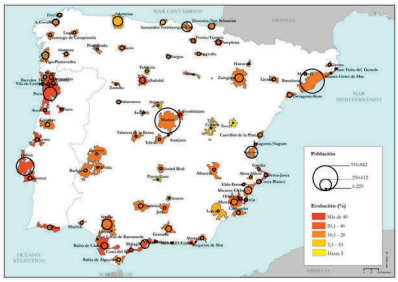
The location of the distribution of the population corresponds exactly with the urban areas. As a result of this clear imbalance between urban areas that grow, and rural areas of Spain and Portugal that lose population. At the same time it is also easy to verify how the population is located along the entire Mediterranean axis from Catalonia to Andalusia and also in the south of Portugal. The significance of Barcelona, Madrid, Porto and Lisbon. As well as other minor axes like the Atlantic one along Galicia until Porto, or centres like Zaragoza and Sevilla (Fig. 3 and 4).

The demographic dynamics of the urban areas 2001-2011, show in general a positive trend, except this process in some with a strong weight of the activity Industrial and mining sectors that have been affected by reconversion or relocation (Ferrol or Asturias). Only a few of the smallest urban areas in Portugal are lost,

absorbed by the growth and dynamism, for example, of Porto's area of influence. The most positive dynamics in this decade have been of general form the ones of the Mediterranean coast. It also highlights the growth of urban areas close to Madrid, Barcelona and Lisbon.

**Figure 5 and 6. Distribution of the population over 65 in 2011 and evolution of the population of urban areas from 2001 to 2011 in the Iberian Peninsula**





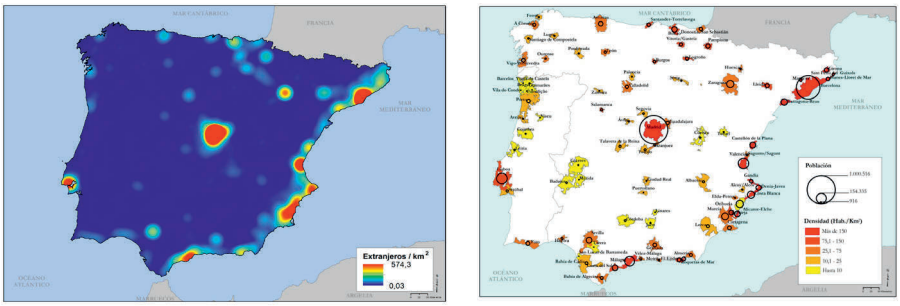
*Source: National Institutes of Statistics of Spain*

The highest percentages of population groups over 65 years of age are found in less populated urban areas. Although it is possible to be affirmed that in all the Iberian Peninsula there is a serious demographic problem, centralized in a process of aging of the population extremely important and that continues today (Fig. 5 and 6).

A major component of population growth was the arrival of a large volume of foreign population. With much more influence in the Spanish part. In fact, and as an example in Spain in 2001 there were 1.3 million people and in 2011 almost 6 million. In Portugal, the largest increases are concentrated in the urban area of Lisbon, thanks to its capital role. The largest number of foreigners are located in the most populated urban areas and along the Mediterranean axis, linked to several factors such as job offers in the low-skilled services sector, the growth of residential tourism or specific cases such as El Ejido linked to the growth of agricultural

activities. The lowest values are given in the Andalucía cities of the interior and Extremadura (Fig. 7 and 8).

**Figure 7 and 8. Distribution of the foreign population in 2011 and evolution of the population of urban areas from 2001 to 2011 in the Iberian Peninsula**




*Source: elaborated by the National Institutes of Statistics of Spain and Portugal (2014)*

## 5. Conclusions

Spain and Portugal are two different territories and with their own idiosyncrasy. However within the globalized world in which we find it is important to raise new areas of study, in this case urban, that goes beyond the administrative boundaries that often exert a border power that prevents us from reaching the study of the true characteristics of the territory. Therefore, with the accomplishment of this work we have achieved the main objective, mapping the urban areas of the Iberian Peninsula applying a common methodology.

In order to arrive at the final map of the urban areas, delimitation criteria were used in the whole of Spain, Portugal and the EU. In order to generate cartography of the urban areas of the Iberian Peninsula, it was necessary to study those of Spain, Portugal and the EU earlier. Thus, in addition to performing an exercise of delimitation of the Iberian urban areas we study the urban system of Spain and Portugal. In the Portuguese case, it was confirmed how Portuguese industrialization

benefited the growth of the two large cities of Lisbon and Porto, which, among other consequences, were germinating until the formation of agglomerations and the present urban areas. At present, as an example of the 10.5 million inhabitants of Portugal 4,7 are concentrated in the urban areas of Lisbon and Porto. One consequence of this reality is the lack of intermediate cities that contributes to the development of a territorial imbalance in Portugal. As for the location of urban areas, in addition to the problem caused by the lack of intermediate cities, there is another territorial imbalance between the coast and the Portuguese interior, as the cities settle in the strip of coast.

The absence of small and intermediate cities is a serious obstacle to regional development, as the interior regions depend on the services offered by coastal cities. However, on the scale of the Iberian Peninsula, this imbalance, this distance between the interior of Portugal and other urban areas is not so important. In addition, for the Spanish urban areas close to these Portuguese spaces without urban areas, a new space could be opened to offer their services to these Portuguese areas. In fact, there are examples of different international actions, mainly promoted from the EU, which seek to relate many border areas, which are given a series of tools for territorial development or the creation of new territorial units such as Euro regions (Galicia- North of Portugal).

In the case of Spain, the delimitation of the urban areas identified the general characteristics of the urban system of Spain that is much more dispersed and with urban areas throughout the country. At the same time, the hierarchy of urban areas and the differentiation of the socio-economic axes that form the interaction of several urban areas are quite simple. In fact, the demographic, economic, political and power centres of the country, such as the centrality of Madrid, the Mediterranean Axis, the Cantabrian Axis, the Atlantic Axis and the influence of certain urban areas, are clearly detected around certain urban areas (Bilbao,

Barcelona or Seville). At the same time, we were able to verify the existence of a series of urban areas Portuguese and Spanish that increase their relations and that can come to vertebrate the territory of the Iberian Peninsula as a whole and to integrate it and to make it competitive within the international markets. Within the consolidated axles, stand out the Lisbon-Madrid-Barcelona, Lisbon-Madrid-Valencia, Lisbon-Salamanca-Bilbao or Galicia-Porto-Lisbon.

## 6. References

BOIX DOMENECH, R. (2007). *Concepto y delimitación de áreas metropolitanas: una aplicación a las áreas metropolitanas de España.* Seminario Las grandes áreas metropolitanas españolas en una perspectiva comparada. Sevilla.

DOMÍNGUEZ, L. y VENADE, N. (2004). *As Euro-Regiões e o futuro da Europa: o modelo da euro-região Galiza-Norte de Portugal.* Edición Eixo Atlântico do Noroeste Peninsular: Porto.

EEA (European Environment Agency) (2006). U*rban sprawl in Europe. The ignored challenge.*.European Commission/Joint Research Centre.

EUROSTAT. *GISCO (Geographical Information and maps) (*2014). Eurostat. [Available in http://epp.eurostat.ec.europa.eu/portal/page/portal/gisco_Geographical_information_maps/introduction].

EUROSTAT (2008). *Regions of the European Union,* Colección Statistical books: Luxemburgo.

FERIA TORIBIO, J.M. (2004). "Problemas de definición de las áreas metropolitanas en España". *Boletín de la AGE,* nº 38, 85-99.

FERIA TORIBIO, J. M. (2008). "Un ensayo metodológico de definición de las áreas metropolitanas de España a partir de la variable residencia-trabajo". *Investi-*

*gaciones Geográficas*, nº46, 49-68.

FERRÃO, J.; RODRIGUES, D. & VALA, F. (2002). *As Regiões Metropolitanas Portuguesas no Contexto Ibérico. Ministério das Cidades*, Ordenamento do Território e Ambiente/DGOTDU: Lisboa

FUJITA, M. y MORI, T. (1997). "Structural stability and evolution of urban systems". *Regional Science and Urban Economics,* nº 27, 99–442.

GASPAR, J. (1995). "Do urbanismo em Espanha e Portugal". *Anales de Geografía de la Universidad Complutense de Madrid*, nº 15, 351-360

GOERLICH GISBERT, F. J. and CANTARINO MARTI, I. (2013). *Zonas de morfología urbana. Coberturas del suelo y demografía.* Fundacion BBVA, Informes y Sociedad, Editorial Biblioteca Nueva, S. L: Bilbao.

INE-PORTUGAL & INE-ESPAÑA (2014). P*eninsula Ibérica en cifras 2014.* Instituto Nacional de Estatística e Instituto Nacional de Estadística, Lisboa y Madrid.

MILES, M. & HALL, T. (eds.) (2003). Urban futures: critical commentaries on shaping the city. Routledge: London.

MINISTERIO DE FOMENTO (2009). *Atlas Estadístico de las Áreas Urbanas en España.* Madrid.

MINISTERIO DE FOMENTO (2014). http://www.fomento.gob.es/

MIRAMONTES CARBALLADA, Á. & SA MARQUES, T. (2014). "Aproximación al estudio de la delimitación de las áreas urbanas de España y Portugal". *Actas del XIV Coloquio Ibérico de Geografía*. Departamento de Geografía, Universidade do Minho: Guimaraes.

NECHYBA, T. & WALSH, R. (2002). "Urban sprawl". Jour*nal of Economic Pers-*

*pectives,* nº 18, 177–200.

ROCA CLADERA, J. (2003). "La delimitación de la ciudad: ¿una cuestión imposible?". *Ciudad y Territorio. Estudios Territoriales*, nº 135, 7-36.

ROCA CLADERA, J., ARELLANO RAMOS, B. & MOIX BERGADA, M. (2011). "Estructura Urbana, Policentrismo y Sprawl. Los ejemplos de Madrid y Barcelona". *Ciudad y Territorio. Estudios Territoriales,* , nº 168, 299-321.

ROCA CLADERA, J.; MOIX BERGADA, M. & ARELLANO RAMOS, B. (2012). "El sistema urbano en España". *Scripta Nova*, nº 395.

SALOM CARRASCO, J. & ALBERTOS PUEBLA, J. M. (2010). "Densidad de la red viaria y forma urbana: Delimitación del espacio urbano en ocho aglomeraciones españolas". *IV Jornadas de Geografía Económica*. Universidad de León: León.

SERRANO MARTÍNEZ, J. Mª. & KING, R. (1994). *Urban systems and Regional organization in Spain. Research Papers in Geography.* University of Sussex:Brighton.

SERRANO MARTÍNEZ, J. Mª. (2006). "Aglomeraciones y áreas urbanas en España, dimensión y tendencias: Breves precisiones". L*urralde: investigación espacial,* nº 29, 115-142.

SORRIBES MONRABAL, J. (1999). *Las áreas metropolitanas. Análisis teórico y experiencia comparada.* Universidad de Valencia: Valencia.

VENERI, P. (2010). "Urban Polycentricity and the Costs of Commuting: Evidence from Italian Metropolitan Areas". *Growth and Change*, Vol. 41, nº. 3, 403–429.

# Contexts and contents of recent metropolization in Brazil since the creation of the Metropolitan Region of Feira de Santana - Bahia – Brazil[1]

Cleonice Moreira da Silva

*Universidade Federal de Bahia*

Antonio Angelo Martins da Fonseca

*Universidade Federal de Bahia*

## Abstract

*How the changes in the spatial patterns of formal and informal housing over time in the São Paulo Metropolitan Region (SPMR) are detected and recorded by satellite images? The question guided the experiments in this article, whose objective to model how formal and informal housing-types dynamics are registered by the images and how these data are correlated to the urban geographic space production process, expressed by the land prices and the poverty peripheralization. The methodology uses a multitemporal Landsat database, from 1985 to 2016 with a 5-year collection interval, on which a Spectral Unmixing technic was applied using global reference endmembers to characterize the intrapixel proportion of substrate (bare soil and built areas), vegetation and shadows (dark surfaces). The temporal exchange patterns between the fractions were modelled by calculating the correlation coefficient between them over time, and validated with field information as the geocoded real estate historical points and the slums polygonal limits. The results show that the formal vertical housing production is detected by the model as an inverse correlation between the substrate and shadow fractions, with increasing shadows over substrate, suggesting that it can be used to detect the vertical accumulation areas along the time, while in precarious housing areas (slums and illegal neighbourhoods), the pattern is an inverse correlation between vegetation and substrate/shadows. In both cases, the fractions exchange patterns reflect the unique urban phenology of each housing-type and the inequality between them. Besides, they spatially correlate with the housing access determined by the land prices.*

1 Part of the reflection developed in the master's thesis entitled: Is the little princess of the hinterland now metropolis?! An analysis of the process of 'metropolization' of Feira de Santana/BA. (2014).

## 1. Introduction and objectives

Globalization and urbanization have influenced with different intensities the process of (re)construction of the geographical space which has become increasingly complex. In this complexity, spaces are more intensely affected and, therefore, constantly transformed, whether at global, national, regional or local level. At local and regional levels, specifically, these processes have generated large urban / regional settlements, new types of localisms, regionalisms and regionalizations, aiming at competitive insertion in global markets. All this dynamics has also expanded spatial (in)justice.

In Brazil, the recent expansion of metropolitan regionalization is both an integrating part of the global process and part of local and regional political strategies aimed at serving electoral groups. In order to discuss these issues, this article analyzes the meaning of the recent metropolization process in Brazil since the creation of the Metropolitan Region of Feira de Santana / Bahia (MRFS), emphasizing the actors involved, the motivations and characteristics of MRFS. For this purpose, the methodological procedures adopted for the development of this work involved fieldwork and interviews with representatives of civil society and politicians from the municipalities that comprise the Metropolitan Region of Feira de Santana. Data collection was also conducted at the Brazilian Institute of Geography and Statistics (IBGE), through the publication Regions of Influence of Cities (REGIC).

## 2. Verticality, horizontality and regional cohesion

Based on Santos (1996), verticality and horizontality are segments that facilitate the analysis of the metropolitan space in the context of globalization. Through verticality the space is streamlined according to the socioeconomic, political and cultural interests of the hegemonic groups outside the region in order to grant the maintenance of rules and norms that guide the global market. They are superposition processes generated mainly through technical networks. That is why Cic-

colella (2011, p.33) states that metropolitan regions "go from territories structured essentially on the basis of the horizontal and contiguous articulation of places or regimes, to a territory structured three-dimensionally and vertically by means and in the form of networks".

However, through horizontalities, one may identify horizontal, contiguous, juxtaposed and cohesive functional relations in the space that can point to what Dickinson (1961) called the ideal political region, that is, a cohesive space, established from the common interests and needs of those involved in a given regionalization process. In this perspective, cohesion would occur from integration and through banking relations, communications, ease of access, vehicle traffic, the existence of a large area of specialized services and cultural and political affinities. But if common interests are not well defined or respected, the imposition of interests of specific groups on the region as a whole may occur and there may also be a concentration of investments in some places to the detriment of others. Thus, regionalizations would maintain and/or expand spatial inequalities, make the formation of ideal political regions impossible and, consequently, generate spatial (in) justice.

In Brazil, the recent expansion of the number of metropolitan regions (MRs) has brought new issues to the socio-spatial and institutional analysis and makes us reflect on the conceptions of cohesion and ideal political region, once there is a certain detachment between theory and reality.

## 3. The expansion of metropolitan regions in Brazil and the creation of the Metropolitan Region of Feira de Santana (MRFS)

Decisions and actions aimed at the implementation of metropolitan regions occurred in three main moments in Brazil: the first one began in the mid-1960s in the context of the dictatorial regime and culminated in 1973/74 with the institutionalization of nine metropolitan regions. At that moment, the government idea was that

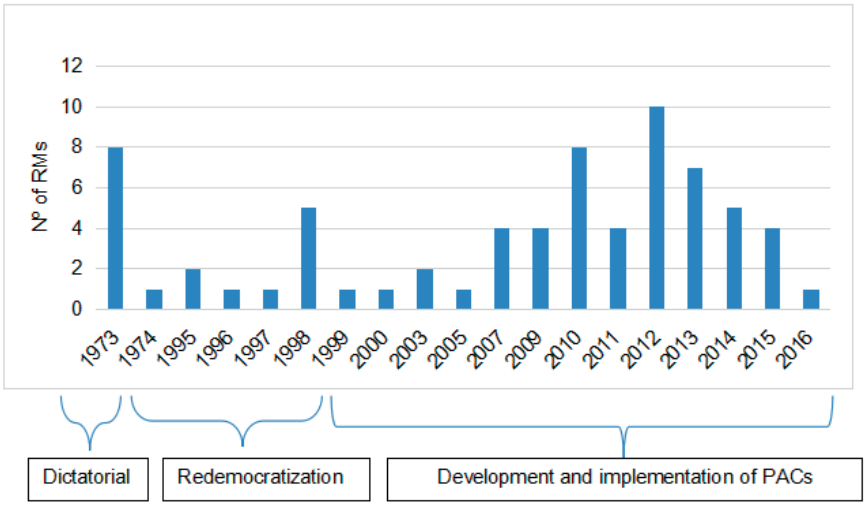
metropolitan regions represented development poles and constituted a means of maintaining political-dictatorial power, since it granted and allowed political-economic decisions to continue based on central and vertical actions.

With the democratization of Brazil and the Constitution of 1988, the creation of metropolitan regions was decentralized, from a national matter to the federal states. With this, the second moment of implementation of metropolitan regions was inaugurated, marked, above all, by the greater decision-making autonomy of states and municipalities; and the third moment of metropolization in Brazil, which is the current one, is characterized by the maintenance of local/state autonomy and by the creation and expansion of the Growth Acceleration Program (PAC), which are processes that have collaborated with distancing between institutional and socio-spatial metropolization. Institutional metropolization is understood as the "institution of metropolitan regions, from the states of the Federation, in territories that do not have, strictly speaking, the content that can be seen as the socio-spatial process of the metropolis" (Costa & Balbim, 2010, p. 673), that is, it represents only the political / economical needs of the subjects involved in such a process. When this occurs, socio-spatial metropolization is not considered by the individuals who lead the institutionalization of new regions. Socio-spatial metropolization, in turn, is understood here as a process / product of the intensity of relationships that generate regional integration and cohesion, established through functional, horizontal (juxtaposition) and vertical (superposition) spatial relations. And at the moment when the institutional and socio-spatial dimensions are detached from each other, the flows of material and immaterial order that characterized regional dynamics are not considered.

With regard to the Brazilian metropolitan regions established mainly from the year 2000, the split between these two types of metropolization was a recurrent practice. And according to the interviews, we believe that one of the factors that

contributed to this was the development of the Growth Acceleration Program (PAC), since it attributed greater financial transfers to metropolitan areas, among other urban settlements. In this way, we understand that PAC instituted a new stage of metropolitan regionalization in Brazil. In this, the split between socio-spatial dynamics and political interests is highlighted. Figure 1 shows a survey of the evolutionary process of the metropolitan regions established in the country, considering the three historical-political moments: dictatorial, redemocratization and development and implementation of PAC.

**Figure 1. Relation between metropolitan regions and year of implementation**

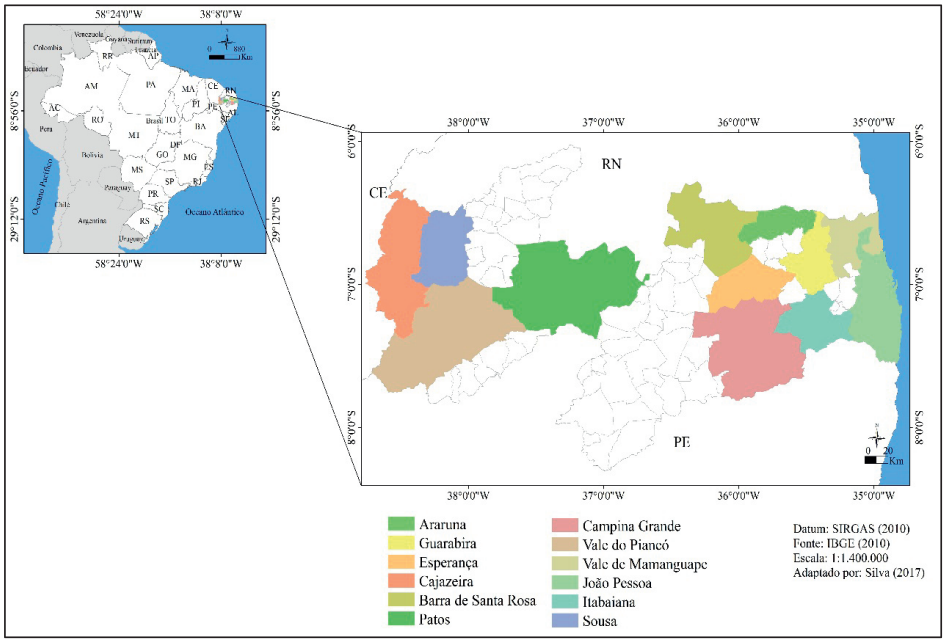



*Source: IBGE (2010). Adapted by Silva (2017)*

Based on the reading of the graph, it is evident that the period of greatest metropolitan effervescence in the country was started from the years 2000, especially in the years 2010 and 2012, which had, respectively, 8 and 10 new regions implemented. In this context, the state of Paraíba, one of the five states in the country with the lowest Human Development Index, had in 2012 four new metropolitan regions simultaneously established: the metropolitan areas of the Piancó Valley, Esperança,

Barra de Santa Rosa and Cajazeiras. The Paraiba state has approximately 50% of its territorial area cut by metropolitan regions (Fig. 1).

**Figure 1. Metropolitan regionalization of the federative state of Paraíba (2017)**




*Source: The authors*

It can be observed that in the eastern part of the state of Paraíba, three municipal groups were excluded from the established metropolizations, which may contribute to the deepening of their socio-spatial problems, since investments, whether state or federal, will be concentrated in the newly created metropolitan regions.

The political discussions about the creation of the Metropolitan Region of Feira de Santana (MRFS) started since the 1990s by Deputy Colbert Martins Filho, who at the time was linked to the Party of the Brazilian Democratic Movement (PMDB). The fact that most of the municipalities composing the region did not present urban economic characteristics, but rural ones, was always at the center of debate.

Even so, this debate was strengthened at a special session held on 04/08/2011 at the Feira de Santana City Council with the presence of three state deputies and city council members aiming to re-discussing and approving the proposal of creating the Metropolitan Region of Feira de Santana. And the speech used by the group of politicians who defended the proposal was that the MRFS would promote greater economic dynamism in the region. However, the main idealizer of the proposal, Mr. Colbert Martins Filho, stated in 2009 that "there are many resources in the State and Union budgets that can be obtained only through the Metropolitan Regions, as well as international financing"[2].

These actions and motivations, which were the main bases of convincing to create a common sense of interest and, consequently, to create the MRFS, besides privileging only the institutional dimension, collaborated to the detachment between institutional metropolization and socio-spatial metropolization, and ratified a practice of electoral politics that has been recurring in recent years in Brazil, which is the creation of metropolitan areas in spaces that do not present forms and functions inherent to a condition of metropolitan urbanization. In metropolitan spaces, it is necessary to have constant processes of "... centralization and decentralization, generating the appearing of specialized areas within the urban space, thus making its spatial organization more complex" (CORRÊA, 1997, 131).

When valuing the institutional to the detriment of the socio-spatial, these electoral political decisions consider only the cartographic representation of 'proximity' among the municipalities and not the real content of a metropolitan space, based on the material and symbolic functional cohesion that feeds the juxtaposition horizontally. Nor do they consider the verticalities and juxtapositions that reach space through multiscale flows of information, commodities and ideas. (Santos, 1996; Haesbaert, 2010).

2 Federal Deputy Colbert Martins Filho's speech published in:
http://colbertmartins.blogspot.com.br/2009/06/regiao-metropolitana-de-feira.html

It was in this context of institutional metropolization that in 2011 the Metropolitan Region of Feira de Santana was established via Complementary Law nº 106/2011. According to this law, the objectives of creating a new metropolitan region were to promote integrated, balanced and sustainable socio-economic development in the metropolitan scope and to reduce inequalities among the municipalities that comprise it. That is, there was a full correlation between metropolization and the expansion of spatial justice.

In the Brazilian normative perspective, a metropolitan region is a "grouping of bordering municipalities, aiming to integrating the organization, planning and execution of public functions of common interest" (BRAZIL, 1988, Art. 25, § 3). This confirms what Dickinson (1961, p. 26) defined as an ideal region, understood as "... a homogeneous social unit, visible in the structure of space, inherent to society. The ideal political region, whether large or small, is the one with the greatest number of common interests. "

That is, the metropolitan region is a complex, cohesive, vertical and horizontal space and should represent a:

> *Social and economical reality whose dynamic center is the metropolis, pole of attraction (and / or domination) of a great space of production and consumption, and whose manifestation is the intense urbanization that gives rise to multiple functions of common interest to the bordering municipalities. (Ambrosis, 2001, p. 165)*

The intensity and complexity of the multiple relations established in the urban / regional space is what really characterizes socio-spatial metropolization. However, what has been seen in the Brazilian scenario is a metropolization based only on political interests, whose specific objective is to raise more financial resources from the state and federal governments.

In the context of MRFS, the municipality of Feira de Santana-Ba exerts a major economic and political influence on the others that are part of the metropolitan region. In this municipality, the largest quantity and the rarest goods and servi-

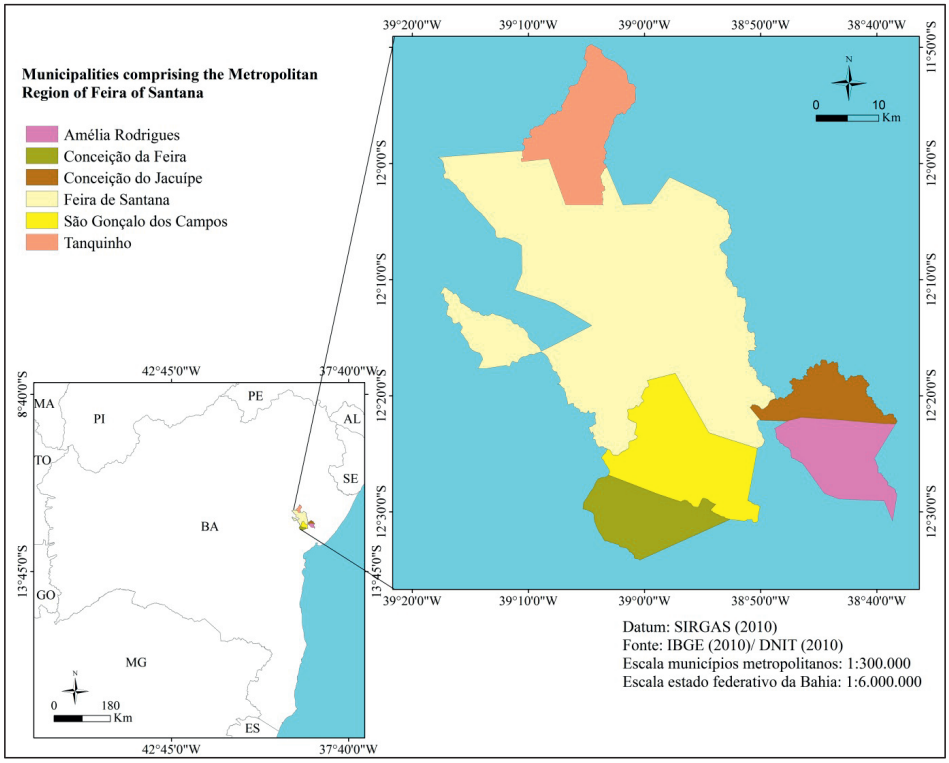
ces that are offered in the region are concentrated: universities, specialized clinics, shopping center, retailing and wholesale markets, whereas in the other municipalities of the region, deficiency prevails in terms of infrastructure and health services, education and leisure. It is with this unequal technical density of goods and services that Feira de Santana generates a functional cohesion of an economic and political character around its region.

The MRFS is comprised of the municipalities of Feira de Santana, Amélia Rodrigues, Conceição do Jacuípe, Conceição da Feira, São Gonçalo dos Campos and Tanquinho which are inserted in two different and neighboring natural spaces: the recôncavo and semi-arid regions (Fig. 2).

They are six municipalities with a population of approximately 673,643 inhabitants. The most populous municipality is Feira de Santana with 556,642 inhabitants and the least populated is Tanquinho with 8,008 inhabitants (SILVA, 2015). Of this total, approximately 88% reside in urban areas.

Regarding the economic characteristics, there is also a great disparity between the municipalities of the MRFS. In 2010, the Gross Domestic Product (GDP) of Feira de Santana, which is the largest, was R$ 7.433,139, whereas the second largest, in the municipality of Conceição do Jacuípe, was R$ 533.024 (SILVA, 2014). In Feira de Santana, GDP is mainly concentrated in service activities and, to a lesser extent, industrial activity. In other municipalities, the small service sector prevails and, to a lesser extent, the agricultural one.

**Figure 2. Metropolitan Region of Feira de Santana in the state of Bahia**




*Source: The authors*

As a result of this socio-spatial inequality, it is possible to state that MRFS is also characterized by spatial injustice, because according to Bret (2016, p. 2):

> *If the center plays a role of development pole and takes its periphery to a development dynamics that benefits the inhabitants of the latter, the geographical configuration, although unequal, can be described as fair. If, on the other hand, the center exploits its periphery without spreading development in it, the configuration must be described as unfair.*

But although functional cohesion is present, it is still fragile because the urban structure of other municipalities in relation to the metropolis does not characterize the complementarity relation that is supposed to exist in a metropolitan region. This leads us to conclude that the Metropolitan Region of Feira de Santana (MRFS) is one of the examples of what was defined in the third phase of Brazilian

metropolization, in which institutional metropolization prevails over socio-spatial metropolization, since there is still no ideal political region where common interests prevail among the municipalities of MRFS.

## 4. Final considerations

From the analysis of the processes that characterized the formation of the metropolitan region at issue, we verified that, with regard to the creation of metropolitan regions in Brazil, geographical processes are not considered as a fundamental point. This situation demonstrates that political interests are preponderant in the metropolization of the country. These interests were also verified in the political strategies adopted for the creation of MRFS, since the functional cohesion and the horizontal and vertical relations among the municipalities, although present, they are still fragile.

That is, despite the regional importance of Feira de Santana, the socio-spatial contents that characterize a metropolitan space are not yet sufficiently present to justify a metropolitan regionalization. Even so, MRFS has been instituted since 2011.

## 5. References

AMBROSIS, C. (2001). "Regiões metropolitanas, aglomerações urbanas e microrregiões". In FUNDAÇÃO PREFEITO FARIAS LIMA (SP). *Estatuto da cidade.* Fundação Prefeito Faria Lima: São Paulo.

BAHIA. ASSEMBLÉIA LEGISLATIVA (2011). *Projeto de Lei Complementar nº 106/2011.* Institui a Região Metropolitana de Feira de Santana – RMFS e dá outras providências. Salvador.

SECRETARIA DE PLANEJAMENTO E INVESTIMENTOS ESTRATÉGICOS. *Brasil. Plano Plurianual 2008-2011: Projeto de lei/ Ministério do Planeja-*

*mento, Orçamento e Gestão*. Brasília.

SENADO (2011). *Brasil. Constituição (1988 ). Constituição da República Federativa do Brasil.* Brasília.

BRET, B. (2016). *Equidad territorial. [Available in* www.hypergeo.eu/spip.php?article560].

CICCOLELLA, P. (2011). *Metrópolis latino americanas: Más allá de la globalización.* Olacchi: Quito.

CORRÊA, R. L. (1997). "Região: A tradição geográfica". In CORRÊA, R. L. (org). *Trajetórias Geográficas*. Bertrand Brasil: Rio de Janeiro.

COSTA, M. A., MATTEO, M., BALBIM, R. N. (2010). "Faces da metropolização no Brasil: desafios contemporâneos na gestão das regiões metropolitanas". In IPEA. *Infra estrutura social e urbana no Brasil: Subsídios para uma agenda de pesquisa e formulação de políticas públicas/Instituto de Pesquisa Econômica Aplicada.* IPEA: Brasília.

DICKINSON, R. E. (1961). *Ciudad, region y regionalismo: Contribuicion geográfica a la ecologia humana.* Omega: Barcelona.

HAESBART, R. (2010). *Regional e global: Dilemas da região e da regionalização na Geografia contemporânea*. Bertrand Brasil: Rio de Janeiro.

INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA (2007). *Áreas de influências das cidades.* IBGE.

SANTOS, M. A. (1996). N*atureza do espaço: técnica e tempo, razão e emoção*. Hucitec: São Paulo.

SILVA, C. M. (2014). *A princesinha do sertão agora é metrópole?! Uma do processo de 'metropolização' de Feira de Santana-Ba*. Dissertação (Mestrado em Geo-grafia). Universidade Federal da Bahia: Salvador.

# The habitable politics and the production of the urban area in the small cities of the Território de Identidade do Sisal – Bahia-Brasil (Identified Territory of Sisal – Bahia-Brazil)

Maria da Paz de Jesus Rodrigues

*Universidade de Santiago de Compostela*

Maria José Piñeira Mantiñán

*Universidade de Santiago de Compostela*

## Abstract

*The implementation of housing policies supported by Brazilian Federal Government in partnership with city government and sectors of construction industry have provoked direct interference in spatial organization of cities, contributing to the creation of peripheral regions, valorization of urban areas and increase in intra-urban inequalities. Due to the territorial coverage of housing programs in the last decade, these processes have spread in both major and small urban centers. The main objective of this work is to analyze some of the socio-spatial implications of the execution of housing policies of social interests in small towns of Território de Identidade do Sisal (Identity Territory of Sisal) – Bahia – Brazil. The building of popular housing complexes provides low-income families access to housing. However, it also stimulates the expansion of urban areas of these small cities, and has leveled up social and spatial marginalization, because many of these complexes have been constructed in peripheral areas constituted in precarious settlements, deprived from infrastructure, services and public equipment. Investigations have revealed that in such small cities, considering specifications and scale of processes apprehensions, the production of urban space, propelled by the implementation of these policies, has produced similar results to the current socio-spatial segregation processes in major and medium-sized Brazilian cities.*

## 1. Introduction

In different scales and contexts, the production of urban space is characterized by an intense complexity materialized in its configurations, intra-urban dynamics and contradictions. Partly, it may be attributed to the multiple strategies applied by distinct agents that act in its continuous process of production and promote

modifications in its socio-spatial organization.

The notion of spatial production creates a more comprehensive reading of the city in its spatial perspective involving different practices, subjects and contents as well as, by contemplating various dimensions of urban reality, relations of power and capital accumulation associated to the movement of human action, realization of life, and, therefore, intrinsic conflicts of space appropriation (CARLOS, 2011).

Commonly, the production of urban space is marked by diverse relations among producer agents that, almost always, present divergent intent. However, according to convenience and self-interest involved, these agents may act in an articulated way. Despite the fact that there isn't an agreement concerning who the most prominent social agents in the structuration of urban space are, Corrêa (1989) and Carlos (2011) consider that the State acts as one of the main producer agents because they gather functionalities related to: incorporation of new areas, selective infrastructure allocation and services; socioeconomic conflict mediation; joint action with other agents, central role performed in planning and territorial management; and the prerogative of standardization and regulation of the use of urban soil

In Brazil, the State, due to the actions taken, has turned into a determinant agent in the structuring of urban space. Among those actions, one can highlight the execution of habitable politics. In this specific case, the State acts with explicit correlation with Real Estate market and land sectors, and actions aligned to market logic, prioritizing exchange value of the urban space confronting the social function of property. The modus operandi applied by the agents involved in the implementation of housing programs supports a production of urban space connected to the capitalist rationality. In other words, it maximizes capital accumulation and, simultaneously, social and spatial contradictions.

Currently, the execution of public housing policies has spread over Brazilian

territory, thus contemplating major cities and small ones. However, most of the studies about the matter has focused on major and middle-sized cities, and disregard the fact that small cities have also been target of such actions and are subject to significant changes in their settings and dynamics.

Emphasizing the role of the State as a regulator and producer agent of urban space, this study aimed at analyzing some socio-spatial implications of execution of public habitable politics in small cities in the Território de Identidade do Sisal-Bahia-Brazil, specially housing policies of social interest, destined to the population whose monthly income is below 3 minimum wages. One can infer that the building of housing complexes promotes the expansion of the urban space of those small cities and provides access to housing. However, the process also induces an increase of socio-spatial segregation in relation to the location of these houses in peripheral areas, which lack urban infrastructure and basic public equipment.

The research was based on bibliographic research, analysis of Federal Laws that regulate the implementation of the Minha Casa, Minha Vida Program (PMCMV). Institutional Documents and statistic data made available by Ministério das Cidades (Ministry of Cities), IBGE (Brazilian Institute of Geography and Statistics), IPEA (Institute of Applied Economic Research) and João Pinheiro Foundation. Field trips consisting of visits to 14 out of 20 municipalities of the Território do Sisal contemplated by housing programs were also made.

The article is structured into two topics. The first one proposes discussion about implementation of public policies of social interest, in case, the Minha Casa, Minha Vida Program, as well as it tries to establish correlations with the actions taken by such program and the production of urban space. The second topic emphasizes how the construction of housing complexes has impacted in the spatial organization of small cities of the Identity Territory of Sisal, resulting in the spread of the urban perimeter and the creation of peripheral regions

## 2. Brief considerations about housing policies of social interest and the production of the urban space

In the Brazilian scenario, since the 1930′s, the State has applied some remedial measures to diminish housing problems in major cities. From the 1960's on, with accelerated urbanization and consequent population growth, housing policies started to be structured in a wider and more systematic way, prioritizing investments for major cities and matching the needs of the middle class, clearly related to market logic.

Only from year 2009 on, housing policies started to contemplate in a more extensive way social segments of low-income families, which correspond to the part of the population that presents the higher indicators of housing deficit. According to a study made by IPEA - 2013 (Institute of Applied Economic Research), from data collected by the Pesquisa Nacional por Amostra de Domicílio (National Research of Housing Samples) (PNAD) – 2012, 73.6% of Brazilian housing deficit corresponds to the homes whose families make less than 3 minimum wages monthly. The study also reveals that 85% of housing deficit is concentrated in urban areas.

Data reveal how socioeconomic inequalities in Brazilian cities limit access to urban land and descent housing. Housing precariousness and the vulnerabilities of peripheral areas settlements, situation to which most urban population is subjected, are easily noticed in the contrasts of urban landscapes of major and smaller centers, which don't hide the marks of socio-spatial segregation.

One of the main government measures taken in the last years with the objective of minimizing urban housing deficit was the launch of the Minha Casa, Minha Vida Program (My House, My Life) (PMCMV), created by federal law 11.977, July 2009 and "its purpose is to create means to encourage building and acquisition of new housing units or to requalify urban properties and build or reform rural properties for families whose monthly income is less than R$4.650,00 (Four thousand, six

hundred and fifty Reais)" (BRAZIL, 2009). However, the program has also been directly associated to strategies adopted by Federal Government to diminish the effects of economic downturn caused by the global economic crisis of 2008, taking into consideration that the execution of the program would represent a boost for construction industry, Real Estate sectors and, consequently, improve the economy of the country.

Operationalization of PMCMV is the result of a partnership between Federal Government and the Construction Industry. The concession of subsidies by the government was essential for leveraging the production of housing units to match the needs of low-income families. Real Estate perceived a great potential do diversify its activities due to the size of the program, its national reach, the repressed needs it represented and, obviously, public subsidies and credit availability.

Some strategies have been adopted to provide as much profit as possible with the production of popular housing units such as: outsourcing of activities, construction standards, low-cost land acquisition, maximum thickening and reduction on the dimension of housing units (VOLOCHKO, 2015).

In this perspective, public outcry for an effective housing policy of a more inclusive social interest was responded not only due to a greater tension caused by social protests, but also, and mainly, due to the necessity of promoting internal economic dynamism. It is worth mentioning that, besides the citizens who benefited from subsides of Category 1 (for families whose monthly income is not higher than 3 minimum wages), the program has two other categories directed to the so-called "market segment". In other words, the program also offers credit at reduced interest for families whose income is up to 10 minimum wages, and these categories are the ones that concentrate most housing units.

Another particularity of this housing program is the increase in coverage, once

it assists major and middle-sized urban centers and includes cities with less than 50,000 people, contemplating properties in rural areas. Territorial expansion of federal investments in housing favored several underprivileged towns and reduced the number of rustic properties. However, it has also strengthened the action of agents interested in capitalist practices in small cities, for instance contractors and real estate brokers. The construction of housing complexes in the municipalities of the Território de Identidade do  Sisal is part of the expanding actions of PMCMV.

Despite the fact that the program represents significant advance concerning reduction of housing deficit and matching of social demands, Maricato (2012) considers that there is still a deadlock about urban and housing policies in Brazil due to remaining highly-concentrated land ownership structure. Furthermore, the author defends that PMCMV prioritizes the quantity of housing units built rather than their urban conditions, not to mention the generation of land ownership and real estate profits, inadequate location of housing complexes and social inequalities, favoring private interest.

Such distortions caused by the way housing policies are executed in Brazil are not an isolated and exclusive reality. They are directly connected to global context of housing production established by globalized market guidelines. Rolnick (2015) reports that in distinct sociopolitical contexts there has been paradigm shift in housing: from a human right to an instrument of profit increase, which results in a process of "financialisation" of housing. According to Rolnick (2015) despite the fact that some governments have invested significantly in adequate housing for low-income families, the main purpose was to mitigate housing deficit and favor economic-financial dimension. Thus, essential aspects have been neglected, such as habitability and infrastructure.

The process of production of the urban space reverberates a field of fierce conflict, a self-interest struggle or even an association of agents to boost their profits.

Operationalization of housing policies and the spaces that have been produced by their execution also reflect this reality once they are based on production to meet economic demands rather than social ones. This fact contributes to an increase of intra-urban fragmentation. About current urbanization, Harvey (2005, p.168-169) considers it is:

*a social process spatially underpinned, in which a wide list of actors with diverse objectives and commitment interact through a specific configuration of intertwined social practices. In a society bounded by classes such as the capitalist society, these spatial practices acquire a defined content of class, which does not mean that all practices may be interpreted that way*

In the specific case of the production oriented by the creation of housing complexes of social interest, one can verify an articulation among political, land and economic segments, specially real estate and the construction industry which, in the case of Brazil, are aligned with the upper classes. Contradictorily, urban social movements and those social agents directly affected by these policies can only precariously participate in the decisions and actions, interfering very little in the conduction of housing policies.

The State, through its representative spheres, regulates and allows landowners and contractors to determine the standards of production of the space to be occupied by the low-income families. These agents, who consider land valorization as merchandize, induce, even in small cities, the expansion of peripheral areas, fostering of land market, as well as spatial marginalization and denial of access to central areas and basic services by the needy people. Directing these questions to the analysis of the spatial consequences of PMCMV, Rolnick (2015, p.313-314) considers that:

*The construction of housing complexes in peripheral areas where land prices are lower – a way of housing provision over decades – contributed to fostering urban spread, proliferation of monofunctional urbanistic standard and establishment of territorial division between the wealthy and the poor.*

Despite the fact that these evaluations have as an empiric reality the analysis of major cities, the processes observed in small towns investigated reproduce some of these strategies, nonetheless with other dimensions and strong action of agents both locally and regionally. Considering distinct scales and of manifestation of phenomena, the cities of the Território de Identidade do Sisal present indicators of processes of (re)production of socio-spatial segregation logics widely in effect in major and middle-sized urban centers. Moreover, small cities start to be subject to a more incisive action of speculator agents focused on the land market.

## 3. Some socio-spatial implications of the implementation of housing complexes in the cities of the Território de Identidade do Sisal

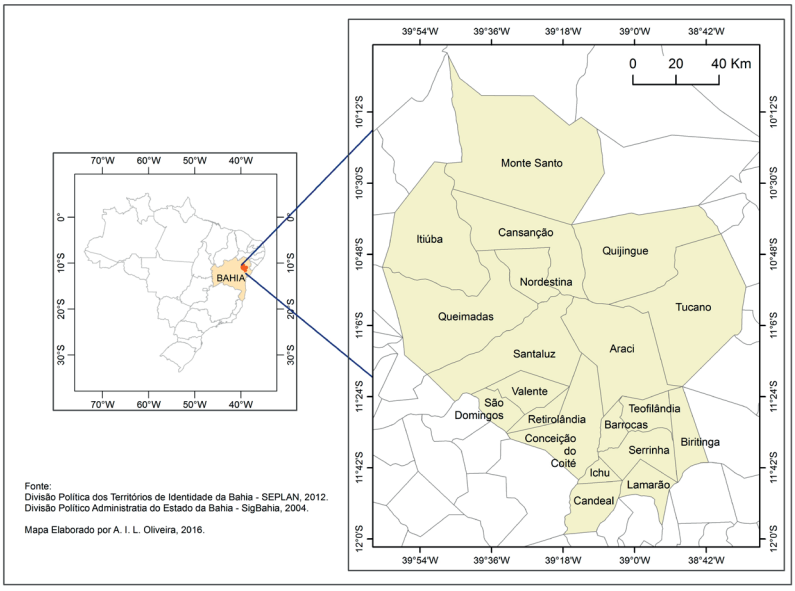
The Território de Identidade do Sisal, spatial focus of this study, is one of the 27 units of planning of the state of Bahia –Brazil, composed by 20 municipalities which possess, among their specificities, a significant articulation between the contents and the urban and rural spaces, a characteristic marked by activities related to the productive chain of sisal fiber, the main economic source of the region.

The urban organization of the Território do Sisal does not fit in as a polycentric one because neither it has middle-sized cities, nor the minimum requirements of functional integration and socio-economic dynamism. Notwithstanding, it presents a network of cities with significant internal articulation, be it for the productive activities of Sisal, concentration of services in a few urban centers or geo-historic relations.

The Territory of Sisal is mostly composed by small cities and only three of them have urban population higher than 20,000 inhabitants: Serrinha, Conceição do Coité and Tucano (IBGE, 2011). It is worth mentioning that Serrinha and Conceição do Coité, despite not being classified as middle-sized cities, cannot be compared to the

other small surrounding cities. The most coherent classification is to establish them as intermediate cities due to the fact that they present a hierarchic level relatively superior in the intra-regional context if compared to the other cities. Moreover, they play the role of central cities in relation to the cities located in the surroundings.

**Figure 1: Location of the Identity Territory of Sisal - Bahia - Brasil**




In the last years (2003 to 2016), almost all the cities of the referred Territory have been contemplated[1] with popular housing complexes for low-income families through the Programa de Subsídio à Habitação de Interesse Social (Social Interest of Housing Subside Program) (PSH) or, fully by the PMCMV program, of greater coverage in the region (Table 1).

1 The only exception is the city of Santaluz beacuse it was not contemplated with actions of the Programa de Subsídio à Habitação de Interesse Social (PSH) (Subside for Housing of Social Interest Program) , or by Programa Minha Casa, Minha Vida (PMCMV) (My home, my Life Program)

**Table 1: Distribution of housing units among cities of the Identity Territory of Sisal**

| Cities | Population | Housing units planned | Housing Units delivered |
|---|---|---|---|
| Araci | 19,638 | 769 | 504 |
| Barrocas | 5,695 | 70 | 30 |
| Biritinga | 3,517 | 65 | - |
| Candeal | 3,476 | 70 | - |
| Cansanção | 11,021 | 42 | - |
| Conceição do Coité | 28,936 | 1,242 | 1,242 |
| Ichu | 3,365 | 70 | 28 |
| Itiúba | 9,699 | 180 | 60 |
| Lamarão | 2,085 | 67 | 65 |
| Monte Santo | 8,845 | 200 | 200 |
| Nordestina | 3,921 | 70 | 35 |
| Queimadas | 11,205 | 50 | 25 |
| Quijingue | 4,297 | 103 | 73 |
| Retirolândia | 6,722 | 70 | 30 |
| Santaluz | 19,202 | - | - |
| São Domingos | 4,607 | 70 | 30 |
| Serrinha | 47,188 | 2,229 | 1,451 |
| Teofilândia | 6,692 | 109 | 70 |
| Tucano | 21,958 | 60 | 60 |
| Valente | 13,487 | 110 | 60 |

*Source: Data collected from IBGE Demographic Census (2010) and the Ministry of Cities*

According to a study developed by João Pinheiro Foundation (2013) based on data collection from IBGE in the cities of the Território do Sisal, urban housing deficit presents variations between 4% and 12%, considering that the cities of Itiúba, Santaluz, Serrinha, Nordestina and Araci have the highest percentage of urban deficit. Among components[2] for the calculation of urban deficit in the cities

2 There are four components of the housing deficit: precarious housing, family cohabitation, excessive expenses with urban housing rents and excessive thickening of rented houses.

studied, forced family cohabitation stands out. It happens when the home has more than one family that intends to build another home to accommodate dwellers properly. However, distribution of housing units among cities of the Território do Sisal is not guided by housing deficit criteria, but by political and economic ones.

In general, the construction of housing complexes of Category 1 of PMCMV provided many low-income families with the possibility of owning a house, making it possible for them to leave improvised homes without minimum services. On the other hand, these families have been transferred to housing units built on limited-space lots, with small rooms, almost always located in peripheral areas far from the center of the city. Furthermore, the surroundings of some areas have characteristics of rural space, such as the popular units in the cities of Lamarão, Quijingue and São Domingos.

*Housing has been widely produced as urban business by major contractors that tear urban policy and contribute to the deepening process of space valorization, spoliation and segregation, reproducing peripheral areas and producing new ones. The development of such process leads to more inequality driving out poorer individuals further away, improving socio-spatial segregation, fragmentation and ranking in peripheral areas. (Volochcko, 2015, p. 118)*

Similar problems can be verified in the cities of the Territory of Sisal, taking into consideration that great part of housing complexes are precarious settlements, lack basic infrastructure and urban mobility and accessibility conditions, such as the reality observed in the cities of Conceição do Coité, Serrinha, Teofilândia and Valente. In some popular housing complexes, the distance to the center of the city is approximately three kilometers. Besides, there is the problem of precarious, or sometimes inexistent, public transportation service. In a few cities these housing complexes are close to central area as it happens in the city of Retirolândia and in the first popular complex in Araci (the other two were constructed in peripheral areas).

Araújo (2016) points out that the construction of houses of PMCMV in the surroundings and, mostly, outside the urban area is an strategy validated by the changes in federal laws, once the first version of the law that regulated the program, Federal Law n.11.977, (2009), established that houses should be constructed in consolidated urban areas. Eventually, the former law was substituted by Federal Law 12.424, (2011), and the latter indicated that housing complexes should be constructed preferably in urban areas. These changes favored the spread of popular housing complexes in areas classified as "urban expansion venues", but which lack services and public urban equipment.

In the small cities of the Território do Sisal, the distance of social-interest houses from the central areas sums up with another complicated factor: these cities do not have services and commercial activities in disperse spots. All essential services are concentrated in more central areas, factor that inhibits the appearance of new central areas. Thus, the population living in housing complexes needs to move to the center of the city to have access to hospitals, drugstores, banks, public buildings, supermarket and stores.

Lack of services directed to most basic and immediate needs make some dwellers of popular housing complexes seek strategies to minimize deprivations and, simultaneously, guarantee complementary income. Thus, they adapt their houses or rooms to become informal grocery stores to sell food or cleaning gear, and even service providers such as nurseries, beauty salons and private security companies.

In another perspective, the location of these housing complexes, generally distant from the center, increases urban vacant land for speculative purposes and new demands for public resources for creation of infrastructure and basic equipment in new settlement areas lacking minimum conditions to provide habitability. These aspects have generated processes hardly noticed in small cities until the last

decade: the acting of real estate incorporators and elevation of land speculation. Implementation, even scarce, of some equipment and infrastructure provokes relative valorization of peripheral areas in the surroundings.

In some cases, insufficient installation of street lightning, water distribution service and unpaved streets stimulate a kind of peripheral land market and the appearance of lots in the surroundings of housing complexes. These new urban expansion areas are destined to be sold to low-income social segments and, most of the times, are disorderly occupied by auto-construction strategies.

It was verified that, in cities such as Araci, Serrinha and Monte Santo it has occurred a spread of urban space with the appearance of new lots, making peripheral areas, generally considered rural areas, be incorporated as urban expansion areas. This situation has provoked changes in the way of life of local population and in the landscape, which expresses clear standardization by replication of ground plant of housing complexes without adaptation to local specificities.

The intensification of production of peripheral spaces caused by popular projects of PMCMV, lacking basic infrastructure and accessibility, has been target of criticism by movements that claim for adequate housing, academic works and institutions involved with the urban matter nationally and internationally.

Acknowledging faults in the conduction of the program and in how the actions of PMCMV have contributed directly for the increase of socio-spatial segregation in major and small Brazilian cities, the Ministry of Cities (one of Governmental operators of the program) published in its official web page that from March 2017 on, new rules should be applied for the housing projects. According to information published[ Information availiable at: http://www.brasil.gov.br/infraestrutura/2017/03/minha-casa-minha-vida-lanca-novas-regras-de-contratacao], new projects must provide urban insertion of projects destined to

Category 1. Thus, they shall receive a more favorable evaluation of construction proposals bound to the offer of basic infrastructure, located in the proximities of urban areas consolidated or with facilitated access to commercial areas, schools, healthcare service and public transportation system.

However, regulation by federal agencies to establish partnerships or to demand counterpart actions by municipal public agents with the purpose of minimizing the bad conditions of the spaces where the projects are being implemented to secure achievement of goals for adequate housing were not identified. The absence of such regulation and strict supervision creates gaps for landowners and the construction industry to determine the parameters of (re) production of urban space based on the accumulation of capital, what conditions the beneficiaries of the program to live in situation of vulnerability and in areas that lack minimum requirements for descent housing.

## 4. Final Considerations

In small cities, considering proper specificities, the production of urban space does not occur dissociated from socio-spatial inequalities that characterizes the capitalist society, or from the conflicts of urban soil appropriation. This way, strategies of implementation of housing complexes reaffirm this reality. If on the one hand the creation of such complexes provides access to urban land and minimum housing conditions, on the other, it reproduces a pushing movement towards peripheral areas and contributes to increase denial of the right to the city in the perspective of Lefebvre (2006).

It is worth mentioning that in small cities of the Território do Sisal, it does not occur internal fragmentation in the same proportions verified in middle-sized and major cities. Nonetheless, the fact that these urban centers present reduced socio-economic dynamism does not make them immune to the strategies of capital

accumulation through land market, in such cases mediated by local agents in conjunction with city government and, generally, based on land concentrations. For instance, empiric studies indicated the creation of new urban lots in the cities of Araci, Barrocas, Biritinga, Monte Santo, Retirolândia, São Domingos, Santaluz and Valente.

Preliminary analysis also points out that the State plays the role of a defining agent in the production of small cities in the Território do Sisal, specially through its multiple actions and great potential to induce or deepen the changes in spatial and economic structures of the venues affected by such actions, among which include implementation of housing complexes. The matter is that the construction of popular housing complexes seems to be more directed to meet the interests of major land owners and sectors of the construction industry rather than low-income families' necessity of descent housing.

The weakness and distortions of housing policies of social interest in the cities studied occur due to disarticulation between implementation of housing complexes and complying with the guidelines of urban policies, social housing plans and propositions of planning and city management. The State, through the actions of its sectors and representative organs, seems to be either silent or complicit when making available public resources to foster the action of contractors without guaranteeing the increase of service network, infrastructure and public equipment in the areas destined to construction of housing complexes.

## 5. References

ARAÚJO, M. M. S. (2016). A *produção do espaço e a questão habitacional: o programa Minha Casa Minha Vida em Feira de Santana*. Universidade Federal da Bahia: Salvador de Bahia.

BRASIL. PRESIDÊNCIA DA REPÚBLICA. Lei nº 11.977, de 07 de julho de 2009. Dispõe sobre o Programa Minha Casa, Minha Vida – PMCMV e a regularização fundiária de assentamentos localizados em áreas urbanas. [Available in www.planalto.gov.br/ccivil_03/_Ato2007-2010/2009/Lei/L11977.htm].

CARLOS, A. F. A. (2011). "Da Organização à Produção do Espaço no Movimento do Pensamento Geográfico". In CARLOS, A. F. A.; SOUZA, M. L. & SPOSITO, M. E. B. (Orgs.) *A produção do espaço urbano: agentes e processos, escalas e desafios.* Contexto: São Paulo. Pp. 53 – 73.

CORRÊA, R. L. (1989). *O espaço Urbano*. Editora Ática: São Paulo.

FUNDAÇÃO JOÃO PINHEIRO (2013). *Déficit habitacional municipal no Brasil*. Fundação João Pinheiro: Belo Horizonte. [ Available in www.fjp.mg.gov.br].

HARVEY, D. (2005). *A produção capitalista do espaço.* Annablume: São Paulo.

IBGE – INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA. *Censo Demográfico 2010.* [Availalbe in http://biblioteca.ibge.gov.br/visualizacao/periodicos/93/cd_2010_caracteristicas_populacao_domicilios.pdf]

IPEA - INSTITUTO DE PESQUISA ECONÔMICA APLICADA. *Estimativas do Déficit Habitacional Brasileiro (PNAD 2007-2012). Nota Técnica Nº 5.* [ Avalialbe in http://repositorio.ipea.gov.br/bitstream/11058/5668/1/NT_n05_estimativas.pdf].

LEFEBVRE, H. (2006). *O direito à cidade*. 4. ed. Centauro: São Paulo.

MARICATO, E. (2012). *O impasse da política urbana no Brasil*. 2ª Ed. Vozes: Petrópolis.

ROLNIK, R. (2015). G*uerra dos Lugares: A colonização da terra e da moradia na era das finanças*. 1ª ed. Boitempo: São Paulo.

VOLOCHKO, D. (2015). "A moradia como negócio e a valorização do espaço urbano metropolitano". In: CARLOS, A.F.A.; VOLOCHKO, D.; ALVAREZ, I.P. (Orgs.) *A cidade como negócio*. Contexto: São Paulo. Pp. 97 – 120.

# Pioneering cities of mining: Comparison of the Eastern Venezuela and Eastern Siberia

Anne Péné-Annete
*Kaunas University*

*Sébastien Gadal*
*Aix-Marseille Université*

*Jūratė Kamičaitytė-Virbašienė*
*Kaunas University*

## Abstract

*The development of the mine, gas and oil extraction in the Eastern Venezuela (Oriente and Guayana regions) and the Far Eastern (Oriental Siberia) is characterized by the emergence of pioneer small and medium cities during the last fifty years and an emerging process of metropolisation since 2000 (Yakutsk, Ciudad Guayana). In Eastern Venezuela, the urbanization is partially planned, generally "spontaneous". In Yakutia, dynamics of urbanization is planned. In the both cases, urban dynamics is driven by the exploitation of the natural resources and the immigration. With the collapse of the Soviet Union, some mining towns disappeared in the 1990 and 2000. Since the beginning of the 2010's mining urban regions are under a double process of territorial integration with Russian Europe and Asia. In Venezuela, small and medium sized cities are growing with the emergence of new mining territories and the exploitation of the Orinoco Belt (extra heavy oil). This article analyses the main territorial dynamics of these small and medium sized cities.*

## 1. Introduction

Research in geography on small and medium-sized cities, particularly in Europe, concerning European territories or territories of developing countries, was renewed in recent years (Gadal, 2014). They are based in particular on geo-quantitative approaches with the use of socio-demographic and economic databases; and specific criteria for each country and institution. Based on specific statistical thresholds for each country, multiple definitions of the small and medium-sized city can be chosen with reference to a combination of geographical criteria such as

demographic weight, local centre function radiating over a "small region", urban morphology - through the types of habitat - concentration of shops, elements of urban cultural life, etc. (Moriconi-Ebrard and Pumain, 1997; Rozenblat, 2007).

Small and medium-sized cities act as local and regional centres. The area served by the town generally corresponds to a region smaller than the medium city. So, the small town - the instigator of economic development of "small area" - serves as a link between the agricultural territories and the medium city, how-much better equipped, serves a larger population, ensuring an intermediation role in the urban hierarchy (Desmarais, 1984). The concentration of goods and services gives people a better living environment. The development of the mine, gas and oil extraction in the Eastern Venezuela (Oriente and Guayana regions) and the Far Eastern (Oriental Siberia) is characterized by the emergence of pioneer small and medium cities during the last fifty years and an emerging process of metropolisation since 2000. This article analyses the main territorial dynamics of these small and medium sized cities.

## 2. Is there a specificity of mining cities?

In the case of cities arising from mining (minerals, gold, silver, diamonds, hydrocarbons) in developing countries, and some become heavy industrial cities, the theoretical foundations presented above are valid also (Bairoch, 1985). However, dynamics related to further integration, often brutal, to globalization (and its hazards) also overlap. Thus, because of the very high dependence of mining and energy activities in global commodity prices, the actors in the governance of small and medium towns are caught up in the economic mechanisms that they don't control or, conversely, may find themselves blocked. Furthermore, uncontrolled urban growth in Venezuela is accentuated due to the influx of migrant population, attracted by a new "The Golden" ("El Dorado") from Brazil and Guyana; or conversely by processes of de-urbanization and metropolisation with the closing

of mines and the integration of these territories to the globalized regions inside the Federal space in Russia and Asia (China and South-Korea). If the flux of mine and construction's workers from Caucasus (Armenia) and Central Asia is controlled in Yakutia, central Asiatic and South Siberian illegal migrations are growing. If the mining urban lands are integrated to the metropolised territories at the federal level, they are territorially and societally disconnected of the oblast or Republic structuring the space at the local and regional levels in "globalized alien urban colonies" spots.

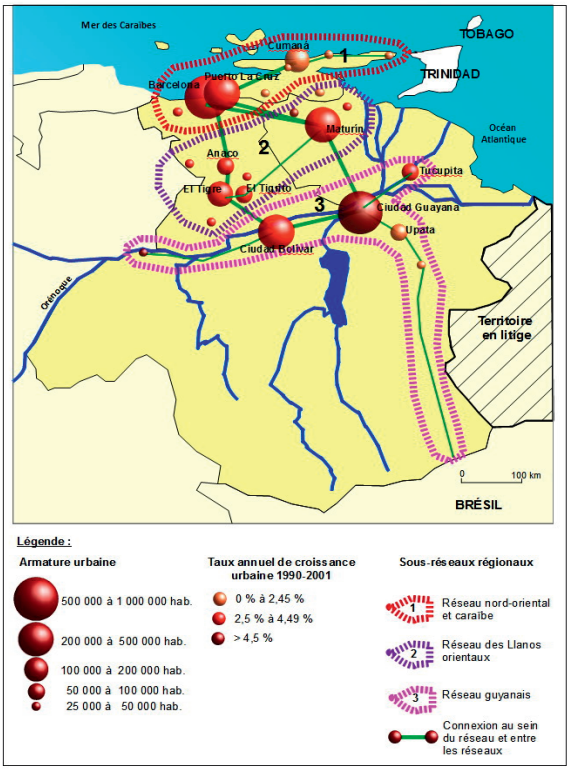
In this context, the central or federal government has to share and negotiate the development role (if any) with other actors - local authorities at all levels, public and private companies coveting these new frontiers. Local elected officials, but also an important associative body in Venezuela, and called informal sector representatives, may be in a posture of defiance towards the public and private power, yet with an institutional legitimacy in urban production. So, the choice of voluntarist public policy in mining and hydrocarbon regions, whether with the Soviet legacy or with the voluntary planning of Bolivarian socialism, has a major impact on the dynamics of urban growth. In Russia, as in the Republic of Yakutia the state and local authorities have a percentage of the mining companies, mining territories are controlled by the extracting enterprises like Alrossa in Mirny. "Globalized alien urban colonies" are co-managed with the local authorities and the mining industry.

## 3. What are emerging urban and territorial structures in mining cities?

The main issues focus on the formation of specific urban networks in the energy and mining areas in developing countries. Are these networks characterized by the dynamic of polycentric structure or otherwise metropolisation? It is also questionable whether there are specific urban networks in energetic-industrial pioneer fronts. In other words, how can the knowledge about the process of

urbanization of the old industrialized countries from the First Industrial Revolution help to analyze the characteristics of urban growth in the current frontier areas in developing countries? Is it still relevant to analyze the current urban dynamics of the pioneering energy-industrial fronts, distinguishing between those in the developing countries and those in the formerly industrialized regions?

**Figure 1. Urban growth and urban network of the Great Eastern of Venezuela**




*Source: Les pôles de développement du Grand Est du Venezuela, PhD memory of Geography, 2011,University Paris 3 Sorbonne, p. 145.*

*Translated legend : Urban framework (armature urbaine) ; Urban growth rate (taux de croissance urbaine 1990-2001) ; Regional sub-networks (Sous-réseaux régionaux) ; North eastern and caribbean network (réseau nord oriental et caraïbe) ; network of the eastern Llanos (réseau des Llanos orientaux) ; Guayana network (réseau guyanais) ; Connection within the network and between networks (connexion au sein du réseau et entre les réseaux)*

The small and medium-sized cities of the pioneering energy-industrial front of the Greater East of Venezuela (Orinoco Belt, Mining Arch, Guayana) illustrate the question, as well as the mining cities of the Far Eastern in Yakutia (Oriental Siberia). They form an undeveloped urban network, compared to the rest of Venezuela or Central Siberia. The two most important metropolises of the regional urban network, Ciudad Guayana and Barcelona-Puerto-la-Cruz, polarize the urban network of the Greater East, being 6th and 7th according to the urban hierarchy according to the demographic weight (Fig. 1).

## 4. Geo-demographic and geospatial analysis of the territories of pioneering cities of mining

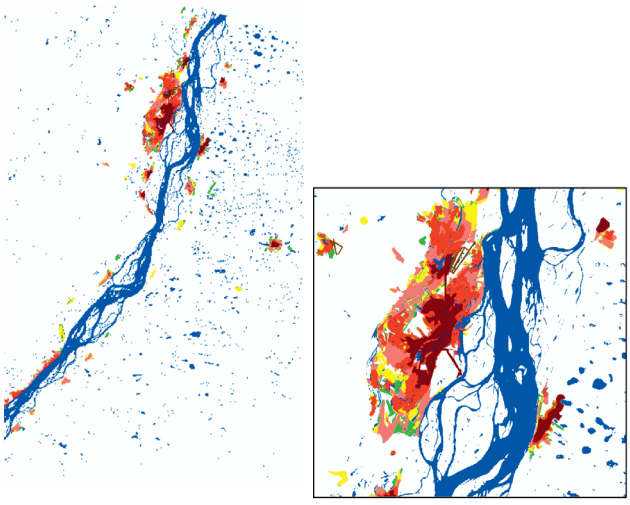
The analysis of territorial and urban structures and dynamics is based on field observation, demographic statistical data, cartographic series (Gadal et al., 2016), as well as on GIS and remote sensing approaches through a diachronic study of urban growth in pioneering fronts (Examples from the Greater East of Venezuela and Yakutia in Eastern Siberia). This approach makes it possible to elucidate elements of response on the characteristics of polycentric territorial structures and of metropolisation.

At the turn of the century, the metropolisation process is less developed in Venezuela than in other more metropolised countries of Latin America - Mexico, Brazil, and Argentina. On the scale of Venezuela over the last twenty years, the development of polycentrism is done at the expense of Caracas and relatives satellite towns. Since the 1990s a new regional metropolisation stage begins where the cities of Greater East Venezuela emerge - Barcelona-Puerto la Cruz, Ciudad Bolívar and Ciudad Guayana - because of the new period of the boom in mining (gold, diamonds, etc.) and the energy (extra heavy oil, conventional oil, gas) frontier. Three subsets of small towns and medium cities seem to constitute the armature of a polycentric frontier. As they were studied, it is possible to analyses the emergence

of "intermediate city" [in the French case, between the medium city (urban area between 20 000 and 200 000 inhabitants) and the big city (urban area exceeds 500 000 inhabitants)] that allows to qualify the analysis under polycentric structure and metropolisation. « Intermediate cities can be defined as an "in-between functional": they generally occupy a secondary position in the urban system in which they fit and have important strategic functions without holding the role of regional metropolis. » (Deraëve, 2015).

In the case of Yakutia, there is an emerging process of metropolisation centered on Yakutsk with the emergence of an urban network of small towns and villages along the river Lena for one hundred kilometers. Mining towns in the Arctic region and central Yakutia have undergone a massive process of de-urbanization in contrast to others (South, West and North-East of the Sakha Republic). Their development depends on the extraction of natural resources: diamonds, gold, silver, graphite, coal, etc.

**Figure 2. Urban growth of Yakutsk region (1973-1992-2000-2005-2012).**



*Source: Landsat 1, 5 and 7 series, USGS, S. Gadal, CNRS ESPACE UMR 7300*

Yakutsk, the capital of the Republic of Sakha (Yakutia), alone accounts for 34% of the total population of the Republic, with 311000 inhabitants in a territory five times larger than France. The city of Yakutsk expended from 108000 inhabitants in 1970 to 311000 in 2017 (urban growth from 1973 to 2012, Fig. 2).

DMSP remote sensing analyze of urban changes of the region of Yakutsk among 1992 and 2013 shows a process of urban densification of the small and medium towns, an emerging North-South urban corridor within the Lena River as well as to the East-West (Fig. 3).

**Figure 3. Urban structure change in Yakutsk and Central Yakutia: 1992-2010.**


*Source: DMPS F10-F18 series, NOAA, S. Gadal, CNRS ESPACE UMR 7300*

## 5. Conclusion

The comparison between two mining regions in two continents with different climatic and geological conditions makes it possible to question territorial dynamics linked to globalization over the last thirty years, which are characterized in particular by the establishment of transnational mining companies in different regions rich in minerals. In addition, Far Eastern Siberia and the Greater Eastern Venezuela are each part of a national State, which in some ways, over the last fifty years, has valued and continues to value mining as part of planning territorial government.

In this context, the dynamics of formation of networks of medium size and small towns in these regions of pioneer fronts (it is still difficult to access and away from the major axes of territorial development) highlights unique and original processes of urbanization or de-urbanization, as well as those of metropolisation, both in the Greater East of Venezuela and in the Far East of Eastern Siberia.

## 6. Acknowledgement

This research is supported by :

For the Eastern Siberia, the ANR-15-CE22-0006 PUR (Polar Urban Centers) and the RSF n° 15-18-20047 Landscape Ontology: Semantics, Semiotics, and Geographic Modeling.

For the Eastern Venezuela, the research program "The territories of the city, in the archipelago of the West Indies and the Guiana Shield : spaces, societies and relations (from the 16th to the 21 st century), EA 929-AIHP GEODE, University of French West Indies.

## 7. References

BAIROCH, P. (1985). *De Jéricho à Mexico. Villes et économie dans l'histoire*. Gallimard: Paris.

DERAËVE S. (2015). "Les villes intermédiaires françaises face aux mutations des systèmes productifs : enjeux et stratégies territoriales. *Les territoires français à l'épreuve des mutations industrielles*, BAGF, 525-536.

GADAL S. (2014). "Le rôle moteur des petites villes dans la constitution des territoires métropolisés (entre les années 1970 et aujourd'hui) ". In BONIDEAU T. & LAMARRE C. (Eds). *Capitales ou villes d'appui ? Les petites villes et leurs campagnes du Moyen-Âge au XXIe siècle.* Éditions universitaires de Dijon: Dijon.

GADAL, S., EYRAUD F. & PRISYAZHNIY M. (2016). "Post-soviet geo-demographic dynamics and metropolisation processes in the Republic of Sakha (Russian Federation)". *Arctic XXIe*, Vol. 7, n° 1, 4-17.

MANZAGOL C. (2003). *Villes moyennes et mondialisation : renouvellement de l'analyse et des stratégies.* Editions Trames: Montréal.

MORICONI-EBRARD, F. (1993). *L'urbanisation du monde depuis 1950*. Editions Anthropos, collection Villes: Paris.

MORICONI-EBRARD, F & PUMAIN, D. (1997). "City size distributions and metropolisation". *GeoJournal*, n° 43, 307-314.

PÉNÉ-ANNETTE, A. (2016). "La relance de l'extraction minière dans la Guyane vénézuélienne ?". *IdeAs, Idées d'Amérique*, 8. [Available in : http://ideas.revues.org/1807].

PÉNÉ-ANNETTE, A. ; PIRELA A. & RAMOUSSE D. (2012). "El Proyecto Socialista Orinoco : un nuevo territorio vinculado a la explotación petrolera en Venezuela". *Cuadernos del Cendes*, n° 80, 1-45. [Available in http://saber.ucv.ve/ojs/index.php/rev_cc/article/view/3635].

PÉNÉ-ANNETTE, A. (2011). *Les pôles de développement du Grand Est du Venezuela. Développement régional et urbain de l'Oriente et de la Guyane vénézuélienne*. PhD Geography and urban planning. - UMR-CREDA Paris 3-Sorbonne la Nouvelle.

ROZENBLAT, C. (2007). "Villes et réseaux "petits-mondes". In DA CUNHA A., & MATTHEY L. (Eds). *La ville et l'urbain : des savoirs émergents.* Editions polytechniques et universitaires romandes: Lausanne. Pp. 81-104.

# The struggle for the right to the city

Glória da Anunciação Alves
*University of São Paulo*

## Abstract

*Socio-spatial segregation reveals itself more intensely from the urban sprawl defined by Kowarik (2009) as the set of daily extortions suffered by those living in places lacking basic infrastructure (housing, health, education, leisure, basic sanitation) or Even though they still have it precariously, they spend long hours of the day in transport, in a pendular migration dwelling-work. Facing the recognition of segregation, we analyze the struggle of the inhabitants who use various strategies to achieve some improvements. The struggle takes place in various places, usually linked to daily life, but which seeks to reach other spheres beyond the locality, usually reaching the scale of the city, which they do not feel part of. It is this debate that we will try to negotiate to discuss whether it is a struggle for social, spatial, distributive justice, or the germ of the struggle for the right to the city as a possibility.*

## 1. Introduction

The factory whistle of modern industry, though it still exists, is no longer the characteristic element of urban life at the present time of our social organization. If industrial society led to urbanization (Lefebvre, 2008) by the mid-1960's in the world, especially in the urban centers of so-called developed countries, in Brazil, by the mid-1980's, today, with the trend of productive change, with the transition from a Fordist system of production to flexible accumulation (Harvey, 1992) , the elements most present in urban life in the big cities, which tend to generalize to other spaces non-homogeneously, can be characterized by their simultaneity, speed (in terms of people, commodity production and circulation, information, and capital), fluidity, connections, individualism, lack of time and urban space.

However, the foundations of the industrialization process have not disappeared; on the contrary, they have become entrenched in life to the point of us no longer being aware of their presence. The regulation of time defined by the industrial

process that characterized life and the pace of workers is, today, part of the everyday life even of those who have nothing to do with industry. The clock is present in the lives of all those who are somehow included, though precariously, or as Martins (1997) would say, perversely, in the process of capital reproduction. Urban life is regulated, characterized by errands and tasks, such that there is no time for non-productive activities or idle time. During moments of leisure, which in the capitalist system is the time intended for reproducing life, everything also tends to be regulated and incorporated into economic reproduction: body care; being in shape, always happening through reproductive activities, such as, for example, purchasing services from a personal trainer, gym time for sporting activities, the equipment necessary for practicing sports; or, during vacation time (in the working world, vacation is paid leisure), travel itineraries recommended by the media or by travel agencies. In urban life, time is lacking. There are not enough hours in the day to do everything that they say should be done, guaranteeing productive reproduction.

A great deal of wealth (productions, information, knowledge) is produced socially, and in major cities, there is a concentration of wealth and the elements necessary for its production. However, since capitalist reproduction is based on inequality, much of what is produced cannot and is not appropriated by a large part of society. This process was more severe in countries in which there was no welfare, which is the case of Brazil, a good part of Latin America, African and Asian nations, that is, most of the planet.

We take the example of the metropolis of São Paulo, Brazil, as a case in which, despite its specific characteristics, tends to present the main elements of this process of uneven and contradictory capitalist reproduction. In the urban area, this leads to what Kowarick calls urban spoliation.

Given this context, how is it possible to consider a right to the city, a virtual

reality assumed by Lefebvre (2001) in his work? Without denying basic needs, such as, for example, having a place to live, the right to the city in Lefebvre's work would imply "the right to urban life, transformed, renewed" (Ibidem, ,117). But, why renewed and transformed?

The way urban life is today means understanding it, in the here and now, as a moment of strategic priority in capital reproduction, in which consumerism and individualism are understood as inherent in life. Milton Santos (2007), when writing about Brazilian reality, claims that in Brazil, there are no citizens, but more-than-perfect consumers. In other words, instead of citizens who can use their rights (which are constitutional in Brazil, following a global trend approved by the United Nations based on the Universal Declaration of Human Rights), such as housing, health, education, and leisure; we have consumers, who individually and based on a credit system, come to have access to the possibility of consumer products (home appliances, for example) and services (private schools and a health system), no longer fighting collectively for the rights to public services and goods in general.

A contemporary society characterized by consumption has already been pointed out in Lefebvre's(1984) work when he characterized it as a bureaucratic society of guided consumption. In it, there is a bureaucratic organization of everyday life, understood as an aspect of life that is marked by the coercive repetition dominated by technical logic, which justifies socio-spatial segregations according to the rational logic of the State (the conceived, according to Lefebvre (2006). The latter, in turn, is guided by technical actions and, with the use of legal instruments, almost naturalizing social inequalities, makes everyone equal based on the opportunities in the working world (opportunities that are uneven), and distinguishes them according to their individual abilities. In other words, everyone is equal and has the same opportunities a priori, at least in discourse, but success or failure is determined by so-called individual performance. In sum: people are equal in their differences.

This is an erroneous premise, since the social conditions in which individuals live are spatially uneven, implying different and, most of the time, segregating forms of appropriating socially-produced wealth. In our everyday life, we perceive socio-spatial differences by recognizing spaces that are presented differently (spaces with technological innovations and modern architecture, or precarious with little, or even no infrastructure). But what can explain these differences?

According to Carlos(2001), space is simultaneously a condition, means and product of social reality. From this perspective, socio-spatial differences are inherent to spatial production(CARLOS, 2007:48), characterized by spatial inequality, mainly regarding the concentration or lack of socially-produced urban wealth that is unevenly distributed and socially and spatially appropriated (or not). Socio-spatial inequality is the result of the process of capitalist reproduction that creates, connects and maintains spaces through uneven development. As Soja analyses, the "[...] existence of capitalism presupposes the sustaining presence and vital instrumentality of geographically uneven development"(1983:132). Therefore, continuing to reproduce and broaden socio-spatial inequalities is essential to the capitalist system.

Fighting for the right to the city means acknowledging that socio-spatial segregation exists, as well as a deprivation of socially-produced, privately-appropriated wealth. In other words, it is due to a lack of the right to the city that it is necessary to create strategies for fighting to achieve it.

Would the struggle for spatial justice be a strategy for the struggle for the right to the city? This question is fundamental in distinguishing spatial justice from the right to the city, since the former is necessary and fundamental to minimizing socio-spatial inequalities, while allowing for the current system of capital reproduction

to continue, resolving conflicts and, at times of socio-spatial crisis, enabling it to breath new life, with concessions from social struggles to the capitalist system. The right to the city points to another possible society, in this sense, presented as a new possibility, a future, the construction of a new society based on a necessary shift caused by the unsustainability of the capitalist crisis. We present this initial difference between spatial justice and the right to the city, since, at least in theoretical debates, the proposals are in line with debating spatial justice and not another project, as a future, of the right to the city.

Marcuse(2009) points out the need for spatial justice and not just a distributive justice, since the latter "[…] is a necessary but not sufficient aspect of a normative pitch in planning, which is badly needed.". For him, spatial justice means, in addition to the more even distribution of social wealth, promoting social development according to the struggles of social movements against what he calls spatial injustices. For spatial injustice, which would be the result of one of the aspects of social injustice, he characterizes forms of involuntary confinement (segregation, ghettos) and the uneven distribution of resources on land, recalling that the role of spatial injustice in the exacerbation of social injustices depends on the economic, political and social context. Apparently, part of the existing reality means pursuing alternatives to minimize (what is also necessary), based on social struggles, everyday problems, but do not go beyond the meaning of a strategy. It means struggling to overcome the capitalist system that is socio-spatially uneven, on different scales, as one of the foundations of its reproduction and maintenance.

Soja(2009), when debating the issue of spatial justice, emphasizes the role of space in his reflections on justice and democracy, calling attention to the importance of the spatial aspect in understanding social reality. Despite highlighting the importance of the work by Lefebvre about "the right to the city", which presents space as the key element to understanding the socio-spatial relations of production and also to

replace this form of production driven by inequality. This is not what his debate is based on, but it is about spatial justice, which, from his point of view, can be a path for fighting, to advance regarding the different social projects and causes in the existing system.

One cannot deny this need for improvement, in the here and now, of the existing inequality. It is preferable that there are struggles for less exclusive public policies that minimally satisfy the most basic needs of the population with less purchasing power. But it is on this point that the idea of the right to the city is different from the notion of spatial justice: the right to the city would lead society, as a project of society, to struggle beyond their basic essential needs, to struggle for the appropriation of everything that is socially produced, such as art, in its various forms; spaces, especially public ones; places for meeting, exchanges, or debates in which individuals would be guaranteed to be part of a non-homogeneous and unranked whole. It is precisely because of this spatial awareness that populations of determined areas of the city have recognized the urban spatial spoliation to which they are being subject and begin to fight not only to be placed in it (without rejecting it) as consumers in this society, but by overcoming this situation, and also seeking to put their plans, dreams and desires on the spatial production agenda. They are not necessarily only about reproducing that which is produced by a specific class dictating the norms, tastes and ways of consuming, with the aim of homogenizing socio-spatial production and consumption. Though there may still be features of these normative class trends, there are those who reject it by creating new forms and tastes that are often incorporated (when they socially acquire the characteristic of endangering some of these elements) as substantial alterations and promoted but not as forms of resistance but as trendy products.

The neighborhood of Morro Doce, in the region of Perus, subdistrict of Anhanguera, in the São Paulo metropolis, could be characterized as a peripheral

area in the more traditional sense of the expression:

*[...] portions of any urban agglomeration, not necessarily large ones, located as a general rule near the external limits of built areas, where residential occupancy by the poor population predominates, settled there in a very precarious way(LANGENBUCH, 2001:89).*

The greater part of the population in this neighborhood are migrants in the metropolis itself. They lived in other areas of the metropolitan area, generally renting, and in Morro Doce, they saw the possibility of becoming landowners, which, at first, would provide a greater chance for reproducing everyday life. It was the lack of a right to the city that led them to occupy these areas, through the land market. We are revealing here the expropriation process of these cities, and of the urban. It is because they did not have the "right to the city" that they moved from more structured peripheries to new peripheries that emerge on the outskirts of the formally urbanized areas of the metropolis. As Damiani(2004) points out, the increasing values in more peripheral areas due to the installation of facilities or public constructions (in his study, this was the case of the Ring Road) lead the "periphery" to increasingly distant areas. In this sense, the periphery is always temporary; it creates the dream of residency for populations in some area, but it never happens, due to pressures from the real estate sector, which uses these extremely unstable populations as an incentive for occupying (irregularly, in principal and in general) an area – even farther from where they are located – where "they will pound the clay" (they will be located in areas without any infrastructure until then, starting with the streets). In Morro Doce, there are still several unpaved streets, which prevents public garbage collection, that is, the substandard conditions lead to situations with health risks. Part of the neighborhood is in an environmentally protected area, especially the region known as Filhos da Terra, where plots of land were sold irregularly. Consequently, people have been penalized twice: they are in debt or spent the little they were able to save to buy a piece of land and then, they receive a purchasing document that has no validity for the municipal government.

Access to Filhos da Terra is through a trail in the middle of native vegetation. In the subdivision, the existing roads are always made of dirt and, on rainy days, it is almost impossible to arrive or leave there. To live, this population "pounds clay", that is, they are the residents who open the paths, remove vegetation, build homes and then fight to get water and electricity, for example, and if they cannot get these services, they use illegal connections to get electric power or build "systems" (water tanks and collective water pumps) to get water.

What we observed in 2015 in the Filhos da Terra subdivision happened with the subdivisions in Monte Belo, Vila dos Palmares, Rosinha and Morada do Sol, all being part of the what is known as Morro Doce. The latter are more structured than Filhos da Terra, but their origins were the same. The areas are connected by the Movimento Quero um Teto Central (mqt, "Central Homeless Movement"). According to Carvalho:

*[...] the movement made a contract with the owner of the area, sold plots of land in advance to families, irregular plots because the property still did not belong to the movement, and, with the money from selling the plots, they paid the owner. But to guarantee that the families continued paying money to be transferred to the owner, the mqt promised to settle them even before the end of the payment(2010:107) .*

The actions by mqt, which works specifically in this area and has an office in Morro Doce, is very similar to the Associação dos Trabalhadores Sem Terra de São Paulo (atstsp, "Association of Homeless Workers of São Paulo"), which identifies itself as a housing movement. According to research by Pereira(2006), carried out in a nearby district, Jaraguá, the atstsp sometimes acts as a real estate agency, or sales consultant, since it purchases land in the areas farthest from the formal periphery, and without infrastructure, transforms them into plots that are sold for an accessible price to the low-income population, enabling, in a way, this population to have access to urban land as an "owner", though under precarious conditions.

This type of action is possible, since the State, at various levels (municipal, state and federal), has not been fulfilling its role in guaranteeing the right to housing,

establishing a public housing policy aimed at the low-income population (zero to three times the minimum salary). Faced with this ineffectiveness, we see the actions by these associations which guarantee, through a judicial illegality, access, though precarious, to housing based on the reproduction of capital given by irregularly selling plots of land. Most often, they are deprived of any infrastructure necessary for reproducing life. In this sense, from opening paths which will later transform into streets, the future pavement, access to water and electric power, as well as public transportation, health services and education, all the work and struggles are the responsibility of the residents who now see themselves as owners of a plot of land to live on. As Rodrigues observes:

*"The substandard houses on irregular plots of land, form sets of streets, villages, neighborhoods, alotted and sold by owners or supposed owners in the typically capitalist logic, though the building of houses and the struggles to attain judicial and urban legality reveal the predominance of the use value (RODRIGUES, 2007:77)."*

However, their status as "owners" does not guarantee them rights; everyday life did not become easier. Walking on foot through the neighborhood requires effort, since the slopes are a problem for the elderly and children. Trash collection is available only on paved streets, similarly to public lighting, which makes it difficult to leave home after six in the evening. There are buses, but they all only go to the Jardim Britânia terminal, and from there one can only go to Lapa (the closest central area is 18.7 km or 27 minutes without traffic by car on the br-050 – Anhanguera Highway) or Perus (40 minutes without traffic). The only health center in the region is in the Jardim Britânia Terminal. There are no banking agencies or automated self-service banking facilities. There is only internet in LAN houses or for those who can pay for a cellular data plan. Public schools exist, but leisure and cultural facilities were only built with the Parque Anhanguera Centro Educacional Unificado (ceu, "Anhanguera Park Unified Educational Center") in December of 2008. In addition to the ceu, there are no leisure areas in the neighborhood, though this is one of the complaints by the residents. It is in everyday life, through their

living conditions that they become aware that the deprivation they experience is socio-spatial segregation. Consequently, the neighborhood and everyday life make it a "place of action and conflict, awareness and the elaboration of a project, a claim of the 'right to use'"(CARLOS, 2001:59).

The awareness that Morro Doce is a segregated space, which imposes various difficulties for the residents' lives, can occur in several ways in everyday life. For example, the residents cited the instability of life in neighborhood associations debates and educational actions were taught in schools. We will focus here especially on the Professora Marili Dias Municipal School of Basic Education (emef), though there are actions taught in other schools as well. This school is located at the highest point of Morro Doce, in the Palmares subdivision, where there is a revealing view of the surroundings, where the landscape, through its color and morphology, reveals the first contact with inequality. There we have a view of Jaraguá Moutain, Jaraguá State Park, Anhanguera Park, and between these two areas is the Anhanguera Highway. From here one can see several popular subdivisions: Monte Belo, Vila dos Palmares, Rosinha, Morada do Sol and Filhos da Terra.

Founded in 2008, since 2012, the school has participated in the extension activity of Geography Week at the University of São Paulo (usp), in which they present projects developed in the Geography course in connection with other school subjects. In the project presented at the 10th Geography Week, in 2012, whose theme was "Technological transformations and socio-spatial differences on various geographical scales", the students showed the results from studies carried out in three areas: in one of the occupations of the Movimento dos Sem Terra (mst, "Homeless Movement"); the "Land Commune"; the area occupied by the Guarani indigenous tribe on the Jaraguá Mountain and the study of the neighborhood itself where the school is located. They emphasized that they considered themselves residents of

an underprivileged periphery, but that, based on the study, they could see that there were other discriminated peripheral spaces in the same periphery where they live, and were able to rank the spaces based on the instabilities found. In this hierarchy, according to them, the most precarious space was that of the indigenous tribe, followed by the Land Commune, which is the neighborhood in which they lived (specifically, the Palmares subdivision), the one with the best life conditions, when compared to the other two spaces, despite its existing precariousness. Today, this school still carries out interdisciplinary projects that have promoted questions by students, which has led to the analysis of the reality experienced (after the needs survey) the need to put them in action. Therefore, since 2014, they have been fighting for solutions to problems pointed out by the research. This process calls attention to the fact that that which would only be considered a school project had been transformed into a political action that involves students, professors, and the community, as we will see below.

## 2. The struggle for she "Right to the city"

In September of 2014, the first Palmares Lives Participatory Forum was held at the Professora Marili Dias school, where the studies resulting from the field work carried out by the students highlighting the instability of life in the neighborhood were presented. In the event, representatives from the community and from the local government participated. On this particular occasion, the deputy mayor of Perus, Carlos Roberto Massi, and the regional director of Education of Pirituba, Marcos Manoel dos Santos were present. In November of the same year, the second Forum took place, in which the participants (students and community) asked the public authorities to offer solutions to the social demands presented (sidewalks, pavement, trash collection, mail service, leisure areas, among others), to which the representatives of the municipality responded that they would present alternatives to the solutions in the following Forum, the third one, already scheduled for April

2015.

In the third Forum, after having again presented the social demands, the deputy mayor explained to the community present how the deputy mayor's office worked, the management of resources, the possible connections with other secretaries and promised that whatever was considered to be the most urgent – they would pave some streets for trash collection – would be the priority among the actions to be carried out by the deputy mayor's office of Perus. The community listened and politely said that they looked forward to these actions, but that they would like to have a timeline of when this would happen, to which they did not receive a response. Since there was a great deal of pressure on the public authorities, in May of 2015, a planning workshop was held with the presence of the adjunct secretary of the Municipal Secretary of Urban Development of São Paulo, Tereza Herling. Her team brought maps and satellite images of the school surroundings and asked the students to first mark their houses with pens on the materials made available. Next (after hearing from the students that there were no leisure areas), the students were asked to indicate on the map where they thought would be ideal places for building these areas. The activity was rich with possibilities, since at the same time in which it enabled them to recognize a formal space based on reading maps and satellite images, it brought up a very important issue, which is that, in Brazil, it is still fundamental for the reproduction of capital to have private land ownership.

The adjunct secretary asked the students to indicate the best places for the possible construction of leisure areas by the municipality, but clarified that not all of the points indicated for this could be taken into consideration, since it would be necessary to make a survey of who was the land owner. If it was an area of the municipality, perhaps it could be built, but, if it was private property, this would make it difficult. The private ownership of urban land is an issue to be overcome if we think about the right to the city and about the possibility, in the situation in question, of building a public facility for the entire community to use. On the

contrary, it is also an element of social consensus. Even in this situation, the students who demanded a leisure service accepted, without question, that perhaps there was no space to fulfill their need in case all of the spaces indicated were someone's property. In this scenario, alternatives such as continuing to use school spaces on the weekends should be considered.

Therefore, years of debate were necessary, without the claims leaving the level of debate. This means that, first and foremost, a significant portion of metropolitan society still does not have decision-making power in elaborating public policies that guide the so-called "order of the metropolis". But there is a contradiction in this situation: the students and their families live in Morro Doce because they do not have the right to the city. That is, after an internal migration in the same metropolitan region and buying irregular plots of land, they occupy places that are on the limits of consolidated urbanization; it was the only possible place (but dependent on the need to struggle for the formalization and recognition that they are owners of plots of urban land). Consequently, the question of what is at the foundation of their move – the existence of a concentration of wealth manifested in the private ownership of urban land becomes its other: they struggle for recognition as owners, making the struggle for the right to the city a struggle for spatial justice.

## 3. Final considerations

The deprivation of socially-produced wealth in contemporary Brazilian society is experienced concretely in the everyday life of the metropolis and perceived by the greater part of the population that is concentrated in the metropolis. Much of this perception occurs on a higher level: an awareness of this condition that generates a struggle for rights. This deprivation comes from a true denial of the "right to the city", which makes this population fight for the minimum conditions for survival: for access to housing, infrastructure, health, education, urban mobility, leisure, culture, meetings, centrality, in sum, all that which characterizes urban life towards

creating a situation that overcomes their living conditions. But the struggle, which could be for the right to the city, transforms into a struggle for spatial justice, since one of the foundations of capitalist reproduction, at least in Brazil, is not called into question: we are referring to the private ownership of urban land. This is because the "right to the city" as considered by Lefebvre opens the possibility of considering it to be a social project of change to overcome the conditions that form the basis of inequality. Consequently, it is a struggle for private land ownership as a possibility for fulfilling the right to housing, a phenomenon under way since the 1950's, when the Tenancy Law was passed as a strategy of the dominant classes with the aim of capital reproduction. This intensifies urban expansion by incorporating non-urbanized areas to the real estate market contributing to broadening the periphery inhabited by a significant portion of the population in a precarious state, without access to essential rights, especially the right to housing.

This strategy, which promoted the housing expansion between the 1960's and 1990's not only in the city of São Paulo, but also in the São Paulo metropolitan region, continues to be used and is reproducing on the periphery, which has always been seen as temporary and, at the same time, as the only alternative for reproducing everyday life. Are there possibilities of struggling for the right to the city in Lefebvre's terms? We believe so. However, the process requires an awareness of the foundations of capital reproduction in everyday life (for the greater part of the population in Brazil) in order for the struggle for spatial justice – which is necessary, but not sufficient – to become a broader struggle about elaborating a project to build the "right to the city" completely, destroying one of the foundations of socio-spatial inequality: the private ownership of urban land.

## 4. References

CARLOS, A. F. A. (2001). *Espaço-tempo na metrópole: a fragmentação da vida cotidiana.* Contexto: São Paulo.

CARLOS, A. F. A. (2007). Diferenciação socioespacial. *Cidades. Grupo de Estudos Urbanos (geu),* Vol. 4, nº 6, 45-60. [Availabel in http://revista.fct.unesp.br/index.php/revistacidades/article/viewFile/569/600].

CARLOS, A. F. A. (2015). A reprodução do espaço urbano como momento da acumulação capitalista. In: (org.). Crise urbana. Contexto: São Paulo. Pp. 25-35.

CARVALHO, M. (2010). " A conquista de Anhanguera: situação de fronteira na metrópole de São Paulo". *Antropolítica. Niteroi,* n. 28, 93-125. [Available in www.revistas.uff.br/index.php/antropolitica/article/viewFile/23/pdf].

DAMIANI, A. L. (2004). "Urbanização crítica e a situação geográfica a partir da metrópole de São Paulo". In CARLOS, A. F. A.; OLIVEIRA, A. U. (orgs.). *Geografias de São Paulo: representação e crise da metrópole.* Contexto: São Paulo. Pp. 19-58.

HARVEY, D. (1992). *Condição pós-moderna*. Translated by Ubirajara Sobral, A. & Gonçalves, M. S. Loyola: São Paulo.

MARTINS, J. S. (1997). *Exclusão social e a nova desigualdade*. Paulus: São Paulo.

KOWARICK, L. (2009).. *Escritos urbanos*. Editora 34: São Paulo.

LANGENBUCH, J. R. (2001). "Depoimento. Espaço & debate: periferia revisitada". *Núcleo de Estudos Regionais e Urbanos*, nº 42, 85-91.

LEFEBVRE, H. (1984). *La vida cotidiana en el mundo moderno.* Alianza: Madrid.

LEFEBVRE, H. (2001). *O direito à cidade.* Translated by Frias, R. E. . 2. ed. Centauro: São Paulo.

LEFEBVRE, H. (2006). A produção do espaço. Translated by. Grupo "As (im)possibilidades do urbano na metrópole contemporânea" do Núcleo de Geografia Urbana da ufmg. Belo Horizonte.

LEFEBVRE, H. (2008). *Espaço e política.* Translated by Martins, S.; Andrade, M. M. UFMG: Belo Horizonte.

MARCUSE, P. (2009). *Spatial justice: derivative but causal of social injustice.* Translated by Lehman-Frisch, S. Justice Spatiale, nº 1. [Available in www.jssj.org/wp-content/uploads/2012/12/JSSJ1-4en2.pdf].

PEREIRA, S. (2006). *Os loteamentos clandestinos no distrito do Jaraguá (SP): Moradia e especulação.* Dissertação (Mestrado em Geografia Humana). São Paulo.

RODRIGUES, A. M. (2007). "Desigualdades socioespaciais - a luta pelo direito à cidade". *Cidades. Grupo de Estudos Urbanos* (geu), Vol. 4, n. 6, 273-88.

RODRIGUES, A. M; SEABRA, M. F. (1986). "Habitação e espaço social na cidade de São Paulo". *Boletim Paulista de Geografia, n*. 64, 19-64.

SANTOS, M. (2007). *O espaço do cidadão*. Edusp: São Paulo.

SMITH, N. (2000). "Contornos de uma política espacializada: veículos dos sem-teto e produção de escala geográfica". In ARANTES, A. (org). *O Espaço da diferença.* Papirus: Campinas.

SOJA, E. W. (1993). *Geografias pós-modernas*. Translated by Ribeiro, V. Jorge Zahar editor: Rio de Janeiro.

SOJA, E. W. (2009). *The city and spacial justice.* Translated by Didier S.; Dufaux, F. Justice Spatiale, nº 1. [Available in http://www.jssj.org/wp-content/uploads/2012/12/JSSJ1-1en4.pdf].

# Citizen-driven privatisation of public space in Cape Town, South Africa

Manfred Spocter

*Stellenbosch University*

## Abstract

*There has been a global resurgence of academic inquiry into public space. The ownership of public space is vested in city authorities, but citizens are using city laws to privatise public spaces and remove it from the public realm. Citizen-driven public space privatisation affects the living spaces and immediate surroundings of the closure applicants, but influences a far wider audience. Overlapping theoretical perspectives provide an understanding of the closure of public space in Cape Town, South Africa. A dataset of all successful public space closures in the central substructure region of Cape Town over a 30-year period was compiled from government gazettes with supplementary closure application data from the municipal Land Information Management Department. The subsequent quantitative analysis and investigation of successful closures identified specific spatio-temporal closure trends. A qualitative analysis of written correspondence from closure applicants in two suburbs in the study area provided insights into the reasons for public space closure. Construction and security were the foremost reasons, but a nuanced examination of the data reveals differences between suburbs. The study confirms the view that the complexity of public space requires overlapping theoretical perspectives to be employed in understanding the concept and analysing its temporal changes in reality. The findings dispel notions that the privatisation of public space is solely a post-apartheid phenomenon and that it is only corporate investors that drive the process. The study calls for a closer reading of local conditions in addition to global influences in public space privatisation.*

## 1. Introduction

The city has become the defining lifespace for more than half of the world's population. Urban areas impact on the lives of its inhabitants like never before as the complex web of urban systems and networks interact to shape urban places and spaces. Urban dwellers knowingly and unknowingly effect continuous change through the overlapping of millions of personal decisions within each citizens' micro-spaces in which they inhabit. Thus, the urban sphere becomes an arena where battles for control of contested spaces are fought by citizens who want to secure their own niches and who seek to imprint their mark and individuality on

the urban realm. Each individual niche that is created contains the material, social, familial, cultural and economic possessions of the owner. And each urban dweller seeks to best protect these possessions from misappropriation or by others staking a claim to it. Mechanisms of barricading, fortification and privatisation are used to keep out all unwanted and unwarranted elements that are perceived to be a threat.

In South Africa, exclusionary city planning and management practices were legitimated by the apartheid system. Those practices sought to create and maintain racial boundaries between people. The demise of statutory apartheid in the latter half of the 1980s and early 1990s, coupled with the negotiated political settlement and the creation of a democratic state in 1994 had a profound effect on urban areas. The abolishment of race-based laws created the platform to undo apartheid's urban planning legacy and urban spaces were open to all. Unfortunately, rapidly growing post-apartheid city morphology mirrors the economic disparities of its populations with some commentators arguing that little has changed compared to the apartheid city. Similarly, Cape Town have not undergone vast socio-spatial changes since 1994 (Robins 2002; Du Plessis 2014).

The fear of crime and the 'other' have conspired in the formation of fragmented, fortified and barricaded post-apartheid urban spaces, including public space. Those that are able to afford it tend to protect their assets by fortifying their living spaces, purchase dwellings in gated estates and increase the level of surveillance of private homes (Lemanski 2004; Cronje & Spocter 2016). The rise of gated communities, security complexes, the surveillance and control of urban spaces – indicative of the increasing fragmentation of society and urban space – has implications for public space. However, before the rise of the carceral city there were other means by which citizens could protect themselves from the 'other' and one of these strategies was the privatisation of public space.

This study traces the extent and investigates the reasons provided by citizens

of Cape Town in their pursuit of the privatisation of public space. These citizen-driven closure and privatisation of public space represents grassroots initiatives in shaping urban space. The city administration becomes an enabler in this approach by providing the legal apparatus and facilitating the process of closure. The following section provides an overview of public space literature and theoretical viewpoints. Thereafter the study area and methodology is introduced followed by a spatio-temporal analysis of closures. The penultimate section investigates the reasons for citizen-driven closures in two suburbs within the study area followed by a concluding section.

## 2. Definitions and theoretical underpinnings of public space

This section treats the definition of the concept of public space and explores the theoretical viewpoints used to investigate public space. Defining public space has become increasingly problematic in the neoliberal 21st century urban sphere and theoretical debates around the concept are evolving.

### 2.1 Towards a definition of public space

Public spaces have been receiving global attention (UN-Habitat 2015) and has witnessed a resurgence of debates around them (Vigneswaran, Iveson & Low 2017). It has been a topic of academic enquiry in different fields: geography, history, sociology, architecture, urban planning, urban design, anthropology, archaeology, political studies, and law – each with a different focus of investigation (Erten 2011; Mehta 2014). The primary focus of geographers has been the rights that individuals and groups have with regard to public space with in the broader context of the right to the city as a whole. Inherent in this notion is that public space is for everyone. However, delving into the definition of public space brings a deeper understanding, and complexity, about the concept.

There is a growing consensus that the concept ‘public space’ is becoming

increasingly difficult to define. In attempting to classify urban public space in Bangladesh, Aktar (2017) found that such spaces were multidimensional which led to ambiguity in defining them. Similarly, Kohn (2004) states that public and private spaces were becoming enmeshed, which thwarts attempts to identify and neatly classify them. This view is shared by Tyschenko (no date) who asserts that the lines between public and private spaces were becoming increasingly fuzzy in the Global North and in post-socialist countries. The challenges in defining public space lies, in part, in the multitude of morphologies of public spaces: there are parks, sidewalks, streets, footpaths, playgrounds, marketplaces, squares, piazzas, open spaces, boulevards, neighbourhood gardens, riverine spaces, green spaces and so forth – the list of spatial forms of public spaces are endless (UN-Habitat 2015; Aktar 2017). Public spaces vary according the functions that it is supposed to perform in the public realm. As such, public space sustains the public realm by acting as the connecting link between private and public space.

Various definitions focus on various issues related to public space. Madanipour (1996) defines public space as "… space that is not controlled by private individuals or organisations, and hence is open to the general public" (p. 144). Carr's (1992) definition states that public spaces are "… open, publicly accessible places where people go for group or individual activities" (p. 50). Staeheli & Thompson (1997) conceptualises public space as "… a setting for debate, the exercise of rights as citizens, and a place where people of diverse backgrounds can meet as a community" (p. 29-30). The aforementioned quotes present public space as having elements of the following qualities: open to all, free, universally owned, accessible to all, a space of interaction of social life, a shared democratic arena – with key issues being accessibility, ownership and use (Kohn 2004; Dray 2009; Erten 2011; Mehta 2014; UN-Habitat 2015; Aktar 2017; Tyschenko n.d.). In reality, public space can be far removed from these positive qualities. Jackson (1998) argues that public space is not, and never was, all about inclusivity, openness, accessibility and democracy:

"… various social groups … have, in different times and places, been excluded from public places or subject to political and moral censure" (p. 176). This leads us to the definition of Orum & Neal (2010) who accedes that public space are "… all areas that are open and accessible to all members of the public in a society, in principle though not necessarily in practice" (p.1). The points to public space being a contested concept not only in theory, but also in reality (Mitchell 1996). In addition to the positive suppositions about public space one needs to add ideas about behaviour, rules of use and exclusionary and discriminatory practices as part of the definition.

## 2.2 The theoretical debates

The topic of public space is complex, multi-faceted and multi-dimensional. Many academics have theorised about public space and these perspectives can be placed in three broad approaches. Neal (2010) distils the three core perspectives to understand how public space operates which will form the basis for the discussion on the theoretical debates around public space. The first, the legal-economic perspective, has its roots in the United States of America and is linked to a three-tiered legal definition of public space along a continuum with public and private at opposite ends. The term is constantly developed as new legal cases for specific locations are brought before the courts and as technologies, such as surveillance technology, impacts on spaces. The economic side of the perspective speaks to how public space is essentially free of payment but that is being undermined as spaces develops toward an increasingly private space for which some fee is payable for its use. In such cases, public spaces are revitalised through public-private partnerships in broader urban revitalisation initiatives. These are often in the form of business improvement districts (BIDs) or City Improvement Districts (CIDs) which impose a levy on its stakeholders. Zoning restrictions are the foremost legal devices used to shape desirable public space for economic purposes. Thus, the law is used to create

public space that has an economic value, especially in new consumption spaces; and the socio-economic context of the location of the space (Carmona 2010a).

Neal's (2010) second perspective is the socio-spatial perspective which seeks to identify how public space should look and how it should be used. This perspective recognises that public spaces have crucial social purposes that can be unlocked through appropriate design and planning. Although the socio-spatial perspective has a wide variety of research features, the core elements are related to the street as the focal point of public space, that public spaces can be improved by design, and that public spaces transform over time. Neal (2010) posits that the socio-spatial perspective is in opposition to the third perspective which is the political perspective. Public space is viewed as a site of contention and exclusion, ultimately leading to the decline of public space and the democratic ideals associated with it. This perspective traces its origins to the seminal works of Ahrendt and Habermas who used the terms 'public realm' and 'public sphere', respectively, to signify a democratic space filled with the ideas, opinions and debates of citizens (Goheen 1998; Erten 2011; Mehta 2014). It is a place where citizens interact, although Habermas is criticised for disregarding marginalised groups and their place in the public realm (Fraser 1990). Lefebvre's concept of 'the right to the city' adds what Neal (2010) calls an 'urban element' to the discussion. The right to the city speaks to the basic individual rights of access and participation in the city. Mitchell (1995) uses Lefebvre's concepts of 'representational space' (public space that is appropriated and lived in) and 'representations of space' (public space as ordered, planned and controlled through planning and architecture) to conceptualise public space that is acceptable to 'responsible citizens'. Those who threaten the order and who do not fit the picture of 'responsible citizens' are frowned upon. Order and control of public spaces in cities are maintained laws, by-laws, zoning and various surveillance techniques and technologies – the use of power by municipalities and private interests to exclude people from public spaces. Exclusion through fear-

mongering and behaviour control are key issues in the political perspective of public space. Within this, the privatisation of public space has become another key component that has attracted academic scrutiny.

### 2.3 Privatisation of public space

Privatisation in the urban sphere can be defined as "… the systematic transfer of appropriate functions, activities or property from the public to the private sector, where services, production and consumption can be regulated more efficiently by the market and price mechanisms." (emphasis added) (Republic of South Africa, 1987, p. 8). Privatisation is thus the transfer of ownership, function and related activities from the state to the private sector and allows for the entry of capital into the urban sphere to cut service delivery costs for authorities (Narsiah 2002; Spocter 2017). The profit-driven motives of privatisation have led to various urban functions, activities and property being privatised, which may have negative consequences for those living in the urban environment.

The foremost impact of privatisation is the threat to urban integration and did not assist the aim of building an inclusive society (Spocter 2007). In fact, privatisation is seen to be a yoke around the necks of the urban poor and marginalised who cannot afford to pay, or who battle to pay for basic services such as water and sanitation, thus encouraging and facilitating the perpetuation of, not only the socio-economic polarisation between urban communities, but also increasing the fragmentation of service delivery in the urban sphere (McDonald 2002). The primary goal of private companies is the accumulation of capital and the maximisation of profit with municipal authorities being the enabler of the privatisation process (Carmona 2010b; Nasution & Zahrah 2012). Privatisation also brings monetary benefits to municipal authorities (Ramoroka & Tsheola 2014). The proliferation of malls, secure office spaces, gated communities, and BIDs and CIDs in South Africa are manifestations of public space privatisation (Landman 2004; Houssay-Holzschuch

& Teppo 2009; Paasche 2012; Schuermans & Spocter 2016). Privatisation and private capital influence the cityscape.

Devereux and Littlefield (2017) opines that literature suggest that the role of the private sector in public space has increased from the 1990s – a view shared by UN-Habitat (2015). Privatisation and commodification brings with it increasing safety and security, exclusion and homogenisation – private capital manipulates, produces and reproduces the built environment. The image of the city can be defined by its public space and if public space is constantly monitored and surveilled then that is the image of the city. Vigneswaran, Iveson and Low (2017) laments that privatisation and securitisation chips away at public space and, unfortunately, it shows no signs of abatement. The result is that public spaces are sanitised, clean spaces that are free of detrimental incivilities. They are spaces where order prevails. This outcome is very often the result of public spaces seen as the first to lose orderliness as 'criminal' elements invade its spaces. Fear of disorder in the city is a strong cleanser of impure urban spaces (Bannister, Fyfe & Kearns 2006). The fear of crime causes a retreat from public spaces; order and return is restored through privatisation – "… capital has taken advantage of the geographies of insecurity and fear …" (Qian 2013). Bylaws are used to determine and enforce what are acceptable behaviours in public spaces.

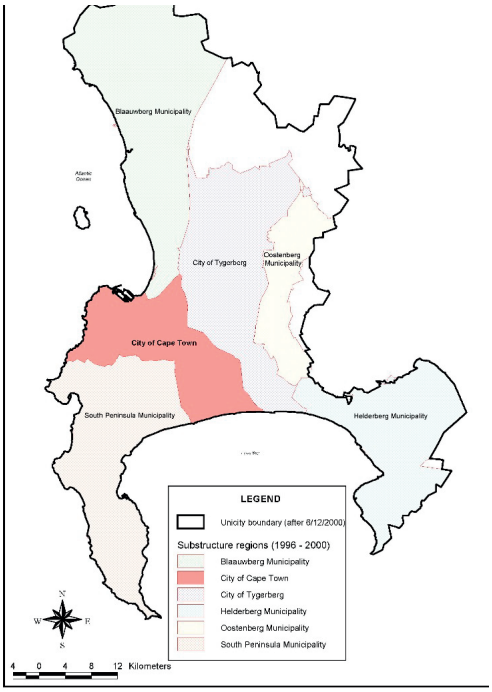
The City of Cape Town's bylaw relating to streets and public places outlaws a range of unacceptable behaviours that undermine public space and has led to the citizenry withdrawing from the public realm to their individual private home spaces. Behaviours deemed unacceptable in public places in Cape Town are blocking or interfering pedestrians and motor vehicles, unwanted physical contact with others, intimidation, begging, use of threatening or abusive language, fighting, urinating, defecating, bathing, spitting, performing of sexual acts, appearing nude, exposure of genitalia, use of liquor or drugs, prostitution, gambling, making fires

and sleeping or camping overnight (Province of the Western Cape 2007). Zoning laws are used to protect private interests – the City of Cape Town used Ordinance 20 of 1974 up until 30 January 2004 to alienate (privatise) public space (Province of the Cape of Good Hope 1974). The next section provides a brief setting of the study and research methodology.

## 3. Study area and methodology

The study area is delineated on two levels, each of which gives insight on the patterns and processes of public space closures between 1975 and 2004. The first level of analysis takes place on a municipality-wide level (Fig. 1) and investigates the pattern of public space closures in the eighty suburbs that forms the City of Cape Town Region of Cape Town. The second level of analysis is a suburb-specific investigation of two suburbs, namely Camps Bay and Mitchell's Plain. This level of analysis investigates the reasons provided in the securing of successful citizen-driven applications for public space closure.

**Figure 1: Cape Town, with previous municipal substructure regions, including the study area**




## 4. Analysis of closures

The analysis of closures was investigated at two levels: a municipality-wide level and a suburb-specific level. While the municipal-wide level provided a spatio-temporal glimpse of closures it is the suburb-specific analysis that provide insights into the reasons citizens seek to close public spaces.

### 4.1 A macro analysis of public space closures

Thirty-six different public space types were identified through their descriptions in the Provincial Government Gazette. These were categorised into three public space types, namely motorised-use spaces, non-motorised use spaces, and

recreation and vacant land spaces.

The categorisation of public space closures into three groups made it easier to document and structure the data in order to extract patterns in the study area. Certain suburbs within the study area displayed a tendency to a specific type of closure. The largest percentage of public space closures came from Group 1 (60%), followed by Group 3 (26%) and Group 2 (14%). The dominance of Group 1 closures could be attributed to the group having fourteen different types of closures in it. Furthermore, it was the dominant closure type in every year of the study period, except in the early 1980s and the late 1990s (Fig. 2).

**Figure 2. Number of closures per group over time**

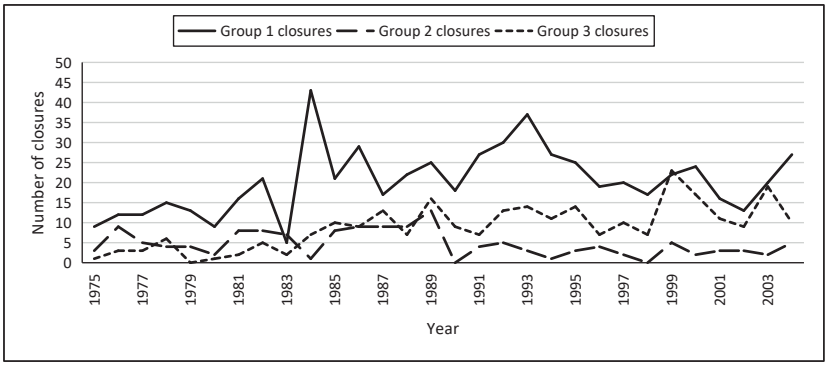
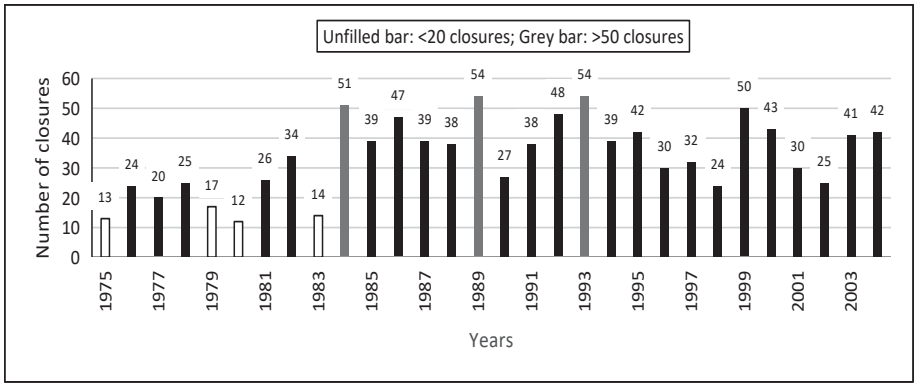



Figure 2 displays a trend of different types of public spaces being closed over the study period and although one assumes that the years that have the most closures correlates with important historical events, one has to be extremely cautious in doing so. It is unwise to attempt such a correlation – which is why the in-depth analysis of the suburb-specific applications would provide insights as to the reasons offered by citizens in the process of their application for public space closures. Group 1 closures have always featured strongly, but Group 3 closures have replaced Group 2 closures in the rank of number of closures. This being the case, then public

spaces such as recreation space or portions of recreation space and vacant land are increasingly being privatised.

The 1 018 closures are spread over a 30-year period and one can identify peaks and troughs of closures (Fig. 3). The average number of successful closures is 34 closures per annum. However, this figure varies considerably, with a maximum annual number of closures of 54 in 1989 and 1993, and a minimum of 12 in 1980. After the introduction of municipal closure laws in 1974, the period until the mid-1980s witnessed a below-average closure rate. However, the closure rates increased dramatically from the mid-1980s till the mid-1990s, including three above-average peaks that had more than fifty closures annually. Since the mid-1990s, there has been some fluctuation in annual closure numbers and it is difficult to establish a discernable trend.



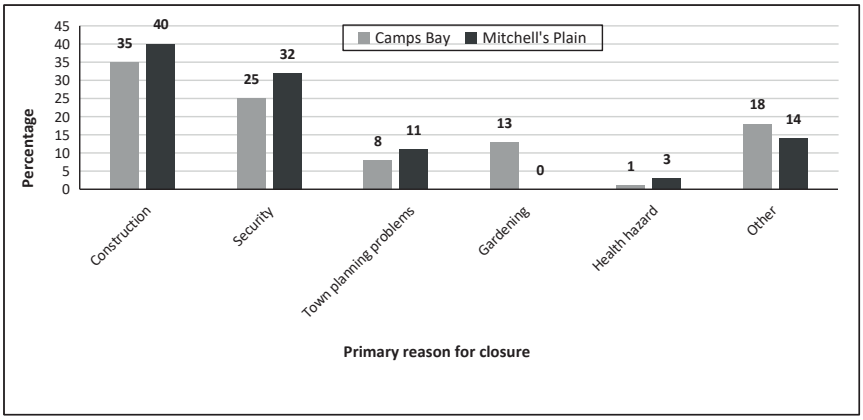

*Sources: Spocter 2005*

In 1984 and 1999 dramatic increases in closures occurred compared to the previous year– both instances showing a more than 100% increase. Conversely, significant decreases occurred in the year prior to 1983 and 1990. Furthermore, the middle decade of the period sustained annual closure numbers above the annual average of 34 closures. On the whole, sixteen of the 30-years had the number of closures on or more than the average, with these sixteen years falling in the last twenty-one years of the study period.

### 4.2 Understanding closures: An inter-suburban comparison

An analysis of the reasons for public space closures provided by successful closure applicants would give insights into the rationale behind the closures. Each closure is documented in a file that contains all written documentation concerning that specific closure. Ninety-two percent of the Camps Bay files and 97% of the Mitchell's Plain files were available for analysis. The focus of the analysis will be limited to the two foremost reasons for closures which collectively accounts for 60% of closures in Camps Bay and 72% of closures in Mitchell's Plain (Fig. 4).

**Figure 4. Primary reasons for closures in the sampled suburbs**




(Source: Spocter 2005)

A large part of Camps Bay is on the slopes of Table Mountain. This location affords spectacular views of the ocean and thus the price of property is astronomically high – up to R450 million (approximately USD35 million). Land is a very sought-after commodity in Camps Bay. Successful public space closure applicants needed land for, inter alia, garages, driveways, building extensions, retaining walls, swimming pools, an aviary, a hothouse, a carport, a townhouse, and a sports field. To ensure that the size and the concomitant value of the property increases substantially, it is land that was previously zoned public space that is privatised and incorporated into

the successful applicant's existing property.

In Mitchell's Plain land was needed for, inter alia, a swimming pool, garages, additional rooms, a driveway, extensions to the main dwelling, a walkway, a granny flat, community centres, a mosque, an old aged home, a crèche, a clinic, townhouses, and a small business. A large portion of construction activities on public space is to increase living space to accommodate large and extended families. Residential overcrowding in Mitchell's Plain is a problem exacerbated by the ongoing failure of authorities to satisfy the demand for state-subsidised housing in Cape Town. An unusual feature of the privatisation of public space is for community facilities such as crèches, religious buildings, community centres and clinics. The construction for increased financial gain dominates in Camps Bay while construction in Mitchell's Plain focuses on increasing living space and the provision of community facilities.

Security concerns informs one that public space is seen by citizens as an impedance to personal security which can be rectified through closure of that public space. In Camps Bay, most public space applications citing security concerns do not elaborate on exactly what the concerns are. Applicants only mention that a fence or thick bushes on the privatised public space would improve security. Applicants who do specify why security is the main reason for wanting to close public space seem to focus on the presence of 'undesirable' elements whom they perceive to be a threat to their lives and their property. The homeless are seen as a security risk. Privatisation is used to fence or secure their property to prevent vagrants from frequenting the public space adjacent to their properties, thereby removing a potential living space for the homeless and displacing them elsewhere. None of the applications in Camps Bay used the words 'crime' or 'criminal' – the fear of vagrants and the act of vagrancy are the security reasons used to privatise public space. In Mitchell's Plain, security concerns are focused on criminal and gang-related activity. Gangsters and criminal elements use public space to conduct

illegal activities, use narcotics and attack and mug passersby. Closure applicants feel that the security issues would, to a large degree, be solved through the closure of public space adjacent to their properties. The idea would be not only to securitise individual properties, but to drive criminal elements out of public spaces as well, thereby giving law enforcers greater potential to identify and arrest offenders.

The security issues alluded to by the residents in the two suburbs portray are different. In Camps Bay the drunkards and vagrants are perceived as a security threat while in Mitchell's Plain there is a real security threat by gangsters and criminals. This could be a manifestation of how citizens view the 'other' or 'undesirables' in society. The 'otherness' of vagrants may be racially conceptualised while the 'otherness' of criminals may be socially conceptualised. Whatever the perception, the City of Cape Town views it as enough reason to authorise the closure of public space. And, in doing so, profits from the sale of the closed space to the closure applicants.

## 5. Concluding remarks

Public space in cities are undoubtedly under threat. Public spaces are being privatised and sold off and the publicness of public spaces are under review. The City of Cape Town is the enabler of this privatisation drive. It benefits on two levels: it receives monetary compensation from the sale of public space, and it saves money by not having to maintain the privatised spaces. However, this undermines the very essence of public space being open, free and accessible to all publics. The 'right to the city' is become increasingly curtailed as public spaces are increasingly closed or controlled by actors other than the municipal government or by citizens themselves. And contrary to popular belief, it is not only corporate capital that are driving this process with municipalities, it is also citizens. Citizens have the power to control their public spaces and, as this study show, they do exercise that power. The privatisation of public space is not explained by one theoretical viewpoint.

Returning to Neal (2010) it is the legal and political perspective that best suits this study and reiterates the complex and multi-dimensional nature of public space.

Citizens cite uncontrollable elements and behaviours that are deemed to be socially unacceptable as reasoning for public space closure. Thus, public spaces cease to function as places of meeting others in the city. Public space is affected by the socio-economic context as witnessed in the two study sites. While there are legitimate security concerns with regard to gangsters, one has to question whether the closure of public space really solves the problem or whether applicants use the law to enrich themselves with incorporation of public spaces into their property portfolio. On the other hand, the poor, homeless and the 'other' are unfairly criminalised as reasons to close public spaces. The growing inequalities in South African cities have made people wary of the 'other' and constant information overflow about crime leads people to perceive others as a threat. The closure of public space further fragments an increasingly divided post-apartheid urban space, but as this study shows the privatisation of public space has started way before South Africa became a democratic state. The fears that were produced in urban space then continue to be produced now – with negative consequences for the public realm. South African cities remain fragmented and divided on many levels and municipalities continue to be the enablers of the division. The privatisation of public space seals the inevitable decline of open, accessible public space and further fragments the post-apartheid city.

## 6.References

AKTAR, S. (2017). *Urban public space: A case from developing country.* Master's thesis. Blekinge Institute of Technology. [Available in www.diva-portal.org/smash/get/diva2:1106731/FULLTEXT02.pdf]

BANNISTER, J., FYFE, N. & KEARNS, A. (2006). "Respectable or respectful?

(In)Civility and the city". *Urban Studies*, Vol. 43, 919-937.

CARMONA, M. (2010a). "Contemporary public space, part two: Classification". *Journal of Urban Design*, Vol. 15, 157-173.

CARMONA, M. (2010b). "Contemporary public space: Critique and classification, part one: Critique". *Journal of Urban Design*, Vol. 15, 123-148.

CARR, S., FRANCIS, M., RIVLIN, L.G. & STONE, A.M. (1992) Public space. Cambridge University Press: New York.

CRONJE, C.J. & SPOCTER, M. (2016) "Open-plan suburb to fortified suburb: Home fortification in Soneike, Cape Town, South Africa". *Journal of Housing and the Built Environment*, 1-20.

DEVEREUX, M., LITTLEFIELD, D. (2017). *A literature review on the privatisation of public space.* Project report. [Available in http://eprints.uwe.ac.uk/31529/]

DRAY, A. (2009). T*he politics of the privatisation of public space: The subsistence fishers of Durban, KwaZulu-Natal.* Master's thesis. University of KwaZulu-Natal. [Available in http://researchspace.ukzn.ac.za/handle/10413/276]

DU PLESSIS, D. J. (2014). "A critical reflection on urban spatial planning practices and outcomes in post-apartheid South Africa". *Urban Forum,* Vol. 25, 69-88.

ERTEN, Ö. T. (2011). *Questioning the privatisation of public space: The "publicness" of shopping centres.* Doctoral dissertation. Izmir Institute of Technology. [Available in http://openaccess.iyte.edu.tr/bitstream/handle/11147/2899/413585.pdf?sequence=1&isAllowed=y]

FRASER, N. (1990). "Rethinking the public sphere: A contribution to the critique of actually existing democracy". *Social Text,* Vol. 25/26, 56-80.

GOHEEN, P. G. (1998). "Public space and the geography of the modern city". *Progress in Human Geography*, Vol. 22, 479-496.

HOUSSAY-HOLZSCHUCH, M., TEPPO, A. (2009). "A mall for all? Race and public space in post-apartheid Cape Town". *Cultural Geographies*, Vol. 16, 351-379.

JACKSON, P. (1998). "Domesticating the street: The contested spaces of the high street and the mall". In FYFE, N. R. (Ed.). I*mages of the street: Planning, identity, and control in public space*. Routledge: London. Pp. 176-191.

KOHN, M. (2004). *Brave new neighbourhoods: The privatization of public space.* Routledge: New York.

LANDMAN, K. (2004). Who owns the roads? Privatising public space in South African cities through neighbourhood enclosures. *Privatisation of Urban Space Conference.* New Orleans.

LEMANSKI, C. (2004). "A new apartheid: The spatial implications of fear of crime in Cape Town, South Africa". *Environment and Urbanization*, Vol. 16, 101-112.

MADANIPOUR, A. (1996). *Design of urban space*. Wiley: New York.

MCDONALD, D.A. (2002). "Up against the (crumbling) wall: The privatization of urban services and environmental justice". In MCDONALD, D. A. (Ed.), *Environmental justice in South Africa.* University of Cape Town Press: Cape Town. Pp. 292-324.

MEHTA, V. (2014). "Evaluating public space". *Journal of Urban Design,* Vol. 19, 53-88.

MITCHELL, D. (1995) "The end of public space? People's park, definitions of the

public, and democracy". *Annals of the Association of American Geographers*, Vol. 85, 108-133.

MITCHELL, D. (1996). "Introduction: Public space and the city". *Urban Geography,* Vol. 17, 127-131.

NARSIAH, S. (2002). "Neoliberalism and privatisation in South Africa". *GeoJournal*, Vol. 57, 3-13.

NASUTION, A.D. &ZAHRAH, W. (2012). "Public open space privatization and quality of life, case study Merdeka Square Medan". *Procedia-Social and Behavioral Sciences*, Vol. 36, 466-475.

NEAL, Z. (2010). "Seeking common ground: Three perspectives on public space". P*roceedings of the Institution of Civil Engineers-Urban Design and Planning*, Vol. 163, 59-66.

ORUM, A. & NEAL, Z. (2010). *Common ground? Readings and reflections on public space*. Routledge: New York.

PAASCHE, T. F. (2012). "Creating parallel public spaces through private governments: A South African case study". *South African Geographical Journal,* Vol. 94, 46-59.

PROVINCE OF THE CAPE OF GOOD HOPE (1974). Ordinance 20. Cape Town: Government Printer.

PROVINCE OF THE WESTERN CAPE (2007). *Provincial Gazette*, nº. 6469. Government Printer: Cape Town

QIAN, J. (2013). *Re-visioning the public in the city of difference: Poetics and politics in post-reform Guangzhou, China.* Doctoral dissertation. University of Edinburgh. [Available in www.era.lib.ed.ac.uk/handle/1842/8295]

RAMOROKA, T. & TSHEOLA, J. (2014). "Gated-communities and the privatization of public spaces in urban South Africa: Democratic social integration or exclusion?". *Journal of Geography and Regional Planning*, Vol. 7, 58-68.

REPUBLIC OF SOUTH AFRICA (1987). *White paper on privatisation and deregulation in the Republic of South Africa*. Government Printer: Pretoria.

ROBINS, S. (2002). "At the limits of spatial governmentality: a message from the tip of Africa". *Third World Quarterly.* Vol. 23, 665-689.

SCHUERMANS, N. & SPOCTER, M. (2016). "Avoiding encounters with poverty: Aesthetics, politics and economics in a privileged neighbourhood of Cape Town". In DE BACKER, M., MELGAÇO, L., VARNA, G. & MENICHELLI, F. (Eds.). *Order and conflict in public space*. Routledge: London. Pp. 79-100.

SPOCTER, M. (2005). *The 'silent' privatisation of urban public space in Cape Town, 1975-2004.* Master's thesis. University of the Western Cape. [Available in http://etd.uwc.ac.za/xmlui/handle/11394/1690]

SPOCTER, M. (2006). "A macro analysis and GIS application of urban public space closures in Cape Town, 1974-2004". *Acta Structilia,* Vol. 13, 90-113.

SPOCTER, M. (2007). "The 'silent' closure of urban public space in Cape Town: 1975 to 2004". *Urban Forum,* Vol. 18, 153-170.

SPOCTER, M. (2017). "Privatisation of municipal golf courses in small towns in the Western Cape, South Africa". *South African Geographical Journal,* Vol. 99, 113-133.

STAEHELI, L.A. & THOMPSON, A. (1997). "Citizenship, community, and struggles for public space". *Professional Geographer,* Vol. 49, 28-38.

UN-HABITAT. (2015). Habitat III issue papers: Public space. New York. [Available in http://habitat3.org/wp-content/uploads/Habitat-III-Issue-Paper-11_Public-Space-2.0.compressed.pdf]

VIGNESWARAN, D., IVESON, K., LOW, S. (2017). "Problems, publicity and public space: A resurgent debate". Environment and Planning A, Vol. 49, 496-502.

TYSCHENKO, I. (no date). The challenges of the public space. [Available in http://www.spacesproject.net/images/doku/igor_tyshchenko_eng.pdf]

# Urbans socio-territorial movements: the resistance of homelessness of 'Quilombo Paraíso - MSTB' (Salvador-Bahia-Brazil)

Oriana Araujo

*Universidade Estadual de Feira de Santana*

Rubén C. Lois González

*Universidade de Santiago de Compostela*

## Abstract

*The text discusses the struggles for house in Quilombo Paraíso, a land occupation of the MSTB in the suburb of Salvador. It consists of a case study based on field research, direct observation, semi-structured interviews with coordinators, besides digital research, especially documentary videos and social media pages. The occupiers live in very difficult circumstances since 2009. They are 120 families who remain firm in the struggle and intend to continue until the conquest of the dwelling, in their 'Paradise'. The disputed territory belonged to EMBASA, public-private enterprise, but the State of Bahia is the principal shareholder. The state will intervene in the area to build a housing complex to settle families that will be affected by the construction of highways, however they considered that the homelessness of Quilombo Paraíso will not be settled. It is as if they did not exist, once it is proposed that they leave the area for the construction of a housing complex – precisely the equipment they want –, but are not counted as part of the population affected. So they fight and, as their coordinator asks: [We were not affected by the construction? What is this story?].*

## 1. House and Homelessness in Bahia/Brazil

Brazil does not have a reasonable democracy capable of ensuring the welfare of people, because it is still a country more politically organized (currently under political coup) than socially, where market logic predominates and not the logic of right (Demo, 2005; Touraine, 2006, Porto-Gonçalves, 2010). The access to dwelling is denied, to the ceiling, where people can exercise their minimal territoriality and find protection, shelter, cosiness (Haesbaert, 2010).

The movements of struggle for housing represent the power of questioning and mobilization of society typical of counter-hegemonic agents (Zibechi, 2007) and

as said by Fernandes (2005), for some social movements the territory is the own reason and purpose of the struggle, constituting themselves in 'socio-territorial movements'.

In Brazil they combat the explicit co-operative relationship between landowners, real estate incorporators, construction companies financers of electoral campaigns and the State (Boulos, 2013; Maricato, 2011), from the financialization of the housing policy in the Minha Casa Minha Vida Program (MCMVP) that little contemplated the people who have income until 3 minimum wage[1] (Shimbo, 2012).

Salvador, capital of the State of Bahia, in 2010 had 2,674,923 habitants, with demographic density of 3.859 hab/km² (IBGE, 2010) and an estimated housing deficit of 93,981 housing units (IPEA, 2013), of the universe from 307,344 houses that are lacking in the State of Bahia in 2013 (FJP, 2015).

The city did not make housing programs capable of to supply the demand in the metropolis and the result was the informal occupations that constituted huge slums, so for Carvalho and Barreto (2007) the town is constituted by a sea of poverty with islands of affluence (rich places, with an essentially white and educated population, as Itaigara) where the human development index is similar to countries such as Norway.

More recently, the process of self-segregation has been extended through the construction of private condominiums, with integration of housing, consumption (Carvalho & Pereira, 2014) and services such as schools in the walled and guarded area, reminding the european medieval cities.

The spontaneous occupation of land and the self-construction of the house or shack were the housing solution found by poor: crowded one on top of the other in the hills, in the valleys, in distant and less valued areas, where they were tolerated

1 The minimum wage actually (2017) in Brazil is R$ 937,00 or US$ 296,00.

or removed in accordance with State interests and capitalist ones (LIMA, 2009).

The Movimento dos Sem Teto da Bahia [Movement of Homelessness Workers of Bahia] (MSTB) was established in 2005, after a split in the Movimento dos Trabalhadores Sem-Teto de Salvador [Salvador's Homelessness Workers Movement] (MSTS) existing since 2003 (Cloux, 2008; Miranda, 2008) and that acts in the organization of the struggle for housing. The Quilombo Paraíso, object of this communication, is a land occupation of the MSTB in the suburb of Salvador.

## 2. Methodology

The finding that there is a strong housing deficit in Bahia had led to the questioning about the forms of social organization for the struggle for housing, essentially about constitution of movements of struggle for popular housing, the socio-spatial actions undertaken and the territorialities produced, as well as the relations established with the main agents in this process and the strategies used.

The methodology used is based on the recommendations of authors as Pedón (2013) and Santos (2011) when discussing the studies about the social movements in the scope of Geography. The discussions are the result of a case study based on field research, where in addition to direct observation we conducted semi-structured interviews with coordinators and we talked to residents of the occupation 'Quilombo Paraíso – MSTB'. The other information was collected by digital research, especially documentary videos and social media pages.

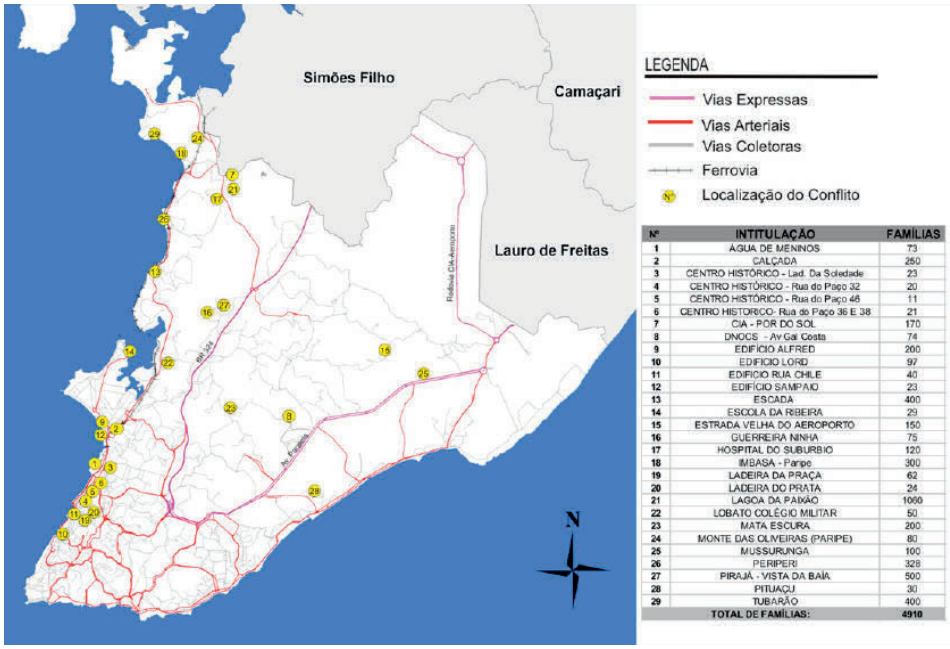
## 3. Quilombo Paraíso: struggle for house and rights

The occupation Quilombo Paraíso – MSTB is located in the district of Periperi in Salvador (Fig. 1[2]), distant approximately 25km from the traditional center of the city. The area is known as Suburb Rail (Subúrbio Ferroviário) due to installation

2 In legend is 17 – Hospital do Subúrbio.

of the railway in 1860, followed by a series of popular allotments in 1940, usually without territorial planning and constitutes one of the poorest areas of Salvador (Carvalho & Barreto, 2007).

**Figure 1. Localization of occupation Quilombo Paraíso – Salvador/Bahia/Brazil**




| Nº | INTITULAÇÃO | FAMÍLIAS |
|---|---|---|
| 1 | ÁGUA DE MENINOS | 73 |
| 2 | CALÇADA | 250 |
| 3 | CENTRO HISTÓRICO - Lad. Da Soledade | 23 |
| 4 | CENTRO HISTÓRICO - Rua do Paço 32 | 20 |
| 5 | CENTRO HISTÓRICO - Rua do Paço 46 | 11 |
| 6 | CENTRO HISTÓRICO- Rua do Paço 36 E 38 | 21 |
| 7 | CIA - POR DO SOL | 170 |
| 8 | DNOCS - Av Gal Costa | 74 |
| 9 | EDIFÍCIO ALFRED | 200 |
| 10 | EDIFÍCIO LORD | 97 |
| 11 | EDIFÍCIO RUA CHILE | 40 |
| 12 | EDIFÍCIO SAMPAIO | 23 |
| 13 | ESCADA | 400 |
| 14 | ESCOLA DA RIBEIRA | 29 |
| 15 | ESTRADA VELHA DO AEROPORTO | 150 |
| 16 | GUERREIRA NINHA | 75 |
| 17 | HOSPITAL DO SUBURBIO | 120 |
| 18 | IMBASA - Paripe | 300 |
| 19 | LADEIRA DA PRAÇA | 62 |
| 20 | LADEIRA DO PRATA | 24 |
| 21 | LAGOA DA PAIXÃO | 1060 |
| 22 | LOBATO COLÉGIO MILITAR | 50 |
| 23 | MATA ESCURA | 200 |
| 24 | MONTE DAS OLIVEIRAS (PARIPE) | 80 |
| 25 | MUSSURUNGA | 100 |
| 26 | PERIPERI | 328 |
| 27 | PIRAJÁ - VISTA DA BAÍA | 500 |
| 28 | PITUAÇU | 30 |
| 29 | TUBARÃO | 400 |
| | TOTAL DE FAMÍLIAS: | 4910 |

*Source: Ribeiro (2011, p. 12).*

The disputed territory belonged to the EMBASA (Empresa Baiana de Água e Saneamento S.A), public-private enterprise, but the State of Bahia is the principal shareholder. Territorial issues are essential in this process, given that the state quickly emerged as 'defense of the environment' and reported that the occupation was in an APP (Área de Proteção Ambiental Permanente/ Permanent Environmental Protection Area), related to the Copper River basin, where no type of land use can be made. However the construction of the Suburb Hospital was not prevented (Fig. 2).

**Figure 2 – View of the surroundings of the disputed territory in Quilombo Paraíso Salvador (BA)**


*Source: Oriana Araujo (2015)*

In addition, the MSTB found that the area of the occupation was effectively located in the Environmental Preservation Area of the Paraguari River, where due care being taken it is possible to have dwelling.

The occupation came from the organization of people in the neighborhood who needed housing and decided to occupy the area next to the construction of the Suburb Hospital in July 2009, under the leadership of the Movement of the Homelessness of Bahia (MSTB), as systematized in Table 1, which presents the main events and actions effected by the Quilombo Paraíso militants.

The different police actions tried to exterminate the occupation with the felling and burning of shacks in 2009, followed by an action of the environmental police in 2010 (Fig. 3) are, in an even greater degree of inhumanity, a Brazilian show of what Delgado (2016) calls 'speculative brutality' in dealing with evictions made in different parts of the world.

In the case of the State of Bahia, it is important to note that the violent police actions occurred during the mandate of Governor Jacques Wagner of the Partido dos Trabalhadores (Workers' Party), which represented before its rise a hope for social movements.

**Table 1. Essential milestones on the struggle for housing in Quilombo Paraíso (MSTB)**

| DATA | ACTION |
|---|---|
| July 20, 2009 | Land occupation and construction of shacks by about 50 families; Addition of more 400 families. |
| August 04, 2009 | Reintegration of possession fulfilled violently by the military police of the State of Bahia, with the overthrow of the shacks, without deadlines, without negotiations. |
| August 04, 2009 | Immediate rescheduling of the occupation, with the reconstruction of 80 shacks, after the police leave. |
| September 07 | Annual walking participation 'Grito dos excluídos'. |
| May 27, 2010 | |
| | Overthrow of shacks by the Forest Police, even after agreement with Secretaria Estadual de Desenvolvimento Urbano for the permanence of 110 families. |
| July 22 | Annual participation in the civic Parada do 2 de Julho. |
| February 21, 2014 | Visit of the UN Rapporteur on the Right to Housing, Raquel Rolnik. |
| November 28, 2011 | |
| March 18, 2015 | Mobilization at the Administrative Center of Bahia, with a march through Avenida Paralela to the government house. |
| July 16, 2015 | Participation and protest in a public hearing promoted by the City Council. |
| October 05, 2015 | Collective reading as a form of manifestation in a public hearing of the "Manifesto against a PDDU (Director Plan Development Urban) considered racist and hygienist (https://goo.gl/HJgHwu). |
| June 13, 2016 | Public protest against the process of developing the PDDU of Salvador. |
| 2017 | Resistance and fight for the permanence of families after announcement of construction project housing units for other families that will be affected for construction of new highways, disregarding the occupants. |

*Source: Oriana Araujo (2017); https://goo.gl/z2LDGN; https://goo.gl/rLzJWk; https://goo.gl/Toqxxe; https://goo.gl/jTMssK; https://goo.gl/xTFUsP; https://goo.gl/LHbxCk; https://goo.gl/N4ufTa; https://goo.gl/mElxJ8; https://goo.gl/26TLrx; https://goo.gl/8jFfsX; https://goo.gl/32arP9; https://goo.gl/LkALJQ; https://goo.gl/adRBT3; https://goo.gl/pr4aPS; https://goo.gl/QXyUVn; https://goo.gl/AzqXAV. Pedro Cardoso (Coordinator of MSTB; Interview held in 24/04/2017).*

**Figure 3. Result of the police action on Quilombo Paraíso (2009)**

*Source: https://goo.gl/SfzvID*

The MSTB defends and practices principles such as autonomy, horizontality, solidarity and ecumenism, so that the struggle is not only for decent housing but for a change in social structures:

*There is only the problem of housing in Brazil and in all the countries of the world because there is this model of political, economic, social and cultural organization that excludes the population from their rights, which does not guarantee fundamental rights, human rights and one of them is the dwelling. (Pedro Cardoso[3]. Coordinator / founder of MTSB).*

Raquel Rolnik's[4] visit to Quilombo Paraíso, although it has been almost three years and the community does not know when will get access to a house and a decent living space, helped to visualize the cause, to demonstrate the neglect faced by the ones who fight for housing. The UN rapporteur commented on the Quilombo Paraíso and the actions of the MSTB: *"Consciousness of rights, solidarity between the different forms of struggle and resistance. I thought this was lost, but that's what I saw here among communities and organizations."*, besides recommending the progressivity of the right to housing, from access to water, electrical energy and other minimum elements essential to life, while the conflict is not resolved.

3 *https://goo.gl/SfzvID*

4 Special Rapporteur on the Right to Adequate Housing of the Human Rights Council of the United Nations (2008-2014). https://goo.gl/ovj2zf

Currently live 120 families in the occupation: 100 women, 60 men and 68 children (Fig. 4). It is needed strength, endurance and resilience to live under wooden shacks, where ["When it rains, water enters from the bottom and goes out the front"][5], besides problems of domestic violence and basic sanitation as said by Rita Ferreira (Dweller and coordinator). In addition, everything is needed, but despite the degrading conditions they face daily, as Pedro Cardoso (coordinator) explains, it makes a huge difference for these families not to pay rent.

**Figure 4. Occupation Quilombo Paraíso**

*Source: Raphael Cloux (2016). In.: https://goo.gl/GDvNfF.*

The main form of claim is the public manifestations, with walks and collective protests to make visible the problem of homelessness, require a solution in the expropriation of the occupied area, as well as the negotiating table with the government of the State, with legal advice. The MSTB is notedly against the State, how discuss Souza (2006).

According to Ms. Mira (MSTB Coordinator), many people die during this struggle process, given that it takes up more than a decade for the solution be taken. It is proved disregarding the time that the occupants need to resist to the strategy

5 https://goo.gl/SfzvID

of the government of the State of Bahia that is 'win by the fatigue', delay the final decision to demobilize people, weaken the movements struggle for housing, return lands and buildings to their former owners to serve merely real estate speculation.

In 2017 Quilombo Paraíso's occupants were invited to participate in the rent exchange because the state will intervene in the area to build a housing complex to settle families that will be affected by the construction of highways, however they considered that the homelessness of the Quilombo Paraíso will not be settled because they were not in the construction area of the highway and the housing program already relates to PAC (Programa de Aceleração do Crescimento [Growth Acceleration Program]) linked and did not provide for the inclusion of the occupants of Quilombo Paraíso. In Pedro Cardoso's words:

*Do you believe people would not be able to stay there? Had to leave and could not return. Why is the call PAC linked: Only families affected by the roads construction could stay, during the process of road construction, people who were expropriated by the roads. I mean, they chose there because we occupied it and now it comes to say that we were not linked?. We went upstairs because we were going to stay outside, but now we're inside. How come we're not linked if we're going to get us out from the locals to build the units? Not linked? We were not affected by the construction? What is this story? They want us to go to the rent exchange, but since there is this discussion that we are not linked, if we go out rent purse, we will not go back. This is the dilemma, that's why we will resist. So we're not going to leave. If they want to build it will be with us there, to ensure.. (Pedro Cardoso. Coordinator of MSTB).*

In this case, the State would act as in the deterritorialization of the occupants already badly territorialized in Quilombo Paraíso, as in the territorialization of the people which will be affected by new roads, as if your action should not be also directed to the problem of the homelessness.

It is as if they did not exist, once it is proposed that they leave the area for the construction of a housing complex – precisely the equipment they want –, but are not counted as part of the population affected. This is clear example of the indifference of the State relative to the poorest people and the struggles for housing in Bahia.

## 4. Final considerations: Poor people are also human, man!

The Quilombo Paraíso occupation, organized by the Movement of the Homelessness of Bahia (MSTB) has existed since July 20, 2009. Living in very difficult circumstances are 100 women, 60 men and 68 children (120 families) who remain firm in the struggle and intend to continue until the conquest of the dwelling, in their 'Paradise'.

They represent the hope that the organized people can promote other rationalities and uses of the territory, in the looking for a fair society.

They must be seen, heard, considered as part of humanity, because it is as if they do not have the same needs of all, as observed in the narrative of an occupant:

*Here we live in abandonment, live completely idle.* ***Poor people are also human, man.*** *The weak are also people, are not only the rich people who are.(Mr. Mizael. Aged. Resident of 'Paraíso' occupation).*

The occupiers did not give up the fight even when the state used direct violence and had their shacks toppled and burned down in 2009 by police and partially removed in 2010 by the environmental police.

They still resist the attempt of the state and its political agents, to win them by fatigue (7 years), as well as the attempt to remove them for the construction of a housing complex that paradoxically, would not contemplate them, which demonstrates its great social strength and political consistency, visible in its different public manifestations and capacity of organization, which make clear the important role of MSTB in the organization of popular resistance and their struggle for inclusion and conquest of constitutional and fundamental rights.

The MSTB sustain an important function promoting political training courses for its members, organizing the occupation and mobilization of the peoples for the claims actions (rallies, protests), as well as in the struggle for the channel of negotiations with the government, acting as an important counter-hegemonic agent,

bearer of new logics, new rationalities in the configuration of new territorialities in Bahia.

The Quilombo Paraíso is a clear demonstration of the years of resistance of the black and poor population of Bahia and of their capacity to fight for the resignification of their lives from the inclusion and conquest of constitutional and fundamental rights as housing.

## 5. References

BOULOS, G. (2013). Por que ocupamos?: uma introdução à luta dos sem-teto. Autonomia Literária: São Paulo.

CARVALHO, I. M. M. de & BARRETO, V. S (2007). "Segregação residencial, condição social e raça em Salvador". *Cadernos Metrópole*, nº 18, 251-273.

CARVALHO, I. M. M. & PEREIRA, G. C. (2014). "Estrutura social e organização social do território na Região Metropolitana de Salvador". In CARVALHO, I. M. M. & PEREIRA, G. C. *Salvador: transformações na ordem urbana: metrópoles: território, coesão social e governança democrática*. Letra Capital: Observatório das Metrópoles: Rio de Janeiro. Pp. 109-140.

CLOUX, R. F. (2008). MSTS/MSTB: *A Trajetória do Movimento dos Sem-Teto de Salvador/Bahia*. Kawo-Kabiyesile: Salvador.

DELGADO, M. (2016). *Vida urbana contra los desahucios en Boston*. EL PAÍS. 14 Junio.

DEMO, P. (2005). "Santo Estado, maldito mercado: de certas esquerdas que são direitas". *Sociedade e Estado,* Vol. 20, nº 2, 451-476.

FERNANDES, B. M. (2005). "Movimentos socioterritoriais e movimentos socioespaciais: contribuição teórica para uma leitura geográfica dos movimentos

sociais". *Revista NERA*, nº 6, 24-34.

FUNDAÇÃO JOÃO PINHEIRO (2015). *Déficit habitacional no Brasil 2013: resultados preliminares*. FJP: Belo Horizonte.

HAESBAERT, R. (2010). *O Mito da Desterritorialização: do "Fim dos Territórios" à Multiterritorialidade. 5*ª ed. Bertrand Brasil: Rio de Janeiro.

INSTITUTO DE PESQUISAS APLICADAS (2013). *Estimativas do déficit habitacional brasileiro (2007-2011) por municípios (2010).* IPEA: Brasília.

LIMA, G. (2009). *Movimento Baixa do Marotinho: A luta pela moradia em Salvador (1974-1976).* UFBA: Salvador. (Dissertação de mestrado em História).

MARICATO, E. (2011). *O impasse da política urbana no Brasil.* Vozes: Petrópolis.

MIRANDA, L. C. dos S. (2008). *Vizinhos do (in)conformismo: O Movimento dos Sem Teto da Bahia entre a hegemonia e a contra-hegemonia*. (Dissertação de mestrado em Ciências sociais). UFBA: Salvador.

PEDON, N. R. (2013). *Geografia e movimentos sociais: Dos primeiros estudos à abordagem socioterritorial.* Editora UNESP: São Paulo.

PORTO-GONÇALVES, C. W. (2010). "A reinvenção dos territórios: a experiência latino-americana e caribenha". In COELHO NETO, A. S.; SANTOS, E. M. C. & SILVA, O. A. da (Orgs.) (2010). *(Geo)grafias dos movimentos sociai*s. : UEFS Editora: Feira de Santana. Pp. 15 -170.

RIBEIRO, D. M. M. (2011). Morar na Carlos Gomes: possibilidades e limites para a habitação de interesse social no centro. (Trabalho de conclusão de Graduação). Universidade Federal da Bahia: Salvador.

SANTOS, R. E. dos (2011). *Movimentos sociais e Geografia: sobre a espacialidade da ação social.* Consequência: Rio de Janeiro.

SOUZA, M. L. de (2006). "Together with the state, despite the state, against the state: Social movements as 'critical urban planning' agents". *City*, vol. 10, nº 3, 327-342.

SHIMBO, L. Z. (2012). *Habitação social de mercado: A confluência entre Estado, empresas construtoras e capital financeiro.* C/Arte: Belo Horizonte.

TOURAINE, A (2006). "Na fronteira dos movimentos sociais. Sociedade e Estado". *Brasília*, Vol. 21, nº 1, 17-28.

ZIBECHI, R. (2007). *Autonomías y emancipaciones: América Latina en movimiento*. Universidad Nacional Mayor de San Marcos: Lima.

# LGBTI+s in local governmental bodies: A way to transform the urban planning in Turkey?

Neyir Zerey

*Middle East Technical University*

## Abstract

*This article focuses to the effect of concrete participation of LGBTI+ movement's actors to politics, more specifically to urban governance in Turkey. Participation of LGBTI+s on municipal level decision making and local administrative processes in Turkey and the outcomes of becoming "active citizens" and "active NGOs" of the local governance system will be put under the scope. The politicization process, the inclination of strategic structures within the movement, the entanglement of LGBTI+ activists with politics, historically, first with central politics and then with local governmental platforms will be scrutinized to make sense of how LGBTI+ activism became an active agent in the way urban planning through local policies became affected and will furthermore be affected. The article furthermore looks into how this substantive entanglement had permanent impacts on the present and future of cities' governance.*

## 1. Introduction

Sexual liberation and possibilities of sociability are present in the complex structure of the city. In this sense, the city is considered as the spatial platform where sexual identities and expressions are embodied and become visible (Bech, 1997: 118) or at very last, find a chance of visibility. Whilst asking for equal rights and fighting against rules of the dominant oppressive and exclusionist system, LGBTI+ activism in the Western world have long been trying to gain full access to the city and to directly participate to the urban planning process.

Examining its past, the movement, entitled as the "homophile movement" back in 1950s in US, was expressing joint demands for equality and claiming 'appropriation to city' (Lefebvre 1968) via street protests and visibility campaigns. In the course of time, strategic tools used by LGBTI+ activists and allies changed

and progressed; rights-based activism discourses leaking into other platforms brought further improvement: transformation of the academic discourse; political campaigns initially directed at the representation of LGBTI+s, later on conducted with LGBTI+ identified persons' own participation in different parts of the world, active litigation works reinforcing strategic indictments can be listed among examples of this emanation.

Voicing requests for equality and impartiality in accessing public services and taking an active role in the transformation of urban public spaces can be deemed fruitful considering the number of concrete results obtained in due course. In its broadest sense, LGBTI+ policies became applicable as a part of the mainstream diversity politics in the Western world. In this geographical setting, countrywide concrete achievements such as constitutional protection of rights, marriage equality, recognition of LGBTI+s' socio-economic contractual rights and anti-discrimination laws can be shown as examples to LGBTI+s political activism success (Cameiro and Menezes 2007). However, these examples of success stories are not globally valid and in some countries LGBTI+ activists continue their struggle to achieve or to protect their basic rights: constitutional protection, access to public services, equal representation and participation rights are among some of these fields of struggle.

In this framework, it is also necessary to shed light on the examination of the relation between central and local politics. This enquiry shows that local level governing bodies are designed as micro-scale implementers of policies projected by central governmental bodies (Syrett and Sepulveda 2012). Thus, when laws prohibiting discrimination based on gender identity and sexual orientation and laws granting equal citizenship rights are enforced by central governmental bodies, bylaws on local level become inclusively reassured. This gives us a two-directional input: in cases where LGBTI+s' rights are reassured centrally, similar

applications would be expected from local bodies; whereas in cases where this kind of a protection is absent, local governments become stuck into a confined space.

Besides, local level politics become in any case affected by macro-level ruling systems, as neoliberalism pinpoints on every occasion. Within this dominantly ruling system, cities, local governments' realms of authority, are considered by central governments as revenue sources and tools for economic development. Local governance, acting upon similar tendencies, mimics these adopted policies and fails to establish 'good governance' in the urban setting. To be precise, in the absence of good governance models, local governments' priorities move away from democratic representation and participation of their fellow inhabitants and instead, it gives weight on increasing efficiency and profitability (Fincher et al. 2014). The dialectic assessment of the city governance questioning the relation between efficiency/profitability concerns and democratic values thus comes into prominence again (Waldo 1948).

In Turkey, LGBTI+ movement has actively been pushing for equality and justice for decades. These demands were voiced out both on central and local levels but there have not been a concrete achievement until 2014. Local governmental system in Turkey, criticized for being overshadowed by the central administration, became more attached to popular discourses and to the supply of services addressing the majority of population with strict efficiency supervision. The voices of the minority were neglected and found no actual place in the context of the distribution of public services.

How did 2014 local elections affect the existing administrative system? In which ways the political participation of LGBTI+s can transform into concrete gains for the community and for the local governments themselves? The article starts examining participatory trends among LGBTI+s to local governmental bodies. Then, it investigates LGBTI+ movement's strategic entanglement with local politics

in Turkey. Next, documentation of important political occurrences in pre and post election periods will be covered. Lastly, in the conclusion part, the outcomes of this entanglement will be evaluated.

## 2. Political Participation of LGBTIs

Oppressive societal and political structures and exclusionary practices paved the way for LGBTI+s' engagement to political sphere. Participating to state and/or local level governance systems may carry weight on multiple grounds: constitutional protection, legal regulation for safety, access to education, (affordable) housing, (vital) health services and obligatory regulations certifying discrimination-free employment opportunities can be listed among these (Kluttz 2008).

Active political participation ultimately changes the dynamics of "governance" not only on discursive level but also based on quantifiable measures. It furthermore pushes for further political engagement of minority groups (here, LGBTI+s) on multiple levels: decision making, implementation and monitoring/evaluation processes (also known as 'policy processes') (Jones 2011) become spheres of influence. It is suggested that this type of engagement serves in the end to improve the level democratic representativeness. Moreover diversity claims of municipalities, populously criticized for staying on paper, thanks to this readjustment, can thus be transformed at last into reportable municipal segments.

The Turkish context is no different, LGBTI+ movement's struggle in the political arena, to challenge existing societal rules and to claim rights to the city while stressing upon 'visibility' goes back a long way. Results of the local elections in 2014 can be considered as a tangible proof for this strategic political entanglement's success. As it will be explained below, along with transforming local governments' running, the political campaign in 2014 synchronously canonized the perception of citizenship and the political appropriation to it.

## 3. Brief History of LGBTI Movement's Political Participation in Turkey

Starting from the 1980s, the Western world has gone through concrete alteration with the political participation of 'LGBT' (that nowadays is referred as LGBTI+) social movement to the "urban governance". The literature focusing on the relation between urban city and LGBTI+s comprises of discussions on geographical distribution and on neighborhood formation processes: creation of ghettos and empowering the community via built-in networking systems are long described (Seidman 2010). The movement later on starts challenging existing rules of the social tenet: instead of using the tolerance discourse, it starts asking for "full social equality" (Seidman 2010). Despite mainstreaming attempts and partial achievements to it, socio-economic differences among LGBTI+s translate into barriers preventing full access to public services (Seidman 2010).

Throughout the years, rampant social insecurities and stigmatization of LGBTI+s in Turkey led organically and also strategically to the formulation of a more organized social movement and this formulation translated into tangible political attempts for legal recognition. Historically, the movement made numerous efforts to infiltrate to the Turkish political sphere: during 1980s the attempt to establish a political party focusing on the rights of LGBTI+s along with other minority groups' precarities is usually considered as the first tryout. 2000s are marked with singular and individual candidacy declarations of LGBTI+s to local and general elections; even though none of them were elected, these declarations are considered as important steps to gain public recognition.

At the general elections in 2007, LambdaIstanbul declares its official support for an independent candidate. His electioneering includes looking after the rights of LGBTI+s along with other minorities melting in the same discrimination pot. Despite his minority-driven campaign, he was not elected as an MP. Tere were

other attempts too: visits to parliament members during the "new constitution making process" in 2011 and campaigning for the inclusion of 'gender identity' and 'sexual orientation' concepts to the new constitution, meetings with MPs and with the leader of main opposition party certainly had rewarding outcomes in consolidating certain connections to the political scene (Yalçın and Yılmaz 2014).

The movement, as stated before, took a concrete step into the local level politics in 2014. The period of time following Gezi Park Protests in Istanbul in 2013, during which LGBTI+s became an important and publically recognized political figure (Kaya 2015), led to a more visible and unified public presence of the movement. A platform formed with LGBTI+ groups, organizations and independent activists (LGBT Political Representation and Participation Platform) (LGBT Siyasi Temsil ve Katılım Platformu), was established to discuss the rights of LGBTI+s in the context of 'municipalities'. The aim was to create a 'livable city' for all. LGBTI+s, recognized as a political power and mastered with previous experiences, decided to run a political campaign for the local elections, with the prospect of wiping away existing discriminative and oppressive system running in urban spaces and also to take active roles in the new urban planning period.

Prior to local elections, multiple political awareness rising activities were prepared to fuel the participation of LGBTI+s and to increase the impact of LGBTI+ movement in the remaking process of local governments. The 'LGBTI Friendly Municipality Protocol', reminding mayoral candidates to fulfill their duties by taking cognizance of LGBTI+s' rights, needs and demands, was submitted to all candidates running for mayorship. At the last step of the strategic campaign, prior to which there were no concrete signs for such democratic participation and recognition, LGBTI+s, empowered through Politics School activities raised their voices by submitting their own candidacy declarations, for becoming municipal council members, with their open LGBTI+ identities.

This campaign and the strategic move towards local governance bodies reified the politicization of LGBTI+ movement in Turkey by empowering active political participation, by arousing and strengthening the notion of 'active citizenship' and also by reaching to various clusters with specific and yet intersectional social anxieties melting in the same pot with LGBTI+s.

Scrutinizing this issue through the perspective of both citizens and governments, where does the 'active political participation' of activists and NGOs fall in this framework? Considering the core theme stressed upon, how 'multi-user governance' is more likely to hurdle diversity-driven problems? How do these problems remain unsolved at today's local governing systems (Tasan-Kok et al. 2013)?

Analyses on minority groups' participations to elections (local and municipal), and on their official inclusion to policy-making and operationalization processes are usually carried out with result-oriented theoretical frameworks (Bratton 2002, Fox 2000). Active and enhanced political participation trends (for citizens) (Haider-Markel 2010, Pateman 2012), increased democratic governance and advanced accountability and efficacy of public services (for governments) (Koga 2013) can be cited among major conjectural discussions. Active citizenship and the transformation of any social movement's or minority group's engagement to the existing system of governance would theoretically result in the increase of democratic trend in a given society (Tully 1990:170).

There are multiple studies conducted in different Western countries showing cases where LGBTI+ movement uses the political arena (via lobbying, litigation, voting etc) as a measure to achieve equality on multiple grounds (Kluttz 2008). Based on these findings, it is also noted that active and enhanced political participation shapes and transforms policy making processes and thus influences end products as well (Cameiro and Menezes 2007, Cooper 2006, Reynolds 2013).

Taking into account the initial argument on macro-level systems and working it up into the aforementioned argument, there are few points that need to be highlighted. Governmental bodies, evaluated within today's dominant system, fail in providing equality, fair redistribution and effective responsiveness addressing the needs and demands of socially diverse groups. Moreover their transparency and accountability are reported to arouse suspicions (Grisel and van de Waart 2011). Previous research pointed out to a need of another actor operating as a support mechanism to governmental bodies (Hopkins 2010, Doan 2015). Thus, with NG agents' connection to service providers and to policy making processes, currently absent above-mentioned features in planning and provided services might be fulfilled.

It is widely assumed that non-governmental bodies' (NGOs) endeavor to partake in urban planning and policy making processes would result in 'good governance' of the city; meaning that the official entanglement would result in the 'inclusion and representation of all groups in urban society, accountability, integrity and transparency of local government actions, a capacity to fulfill public responsibilities, with knowledge, skills, resources and procedures that draw on partnerships' (Kessides 2000:8). As explained before, the LGBTI+ movement's 2014 campaign aimed at concretizing the demands by both supporting candidates to run for office with their open LGBTI+ identities (substantive representation) and also by opening the 'LGBTI Friendly Municipality Protocol' for signature to pro-LGBTI+ mayoral candidates (descriptive representation). What are the traceable and quantifiable outcomes of the post-election period of office?

## 4. LGBTI+s' Participation to Local Governance in Turkey

Law of Municipalities (no. 5393), amended in 2005, requires local governmental bodies to take fellow citizens' needs and demands into account and thus to provide "the necessary support and assistance in kind to meet the requirements". The law

necessitates municipalities to consider "common needs of the inhabitants in its decisions" and to ensure "performance of services in line with the requirements of the inhabitants of the parish". To gain access to provided local public services, LGBTI+s level of involvement in decision making and urban planning processes increased noticeably with the political campaign in 2014 local elections.

Elections ended with victorious results with regards to both substantive and descriptive representatives: 3 out of 11 LGBTI+ candidates started working at local governmental bodies (two counselors to mayor (one of whom became the first openly LGBTI elected municipal council member of Turkey) and one secretary general to a town council). 5 out of 40 candidates, signatory to 'LGBT Friendly Municipality Protocol', who run their campaigns by highlighting the needs and problems of LGBTI+s, were elected to mayorship positions (SPoD 2014). Later on, the campaigning group continued the follow up process of policy implementation.

Nevertheless, the reach of this whole politicization process showed quantifiable results. Municipal level bodies facing an in-house representative of the 'pressure' group took responsibility in gradually shaping their long-term and short-term plans by including in LGBTI+s' specific needs and problems. Municipal service providers, previously operating in negligence, were asked to configure their structural (regulations, policies for internal use and for employment procedures), employee-oriented (trainings aimed at the awareness and attitudes) service-driven (health care, shelter, co-operations, etc) activities.

After the elections, district municipalities in 7 cities underwent changes in their structural descriptions and service-oriented activities. Geographical range where we can detect these changes can be deemed as limited given that out of 81 cities in Turkey only 7 appeared as active. But, as it will be shown below, the effects are tangible and the impact area is growing. As a part of the follow-up period, desk-research and round-table discussions with activists and municipality representatives

were organized. Below mentioned evaluation of post-election period developments are grounded in two sources: firsthand narratives and the desk research on Municipality Activity Reports and Performance Programs. Structural and service-oriented changes, derived from custom needs of LGBTI+s, newly implemented within limited amount of municipal bodies are explained below

Inclusion of LGBTI+ framework into Strategic Plans, Performance Programs: The law no. 5393 necessitates the preparation of a five-year strategic plan and of an annual performance plan subsequent to the election. Inclusion of LGBTI+s into the strategic plans affect the whole governance period of five years. Strategic plans oblige municipalities to shape their yearly activities (performance programs) in concordance with the embodied framework. As a result, the inclusion to the long-term plan translates into concrete activities and policies aimed at LGBTI+s.

Managerial Changes: Establishment of 'Equality Units: Even though the establishment of Equality Units dates back to 2006, their revitalization was only realized after the 2014 local elections. Despite the absence of compelling laws and regulations, equality units are founded with the initiative of a number of local governments in an attempt to ensure disadvantaged groups' (DG) equal access to rights and services and to strengthen political participation of citizens to decision-making processes (TUSEV, 2016). Services addressed at DGs include but are not limited to healthcare, nursing houses, psycho-social support and rehabilitation services and counseling services. Moreover, employees of equality units directly target achieving in-house pressure mechanism by initiating, lobbying and following up municipal policies and activities aimed at improving urban conditions for LGBTI+s.

Establishment of working groups and sub-councils in Town Councils: Within the body of town councils, considered as political tools to compound citizens' engagement with local politics, LGBT sub-councils were established. These

groups, based on the principle of group's representation, operate as active means of communication between municipal councils and citizen. Working groups' and sub-councils' meeting reports are directly delivered to municipal council. In the end, reports are carried to the decision making bodies with a possibility of turning into policies.

Municipality's awareness rising activities: Municipalities started to put up billboards or used other out-door tools to raise awareness of the society about LGBTI+s and the problems they encounter. Social media accounts are also actively used to spread positive and informing messages on LGBTI+s. The 'followers' to these accounts are also informed about red-letter days for LGBTI+ movement. In-house trainings: Municipal officers at managerial levels, working in service-oriented units (healthcare, social services, etc.), and employees that are most likely to get in touch with LGBTI+s (security guards, human resources, etc) were subjected to awareness rising and informing trainings. The content of these trainings were either formatted or provided by LGBTI+ rights NGOs. This translates as a strengthening consultation activity during which municipalities make us of NGOs' expertise.

Rendering of logistic and financial support: LGBTI+ rights NGOs were granted to have free access to municipality meeting rooms and tools upon the mutual agreement between both parties. Thus municipalities become direct supporters of LGBTI+ oriented activities.

Services: Healthcare services: Anonymous and free HIV testing centers came on stream in municipal polyclinics. LGBTI friendly free gynecological examination service was initiated as another healthcare focused activity. Healthcare professionals working in these centers were trained with meticulous programs. Shelter: Run by the financial sources of an NGO, trans shelter receives food supply from the municipality.

Local elections' campaign fueled the movement to take further steps into politics. Entitled as "LGBTI in the Parliament" (Meclis'te LGBTI), the general elections campaign in 2015 had the motto "in school, at work, in the parliament: LGBTIs are everywhere!" The campaign included both substantive and representative participation (SPoD 2015).

Finally, within the evaluation and follow-up process of previous activities, civil society takes another initiative in pushing local actors for more LGBTI+ oriented policies and activities. As an example to follow-up tasks, Municipal Equality Index project is currently being coordinated by an actively working NGO (SPoD), the fieldwork on the other hand depends on local activists' reporting on municipal activities. The index, envisioned as an appraisal instrument and as a benchmark for describing "how to be an LGBTI+ inclusive municipality", will show good municipality examples of this governance period. Thus,

## 5. Conclusions

Local governments, regardless of capacity associated differences, were criticized for two major reasons: their dependency on central governments (Syrett and Sepulveda 2012) and their inability to effectively respond to problems grounded in multi-segmented social diversities. Municipalities encounter autonomy problems about municipal policy decisions and activities (Syrett and Sepulveda 2012). Moreover, there is a widely accepted argument that there are barriers hindering city dwellers and urban groups from taking active roles in city's governance systems, which result in pulling away from the 'urban democracy' ideal. This critique extends over to the discussion of local policies' short vision on diversities, caused by overlooking minority and marginalized groups' special needs and problems (Fincher et al., 2014).

Having said that, municipalities entitled as local applicants of centrally adopted

policies are considered as important activity fields by rights-based movements. Since municipalities are the execution fields of local level public services, they turn into implementation and audit spheres through which one can implement, evaluate and detect distribution of resources is fairly effectuated and whether urban plans to enable access to public services are designed by taking social diversities into account.

Active participation of civil society to policy making processes and empowerment of minority groups to engender political partaking are described as key components for fostering democratic governance on local level (Doan 2015). As a consequence of this active entanglement between civil society and advocacy groups and governing parties, local governments are estimated to arrange tailor-made and need-based services and also to provide inclusive plans and long-running policies. An outreaching suggestion puts even further emphasis on the participation of civil society and claims that in order for people to achieve to these services uninterruptedly, inclusion of the civil society should be considered as a must (Fincher et al. 2014).

There can be two major outcomes regarding LGBTI+s' participation to local governments: increase in their participation capacity, transformation of plans and thus of budgets. LGBTI+s' inability to directly intervene to "top-down policy" making processes and "urban planning" activities dramatically changed after 2014 elections in Turkey. Initially handled by the independent platform containing numerous representatives, expediting participation practices of LGBTI+s via 'opening up space', thus via actually pushing existing boundaries away and by creating new rooms of existence, became a goal to achieve after the elections.

Municipal authorities, allocating financial/cultural/strategic/logistic capitals, help transforming once unevenly drafted "redistribution" plans. This serves to the reduction of inequality in accessing existing public services and for receiving an

equal number and equally qualified newly designed public services. “Recognition” activities on the other hand, serve communicating discrimination, victimization occurrences and neglected conditions with the public (Fincher and Iveson 2008). Inclusion of civil society in urban planning activities and featuring LGBTI+s, as employees, experts, demand generators and follow-up groups to empower and furthermore evaluate municipal activities are major highlights of this period. The impact area of this transformation in Turkey, initiated in 2014, grows noticeably every year.

Even though briefly stated outcomes of this study show indications for a certain level of accountability for particular budget items, criticism regarding local governments’ lack of accountability and transparency and inefficiency in formulating services addressing the needs abides strongly today. Long and short term plans and local level exchequers are discarding diversely discriminated communities; municipalities had not yet been able to provide fully functioning custom-made services. Moreover, negligent towards diversely mapped out needs of its dwellers, unused to civil society’s engagement in planning and operational levels (and institutionally prejudiced against some groups), local level urban planning strategies have only been able to answer the needs of the majority, which later on is used as instrument to its populist discourses.

Coming back to the macro-level discussions on neoliberal systems of governances, it is important to highlight that local public institutions operate under the domination of centrally opted policies. These policies in today’s system, aiming primarily to receive the maximum profit, consider cities as revenue sources. This is shown as one of the major reasons for failing to respond to the demands of ‘democratic’ representation. In tandem with the change in different parts of the world, this ‘turn’ of the local governmental regime in Turkey, towards being more focused on efficiency rather than reflecting on abiding democratic values (Erder

and İncioğlu 2008), can be considered to have a worsening power on LGBTI+s' everyday life practices.

Not recognized by the central government, LGBTI+s have been in constant search for policies granting equal access and equal citizenship. Attempts on local level institutions brought successful outcomes. Upcoming local elections in 2019 will also considered as an occasion to expand the number of municipalities where LGBTI+ oriented policies can be implemented and furthermore be effectuated. Nonetheless; upcoming local elections should also lead authorities to comprehend that the policy process is not limited to decision making and implementing but also includes monitoring processes. It should also be seen as an opening, by local/ central governmental bodies, to enhance democratic values by hearing out all segments and groups and to reduce widespread monologism concerns.

## 6. References

BECH, H. (1997). *When men meet: Homosexuality and modernity.* University of Chicago Press: Chicago.

BRATTON, K. A. (2002). "The effect of legislative diversity on agenda setting: Evidence from six state legislatures". *American Politics Research*, 30(2), 115-142.

CAMEIRO, N.S. & MENEZES, I. (2007). "From an oppressed citizenship to affirmative identities: lesbian and gay political participation in Portugal". *Journal of Homosexuality,* 53(3), pp.65-82.

COOPER, D. (2006). "Active citizenship and the governmentality of local lesbian and gay politics". *Political Geography,* 25(8), 921-943.

DOAN, P. L. (2015). *Planning and LGBTQ communities: The need for inclusive queer spaces*. Routledge: New York.

ERDER, S. & İNCIOĞLU, N. (2008). *Türkiye'de yerel politikanın yükselişi (The rise of local politics in Turkey)*. İstanbul Bilgi Üniversitesi Yayınları: Istambul.

FINCHER, R. & IVESON, K. (2008). *Planning and diversity in the city: Redistribution, recognition and encounter.* Palgrave Macmillan: London.

FINCHER, R., IVESON, K., LEITNER, H. & PRESTON, V. (2014). "Planning in the multicultural city: Celebrating diversity or reinforcing difference?". *Progress in Planning,* 92, 1-55.

FOX, R. L. (2000). "Gender and congressional elections". In Tolleson-Rinehart, S. & Josephson, J. J. *Gender and American politics: Women, men, and the political process*. Routledge: New York. Pp. 227-256.

GRISEL, M. & VAN DE WAART, F. (2011). "Conclusions: The art of working together". *Multilevel Urban Governance or the Art of Working Together*. European Urban Knowledge Network: The Netherlands.

HAIDER-MARKEL, D. P. (2010). Out and running: Gay and lesbian candidates, elections, and policy representation. Georgetown University Press: Georgetown.

HOPKINS, L. (2010). *Mapping the third sector: A context for social leadership.* The Work Foundation: London.

JONES, H. (2011). *A guide to monitoring and evaluating policy influence. Background Note.* Overseas Development Institute (ODI): UK.

KESSIDES, C. (2000). *Cities in transition: World Bank urban and local government strategy.* The World Bank: Whashington.

KAYA, B. (2015). "LGBTI in Turkey: in the aftermath of gezi and the 2015 elections". *Research Turkey,* Vol. 4 (8), 56-65.

KLUTTZ, B. (2008). "Loving v. Virginia and same sex marriage: mapping the intersections". *Culture, Society and Praxis*, 7 (2), 8-12.

KOGA, T. (2013). *Creating citizens for whom? participatory budgeting and citizenship learning in japan.* (Doctoral dissertation)". University of British Columbia: Vancouver.

LEFEBVRE H. (1968). "The right to the city", in KAUFAN, E., & LEBAS, E.(eds.) *Writings on Cities*. Blackwell: Oxford. Pp. 63-181.

MENEZES, I., FERREIRA, P.D., CARNEIRO, N.S. & CRUZ, J. (2004). "Citizenship, empowerment and participation: Implications for community interventions". In SÁNCHEZ VIDAL, A., ZAMBRANO, A., PALACÍN. M. *Psicología comunitaria europea: comunidad, ética y valores*. Universitat de Barcelona: Barcelona.

NORRIS, P. (2012). *Making democratic governance work: How regimes shape prosperity, welfare, and peace.* Cambridge University Press: Cambridge.

PATEMAN, C. (2012). "APSA presidential address: participatory democracy revisited". *Perspectives on politics*, 10 (1), 7-19.

PEW RESEARCH CENTER (2013). A survey of LGBT Americans: attitudes, experiences and values in changing times. [Available in www.pewsocialtrends.org/2013/06/13/a-survey-of-lgbt-americans].

REYNOLDS, A. (2013). "Representation and rights: The impact of LGBT legislators in comparative perspective". *American Political Science Review,* 107 (02), 259-274.

SEIDMAN, S. (2010). *Contested knowledge: Social theory today.* 4th edition. Blackwell Publishing: Malden.

SOSYAL POLITIKALAR, CINSIYET KIMLIĞI VE CINSEL YÖNELIM ÇALIŞMALARI DERNEĞI (SPoD) (2014). *Yerel Siyasette LGBTİ Hakları.* [Available in http://kaosgl.org/sayfa.php?id=18480]

SOSYAL POLITIKALAR, CINSIYET KIMLIĞI VE CINSEL YÖNELIM ÇALIŞMALARI DERNEĞI (SPoD) (2015). *Mecliste LGBTI.* [Available in https://meclistelgbti.wordpress.com/siyasette-lgbtiler/turkiyede-lgbti-hareketi-ve-siyaset/]

SYRETT, S. & SEPULVEDA, L. (2012). "Realising the diversity dividend: population diversity and urban economic development". E*nvironment and Planning A*, 43(2), 487-504.

TASAN-KOK, T., VAN KEMPEN, R., RACO, M. & BOLT, G. (2014). *Towards Hyper-Diversified European Cities A Critical Literature Review.* Utrecht University: Utrecht.

TULLY, J. (1999). "The agonic freedom of citizens". *Economy and Society.* 28 (2). 161-182.

TUSEV (2016). *Yerel yönetimlerde toplumsal eşitlik birimleri: şişli belediyesi örneği (Equality units in local governments: the example of Şişli Municipality).* Sivil Toplumu İzleme Raporu: İstanbul

WALDO, D. (1948). *The administrative state: A study of the political theory of public administration.* Ronald: New York.

YALÇIN S. & YILMAZ, V. (2013). "Gezi protestolarından yerel seçimlere LGBTİ hakları hareketi ve yerel siyaset" (From Gezi protests to local elections: LGBTI rights movements and local governance). *İktisat Dergisi*, nº 525, 84-94.

# Role of urban substructures in the sustainable development of a city

Lidia Mierzejewska

*Adam Mickiewicz University*

## Abstract

*The spatial and functional structure of cities is characterized by a great complexity and time changeability. It is traditional, but still an important research problem in urban geography. Generally, there are two approaches to the subject: sociological one, established by the founders of Chicago School, namely Park, Burgess and Hoyt, in which the spatial structure of a city is perceived as monocentric and geographical, and the one presented by Harris and Ullman, who saw this structure as polycentric. The importance of the issue of the spatial structure of a city increased along with the popularization of the idea of sustainable development, the role of its spatial aspects and the dilemmas about how to shape this structure as to make it most favourable for sustainable development. Therefore, a starting point for such analyses is the way this idea is understood in relations to a city, and subsequently the determination of the spatial structure which would best fit the needs of present and future inhabitants, deciding their life quality. The article seeks to present the conceptions of urban substructures along with their general characteristics, pointing to their formation and development factors. It also aims to analyse the way the polycentric spatial and functional structure of a city, composed of substructures, influences the possible implementation of its sustainable development.*

## 1. Introduction

The research on the spatial and functional structure of cities and the occurring changes within this area is traditional, but still an important research problem in urban geography. Generally, there are two research approaches to the subject: sociological, established by the founders of Chicago School: Park, Burgess and Hoyt, and geographical, as presented by Harris and Ullman (Hoyt 1939, Harris, Ullman 1945, Korceli 1974). In the first approach (sociological) the city spatial structure is perceived as monocentric and in the second (geographical) as polycentric. They both seek to distinguish uniform areas concerning a specific feature or a group of features in the city space. These areas can be identified with structural regions. The basis for the distinction of these structures is social characteristics

of the population (age, occupation, ethnic structures etc.) or areas of a similar use structure (residential, industrial, service areas etc.).

It seems, however, that the spatial and functional structure of many contemporary cities, especially large ones, can be analysed in yet another approach. It can be perceived as polycentric, and the particular, distinguished centres in the city space (cores) together with their influence areas can be analysed in the same way, as nodal regions. Inner city areas with specific features whose organization, structure and operation prove to be similar to nodal regions, can be called substructures (Mierzejewska 2017).

There is no doubt that the spatial structure of a city which decides the accessibility of different functional areas, the level of satisfying various social needs, and the demand for different kinds of natural resources, including land and energy, will exert a specific influence on the possibility of the implementation of sustainable development. This idea is commonly adopted as a development paradigm. It is a constitutional principle in Poland, which ought to be regarded as a foundation for all activities. It remains to be seen, however, what spatial structure would be the most profitable as far as sustainable development assumptions are concerned.

The article seeks to present the conceptions of urban substructures together with their general characteristics, and to indicate their formation and development factors. It also aims to analyse the way the spatial and functional polycentric structure of a city composed of substructures affects the possibility of its sustainable development implementation. It will be mainly theoretical reflections.

## 2. Assumptions of urban structure conceptions

The research on spatial structure of cities is commonly associated with the models and concepts developed in the Chicago School. In these models one centre can be distinguished, around which areas performing different functions

are distributed in a concentric (Park and Burgess' model) or sectoral way (Hoyt's model). Such an urban structure model proves to be true in the case of rather young cities, dynamically growing due to migration processes (e.g. in American cities – waves of immigrants from various parts of the world), or small/medium-sized cities subject to stagnation processes. There are cities, however, which develop in a slightly different way.

Spatial structures of many cities in the world, especially large ones, also in Poland, have developed for centuries and expanded by adding smaller or greater neighbouring centres to the core city. Over the course of time, these newly added areas have undergone transformations and have been included in a single system. While these types of cities can be treated as one big coherent structure with a single core, within this structure lower sub-centres (e.g. of former settlement centres) can be also distinguished. They are regarded not only as morphological elements, but functional as well, concentrating local socio-economic life. This is only one of ways leading to form areas with specific features in cities, due to their organization, structure and functioning similar to nodal regions which can be named urban substructures constituting the polycentric, spatial and functional structure of a city.

The similarity of a substructure to a nodal region calls for the distinction of features characteristic of these types of regions, which determine their identification and functioning. These features include (Mierzejewska 2017):

- Economic character (Dziewoński 1967),
- Cohesion, making it possible to separate them from the environment by means of defined criteria,
- Compact structure, defined by co-dependent fields of human activity in the area considered (Domański 2002),

- Morphological features – a core connected with the hinterland (an influence area) by the exchange of people, goods, services and information, mainly by school transport, commuting, trade and services (Kosiński 1958, Domański 2002),
- A defined material form and content (people and their activity) (Dziewoński 1967),
- Certain durability accompanied by changeability of the spatial structure in time (Dziewoński 1967),
- Sense of link between people and the area they inhabit, understood as a set of opinions and views on, and attitudes towards their area of residence and activity (Chojnicki 1996, 1999).

The term substructures should be understood as autonomous entities noticeable in the spatial and functional structure of a city, having a high degree of cohesion and which can be identified on the basis of spatial relations generated by people. A substructure involves a residential area, linked with spatial relations connected with meeting people's daily needs. Therefore, it is the residents, and most specifically their decisions concerning the place of meeting their daily needs (spatial relations: a place of residence – a place to achieve aims or to meet one's needs) that decide whether a specific substructure can be distinguished in a given area (Mierzejewska 2017).

In terms of morphology, a city substructure consists of a core and its influence area. A core is the place (usually a market, square, street or part of it) where trade and service activities, and often also administrative, educational, productive, cultural and recreational ones are concentrated. It is in this place that the inhabitants of a given area buy, and use various types of services (hairdressing, cosmetic, restaurant, cafés, insurance, postal, bank etc.), meet and establish social contacts.

The integration of residents makes them feel connected to a given place; they identify with it as in the case of regional identity. Thus, with some simplification, one can recognize that the distinction of a core in the structure of a city proves the existence of a specific substructure (Mierzejewska 2017).

The dynamic character of substructures is their important feature – they come into being, develop, function, but they can also disappear as a result of variable socio-economic, political or technological conditions. Over the course of time both, the social structure of inhabitants and the forms of economic activity are changing. Building and land development are more stable elements of a substructure, although this is subject to certain modifications as well (Mierzejewska 2017).

City substructures can develop in several ways (Mierzejewska 2017):

- A substructure which developed earlier is incorporated into the city boundaries (e.g. under administrative decisions enlarging the city area, often as a consequence of the suburbanization process or the intention to meet a city's development needs),
- Properly planned investment processes, undertaken by the city authorities or private investors (mainly developers) are implemented, leading to the formation of new substructures (e.g. so-called a city within a city),
- The infrastructure of existing settlements functioning mainly as dormitory towns is supplemented by trade and service areas (squares, streets, trade zones etc.) enabling the residents of a given housing estate or neighbouring estates to meet their basic, daily needs.

Composed of such substructures the spatial and functional structure of a city is undoubtedly polycentric, which influences in a specific way the possibilities of the implementation of sustainable development.

## 3. Sustainable development of a city and its decisive features

Sustainable development is understood differently in various spatial scales. In the classical approach it is a kind of development which meets the contemporary generation's needs without jeopardizing the future generation's possibilities to satisfy their own needs (Brundtland 1987). With regard to a city, it is usually understood as socio-economic development, which affects positively the life of present and future residents and at the same time reduces the pressure on the natural environment (Mierzejewska 2009). Therefore, it should consist in the proper and conscious formation of relations between the economic growth, the concern for the environment (especially the natural one) and the fulfilment of various human needs which decide to a greater extent about the quality of life (Petrișor, Petrișor 2013).

There are many models of the sustainable urban development presenting different aspects of this kind of development, described at length in the source literature (Alberti 1996, Haughton 1997, Frey 1999, Newman, Kenworthy 1989, Næss, Sandberg, Røe 1996, Næss 1997, Mierzejewska 2006, 2009, Jenks, Jones 2010 i in.). Selected ones are presented in Table 1.

**Table 1.Selected models and aspects of the sustainable urban development**

| Model | Selected aspects |
|---|---|
| Compact city | □compact spatial structure<br>□energy efficiency<br>□economic management of resources |
| Alberti (1996) | □high quality of life<br>□flows taking place in the city system (city metabolism)<br>spatial form of a city |
| Haughton (1997) | □compact spatial structure<br>□high level of self-sufficiency<br>□energy efficiency<br>□rational relationships with the closest environment |

| | |
|---|---|
| Smart growth | □compact spatial structure<br>□Transit Oriented Development (TOD)<br>□accessibility of goods and services<br>□mixed land use<br>□affordable housing<br>□attractiveness of city landscape |
| XXQ city | □high quality of residents' life |
| MILU | □multiple land use,<br>□intensive land use |
| Resilient city | □flexibility of urban structures<br>□adaptiveness of urban design<br>□safety and stability of development |

*Source: own study*

The analysis of Table 1 shows that one of the major objectives of sustainable development is the high quality of residents' life which depends on the satisfaction of various types of needs of all residents (fair access to goods and services). Those needs, however, should be satisfied with a view to reducing the demand for resources, mainly for energy and land. Great importance is attached to intensive and multi-functional land use, the properly formed transport system of a city together with its compactness and self-sufficiency.

The spatial structure of sustainable development, defined also as an urban form, plays an important role in the implementation of the models of sustainable development objectives mentioned above. This form is a result of the spatial organization of a city, its transport system, the residents' lifestyle and their consumer choices (Alberti 1996). The literature offers a lot of conceptions concerning the sustainable development of a favourable spatial urban form. Some of them lead to the creation of a polycentric spatial and functional structure of a city, which is defined as beneficial in terms of sustainable development objectives (Jenks, Jones 2010, Litman 2016 i in.).

## 4. Influence of the spatial structure on the sustainable development of a city

There is no doubt that sustainable development has a spatial dimension and the land-use pattern and land development influences the implementation of the assumptions of such development (Dale et al. 2011). It is an open question whether a mono- or polycentric spatial and functional structure of a city is more beneficial as far as these assumptions are concerned, or whether it is somehow related to the size of a city and how a polycentric structure affects the sustainable development of a particular city.

The importance of a compact urban structure in the implementation of sustainable development assumptions is emphasised in the sustainable development models presented above. Mentioned as an advantage of such a structure is usually a better satisfaction of residents' needs, who have the access to goods and services within walking distance or by public transport, better energy efficiency of the building development and transport, greater cost effectiveness of the infrastructure development and functioning, the reduction in the consumption of resources and in the pressure on the areas adjacent to a city accompanied by an increase in investments in the brownfield-type areas (Fouchier 1995, Beatley 2000, Næss 2000, Jenks, Jones 2010). Such a spatial structure is not perfect, however, which is also described at length in the source literature (compactness, growing pressure on development-free areas, including green ones, the deterioration of sanitary conditions, the intensification of urban heat island etc.). It is worth considering if the mentioned advantages can be attributed only to a compact, monocentric city structure, or if they are independent of a city size and whether similar advantages may be gained in the case of a polycentric structure.

It can be assumed that in the case of large cities the disadvantages resulting from a compact, monocentric spatial structure will grow and some advantages attributed to

this type of structure will decrease, including the possibility of reaching destination points within walking distance. At the same time, it is increasingly emphasised that a formation of "sustainable communities", defined in the Bristol Agreement of 2005 as "places where people want to live and work, now and in the future" is a starting point for spatial sustainable development at different spatial scales (ODPM, 2006). The advantages resulting from the polycentric spatial structure and at the same time the need to create such a structure are underlined. Polycentricity in this context is perceived as a spatial organization featuring "functional division of labour, economic and institutional integration and political cooperation" (Nordic Centre for Spatial Development 2003) modelling the morphology of a given area. Those are also assumptions of some models of the sustainable development of a city, and particularly the smart growth model.

The spatial urban form is often a consequence of the implementation of a specific transport policy of a city, which has already been mentioned. The realization of the recommended conceptions of transit oriented development (TOD), as consistent with sustainable development principles, may result in greater city dispersion, retaining at the same time sustainable development benefits. In the case of TOD, which is an intrinsic part of the smart growth model, the main idea is to design a residential and trade area in such a way as to maximize access to various public transport forms and encourage people to use it all day. A typical transport centre in a housing estate (TOD) should consist of a railway station, a subway, a tram or a bus stop (integrated stations) and be surrounded by relatively highly developed areas, where the density of development declines with the distance from the centre (Mierzejewska 2008). The implementation of the smart growth model has to lead to achieve a polycentric urban form, with a good access to services including transport ones, existing within walking distance (Jenks, Jones 2010). Common and also conducive to urban structure polycentricity is more compact and intensive land development along main transport routes, which produces similar results

(Jenks, Jones 2010).

Both the formation of "sustainable communities", desirable in terms of sustainable development point of view, and TODs produce the polycentric urban spatial structure. In such a structure, clearly visible are cores concentrating various types of services, including transport ones, being within walking distance. A core is also a place where buildings concentrate and their density decreases with distance. In order to encourage inhabitants to visit it on foot, it should be located within max. 0.8 km from resident places (Duany et al. 2000, Mierzejewska 2008). Thus, the need for other, less environmentally friendly transport forms is reduced, resulting in energy saving together with a high level of service. Preferably, the inhabitants of housing estates surrounding a core should create a community and consequently identify with the area they live in.

## 5. Benefits resulting from a polycentric urban form composed of urban substructures

It is difficult not to notice the similarities between the described urban form, desirable in terms of sustainable development and the presented conception of urban substructures. Thus, the polycentric urban spatial structure with its sub-centres (cores) and their influence areas proves to be profitable and indeed desirable when it comes to sustainable development. The acceptable walking distance, i.e. max. 800 m, should specify the impact of such sub-centres. It can be assumed that the inhabitants of the areas farther away from a given core will use other sub-centres or means of transport other than walking. Such a polycentric urban spatial structure can be perceived as dispersed (there can be building-free areas between TODs, or the substructures of cores), yet at the same time it brings benefits assigned to compact cities. Building and land development is compact and concentrates around a given core (sub-centre).

## 6. Conclusions

The urban spatial structure is usually studied taking the distribution of different function areas into consideration. It can be analysed, it seems, especially in the case of large cities, as a polycentric structure, composed of sub-centres in which the socio-economic life of inhabitants from neighbouring areas, including the areas they influence, concentrates.

Assumed as a paradigm the idea of sustainable development should be implemented on the each level of a territorial organization, including the city one. With regard to a unit of this level, such a development should be combined with meeting present and future needs of inhabitants, the needs which would decide their life quality, a proper spatial organization of a city, especially as far as the transport system is concerned, compact structure, multifunctional and intensive development, energy and economic efficiency as well as the economic use of the natural resources and the flows occurring in the city system. Therefore, the spatial form of a city or its morphology plays the key role in the implementation of sustainable development.

It is generally assumed that a compact city model is congruent with the sustainable development idea. However, taking into account that the most beneficial for the quality of the urban environment is a walking route chosen by inhabitants if the distance is shorter than 0.8 km, a compact and monocentric spatial structure will be useful especially in small towns.

When it comes to medium-sized and especially large cities, the polycentric structure composed of sub-centres that are used to achieve certain aims (everyday shopping and services often used by inhabitants) seems to be desirable. Intensive development is advisable in the neighbourhood of a sub-centre, in which transit oriented development should also be located, their density decreasing with distance. Such a sub-centre together with the impact area form a certain entity which can

be called an urban substructure. People and their consumer choices decide on the existence and development of a substructure. Due to that fact, substructures are dynamic in character – they can appear, develop, but also disappear. It is equally important for the inhabitants of a substructure to create a community and identify with the residential area often being a working place as well as the place of satisfying their daily needs in the same way as they identify with their region.

Composed of substructures the polycentric spatial and functional urban structure can be dispersed, but the compact development of particular substructures, the way they are distributed (a core, in which trade and various services, including a working place are concentrated) and the inclusion of the cores in the public transport make the substructures uniform in functional terms and self-sufficient to a greater extent. In such a way, the polycentric spatial urban structure composed of urban substructures can contribute to the implementation of the objectives of sustainable development.

## 7. References

BEATLEY, T. (2000). "Preserving Biodensity-Challenges for Planners". J*ournal of American Planning Association,* 66 (1), 5-20.

BRUNDTLAND, G.H. (1987). *Our Common Future*. WCED, Oxford University Press: Oxford.

DALE, V. H., EFROYMSON, R. A., KLINE K. L. (2011). "The land use – climate change - energy nexus". *Landscape Ecology,* 26, 755-773.

DUANY, A., PLATER-ZYBERK, E., SPACK, J. (2000). *Suburban Nation. The Rise of Sprawl and Decline of the American Dream*. North Point Press: New York.

FOUCHIER, V. (1995). "The Ecological Paradoxes of the Density-Nature Dialectics. The case of Paris' Region". *SGB/NUREC/PRO/RMNO Colloquium*.

Dordrecht, The Netherlands.

FREY, H., (1999). *Designing the City – Towards a More Sustainable Urban Form*. Routledge: London.

HARRIS, CH.D., ULLMAN, E. (1945). "The nature of cities". *The Annals of the American Academy of Political and Social Science,* 242, 7-17.

HAUGHTON, G. (1997). "Developing sustainable urban development models". *Cities* 14 (4), 189-95.

HOYT. H. (1939). *The structure and growth of residential neighborhoods in American cities*. Federal Housing Administration: Washington D.C.

JENKS, M., JONES, C. (2010). "Issues and Concepts". In JENKS M., JONES C. (eds). *Dimensions of the Sustainable City*. Springer: London-New York. Pp. 1-19.

KORCELI, P. (1974). *Theories of the development of the spatial structure of towns*. PWN,:Warszawa.

MIERZEJEWSKA, L. (2006). "Role of spatial planning in the sustainable development of cities. In SŁODCZYK J., RAJCHEL D. (Eds), S*ustainable development policy and instrument"s for city management*. Uniwersytet Opolski: Opole. Pp. 11-28.

MIERZEJEWSKA, L. (2008). "Smart growth as the urban development model". In SŁODCZYK J., ŚMIGIELSKA M. (Eds), *Contemporary directions and dimensions of urbanization processes*. Uniwersytet Opolski: Opole. Pp. 49-64.

MIERZEJEWSKA, L. (2009). *Sustainable urban development: cognitive and practical issues*. Wydawnictwo Naukowe UAM: Poznan.

NÆSS, P, SANDBERG, S. (1996). "Workplace location, modal split and energy use for commuting trips". *Urban Studies* 33, 557-580.

NÆSS, P. (1997). *Physical Planning and Energy Use*. Tano Aschehoug: Oslo.

NÆSS, P. (2000). "Residentioal location and transport in Frederikshavn". *Conference Traffic Days 2000*. Aalborg University.

NEWMAN, P., KENWORTHY, J. (1989). C*ities and Automobile Dependence: An International Sourcebook.* Gower, Aldeshot: UK.

PETRIȘOR, A.I., PETRIȘOR, L.E. (2013). "The shifting relationship between urban and spatial planning and the protection of the environment: Romania as a case study". *Present Environment and Sustainable Development* 7, 1, 268-276.

# Urban ecological infrastructure: spatial correlation between vegetation cover and occurrence of flooding and mass movements in Salvador/Bahia, Brazil

Ricardo A. S. Machado

*Universidade Estadual de Feira de Santana*

Anderson G. Oliveira

*Universidade de Salvador*

Rubén C. Lois González

*Universidade de Santiago de Compostela*

## Abstract

*The city of Salvador has witnessed rapid population growth in the last five decades, rising from a little more than 250,000 inhabitants in 1950 to 2,676,656 in 2010, contributing to a series of environmental problems related to the reduction of vegetation cover. Among the main ones, landslides and floods have put at risk the patrimony and the life of its inhabitants, especially with respect to the groups socially less favored. In view of this vulnerability and the recognized importance of green areas for the urban mesh, this work sought to establish the correlation between vegetation cover and occurrence of mass movements and floods, also showing the profile of the population most affected by these occurrences, with reference to the Human Development Index (HDI). As main results, it could be verified that the negligence regarding the control of the occupation and use of the land by the Municipal Administration in the poor neighborhoods was responsible for the emergence of hundreds of areas considered of risk, where the majority of the events related to the mass movements and flood are concentrated. The number of occurrences and their intensity are minor or nonexistent in the northern part of the municipal territory, where the largest forest remnants are located.*

## 1. Introduction and contextualization

Four decades after the Vancouver Declaration on Human Settlements (United Nations Conference, in Vancouver, Canada, 1976), a great deal of distance is available to reach the values recommended there, since a significant number of urban agglomerations are still poorly prepared to address contemporary social and spatial challenges, especially with regard to issues related to the urban environment, equity and local ecological protection (United Nations, 2014).

The costs of urbanization that have crossed the last century have caused the loss of services provided by ecosystems, leading them to eminent bankruptcy. The Millennium Ecosystem Assessment (MEA, 2001) warned that of the 18 services provided by global ecosystems to human societies, 15 are in a state of severe degradation or are being used unsustainably.

Some ecosystem services are easily quantifiable, especially when it comes to goods in use or consumption (water, fiber, seeds or fish). Others rely on the adoption of specific technical instruments to calculate their value according to the tasks or functions they perform, but do not relate to direct or commercial use, as in the case of control services, which include soil protection against landslides and flood control. Precisely for this reason its value is little perceived by the population, except when more serious misfortunes occur.

In the case of Salvador, the rapid growth observed in the last five decades, where the population increased from a little more than 250,000 inhabitants in 1950 to 2,675,656 in 2010 (IBGE, 2010) brought a series of environmental problems, one of the main ones being decreased vegetation cover (mainly the dense ombrophilous forest) due to the expansion of the urban spot, including in areas considered by the legislation as permanent preservation, which has been a subject of concern by public agencies, but still insufficient to achieve the desired solution.

The suppression of vegetation has caused over the years the loss of soil and the destabilization of scarp and slopes, causing silting and landslides, putting at risk the patrimony and the life of the population, especially of the socially more vulnerable groups. Likewise, the replacement of green and forested areas by impermeable concrete environments, asphalt and other materials prevents the infiltration of rainwater, increasing the occurrence of flooding.

These two events take on greater proportions between the months of April and July, where they precipitate on average 51% of the 2,140 mm projected annually for Salvador. Between april and may of the year 2015 21 people died due to mass movements in the city and about 1.9 thousand were left homeless. During the same period, the Municipality's Civil Defense registered more than 6,500 requests for action and inspection, the vast majority of which took place in poor neighborhoods, where construction and conservation conditions are generally inadequate or precarious (Codesal, 2015).

The relation of the city to the rains has been problematic since its foundation in 1549, after the appropriation of the high parts had been completed, the occupation advanced downhill towards the bottom of the valleys or for the base of the scarp. In many cases, poor quality buildings and unsuitable interventions to contain sloping terrains were the combination for announced tragedies, whose narrative extend throughout Salvador's history (Sampaio, 2005).

In the last three decades, the Municipal Government and the State Government have been promoting more intense actions to improve the coexistence of the city with the rainfalls, investing in slope containment works, which has reduced the number of risk areas to landslides. However, the type of structure used, of the impermeable type, instead of the recovery of the natural areas, reduces the potential of soil absorption provoking innumerable flood points in several localities, demanding new infrastructural interventions materialized in micro and macro drainage works.

Faced with this vulnerability and the recognition of the importance of green and forested areas for the ecological infrastructure of the city, understood as "an ecological network that restructures the landscape, mimics natural processes in order to maintain or restore the functions of the urban ecosystem, offering Ecosystem services on site " (Herzog, 2013), this work sought to establish the spatial relationship between vegetation cover and occurrence of mass movements and floods in order to identify the degree of correlation between these three components in the city of Salvador, showing also the most affected profile of the population with reference the Human Development Index (HDI).

## 2. Materials and methods

This study was based on the classification of vegetation cover proposed by Oliveira et al. (2013) for the city of Salvador, where four orbital images of the RapidEye satellite (2009), a product of the Cartographic Update Project of the State of Bahia, was used. These images have 3A processing level (orthorectified with radiometric, geometric and terrain corrections) and spatial resolution of 5 meters, compatible with the cartographic scale of 1:20,000.

The mass movement data were provided by Codesal (Civil Defense of Salvador), referring to the period 2005-2013 and treated by Santana (2014). The flood points was obtained from the project called "Concepts Studies for Management of Pluvial Waters of Salvador (2015)", carried out by RK Engenharia under the municipal government's request and covering the same period.

In both cases, the location of the occurrences was punctual and georeferenced. From the data collection, the occurrence densities were calculated by the Kernel estimator, which established a surface of influence around each sampled point, assigning the value of 1 to the position of the point at 0 in the neighborhood boundary with the point neighbor. The value of each cell in the output map corresponds to

the sum of all overlapping Kernel values, divided by the area of each search radius (Silverman, 1986).

As a result, two files were generated in raster format (landslides and floods) and later the relationship of these two events with the vegetation cover was established by the Raster Overlay method, where numerical values were assigned to each characteristic, mathematically combining the layers of the mapping in order of assigning a new value to each cell in the output layer, thus evidencing the spatial correlation between these three variables.

Complementing this information, the indices of green areas, landslides and floods by Salvador's neighborhoods were calculated. The first represents the relationship between the existing vegetation cover and the total area of the neighborhood, ranging from zero to one, where zero is the total absence of vegetation and one the maximum possible cover. The other two indices represent the number of occurrences recorded per hectare/area. These data were used in the validation of the spatial correlation and ensured greater reliability for the final analysis.

## 3. Discussion and results

As geological-geotechnical characteristics of Salvador show formations of sedimentary predominance and rocks with high degree of metamorphism (Table 1), as described in studies by Santana (2014) and Barbosa et al. (2005), presenting as a particularity the presence of an alteration mantle with a mean cover of 20 meters, formed by the horizons A and B of the residual soil, due to the interaction between the geology and the humid tropical climate (Fig. 1).

These horizons are differentiated according to the nature of the original rock, relief and declivity, among other morphological factors. Soils of the type Latosol (with high permeability to water) predominate along with those of the type Argisol (of moderate to high permeability), the latter being more susceptible to erosive

processes.

**Table 1. Geological characteristics of Salvador**

| Compartment | Description |
|---|---|
| Sedimentary Basin of the Recôncavo | It composes the set of Cretaceous deposits that occur along the Brazilian East Bank |
| Atlantic Coastal Margin | Formed by thin accumulations of clay, sandy and clayey sediments |
| High Salvador | A horst of high-grade metamorphic rocks |

*Source: Santana, 2014*

**Figure 1. Profile of the mantle of alteration (Regolito) in the neighborhood of Periperi**

*Source: Authors' collection, 2017.*

In Salvador, geomorphology is strongly conditioned to the geological components and to the action of climatic agents, where the endogenous forces gave rise to rifts and fractures, inducing the directing of surface waters, which in turn contributed to the configuration of the relief, singularized by the presence of hills, spikes (point of a ridge line where two or more lines are found) and valleys (Santana, 2014).

These forms of relief make the city present an average slope of 14.57%, varying between 0 and 960%. Higher slope areas generally have lower surface storage capacity than flatter ones, as the potential energy of rainfall becomes more rapidly kinetic energy, increasing transport capacity, responsible for erosion processes (Santana, 2014; Pruski et al., 2004), bringing risks to the occupied areas. 53.3% of the continental municipal territory (278.77 sq km) presents restrictions for urban occupation, as shown in Table 2.

**Table 2. Implications of declivity for urban occupation**

| Class | Percentage (%) | Description | % Salvador |
|---|---|---|---|
| I | 3 to 15 | Great for urban occupancy and conventional housing constructions. | 25,0 |
| II | 15 to 30 | Although not totally unfavorable areas for urban occupation, it may require the adoption of technical solutions. | 21,7 |
| III | Above 30 | Unsatisfactory aptitude for residential use, being prohibited the subdivision of the land in accordance with Federal Law 6766/79, unless special requirements regarding the preservation of the physical environment are met. | 20,1 |
| IV | 0 to 3 | Areas susceptible to flooding. | 33,2 |

*Source: [1]Valente, 1996; [2] Own elaboration based on planialtimetric data of the CONDER, 1992.*

Currently, there are around 600 risk areas for landslides in the city. These areas receive this classification because they present a combination of factors favoring mass movements, the main ones being the disordered occupation and the low constructive pattern of the buildings (which add extra load to the already existing sediment mass); high declivities, little or no vegetation cover, tree species that are unsuitable for the type of terrain, and the accumulation of garbage on the slopes, often obstructing the flow of water (CODESAL, 2015). Areas with the worst Human Development Index (HDI) also have the worst housing standards and generally occupy the most vulnerable areas of the city (Fig. 2 and 3).

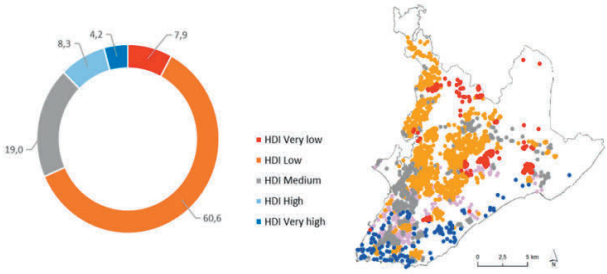
Between 2005 and 2013, 8,678 occurrences were recorded in Salvador's neighborhoods, with a high degree of recurrence in most of them. Of these, only 54 were in areas that had adequate vegetation cover. In percentage terms, 99.4% of the mass movements happened in the slopes in which the original vegetation was completely suppressed or replaced by species unsuitable for the high slopes and that therefore did not resist the city's rainfall pattern, marked by high concentrations in short time periods. 68.5% of mass movements occurred in neighborhoods with very low or low HDI, and only 12.5% are located in neighborhoods with high or very high HDI (Fig. 4).

Problems related to urban occupation are not restricted to slopes alone. The lowest areas of the city (33.2% of the municipal territory) are subject to floods of varying magnitudes each year, resulting from the occupation of the bottoms of the valleys and flood plains.

**Figures 2 and 3. Irregular occupation in areas of high slope in the railway suburb**

*Source: Authors' collection, 2017.*

**Figure 4. Distribution of mass movements by HDI in Salvador**




*Source: Own elaboration based on data from CODESAL (2005-2013) and PNUD / IPEA / FJP (2014).*

The channeling and encapsulation of drainage channels, as well as the extinction of flood plains areas and impermeabilization of soil, associated to vegetation suppression in the Permanent Preservation Areas - PPA affect the population at different levels: hamper circulation in the city; threaten the physical structure of the buildings; cause human and material losses and serve as a vector for waterborne diseases such as leptospirosis, cholera, typhoid and hepatitis (Felzemburgh et al., 2014), according to figure 5 and 6.

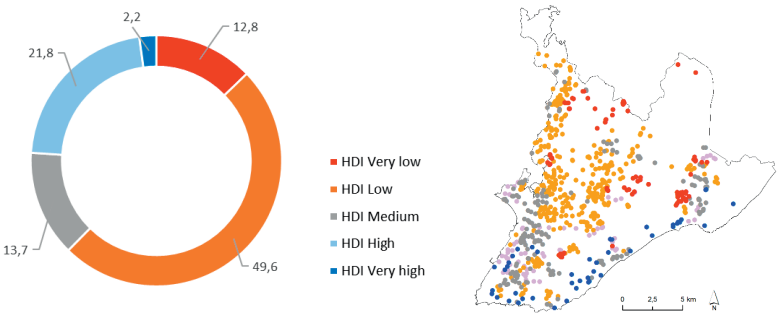
**Figures 5 and 6. Consequence of flooding in Salvador**

*Source: CODESAL, 2015*

A total of 2,386 floods were recorded between 2005 and 2013, where 99.3% occurred in areas lacking vegetation cover. Only 17 cases were in adequate conditions of occupation. Similar to mass movements, the areas most subject to flooding are directly related to the HDI level, and 62.4% of these occurrences correspond to areas with very low or low HDI. However, 24% of these occurrences reached areas with high or very high HDI, practically double that registered for mass movements (Fig. 7).

This greater balance has a direct relation with the historical process of formation of the city: the areas most valued for the regular occupation were initially those of low slope located in the ridges (high parts). Subsequently, there remained the flat areas located in the river plains, which underwent major interventions and drainage works to receive new neighborhoods and buildings, but which are still subject to flooding in extreme events. The poor population occupied the lower parts without any kind of infrastructural intervention.

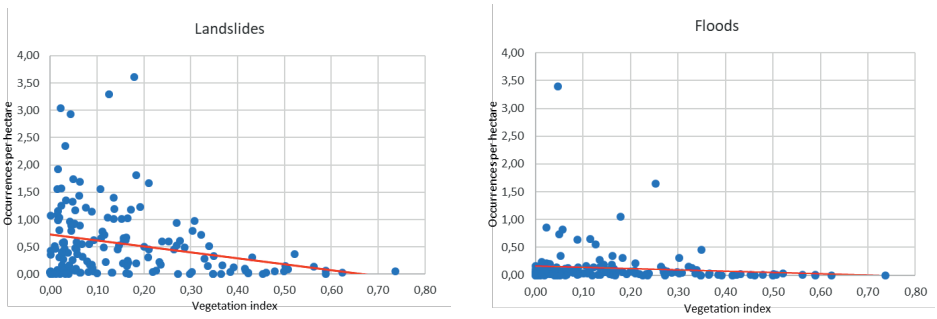
**Figure 7. Distribution of floods by HDI in Salvador**




*Source: Own elaboration based on data from RK Engenharia (2015) and PNUD / IPEA / FJP (2014).*

When assessing the proportional vegetation cover to the area in the 160 neighborhoods of the city (mainland) and its relationship with mass movements, a correlation between these variables of -0.3 is verified. This means that the greater the vegetation cover in the neighborhoods, the lower the rate of landslides. However, this correlation is considered weak. In the case of floods, the correlation is negligible (-0.1), according to figures 8 and 9.

**Figures 8 and 9. Correlation between mass movement and flood indexes and vegetation index by neighborhood**



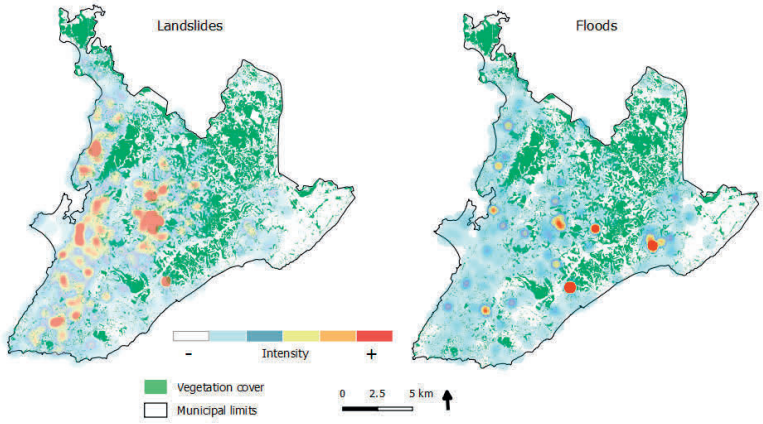

*Source: The authors*

This result reveals two main issues: first, it is not enough to have good proportional vegetation cover to the area occupied, but this coverage must be located in the right places to fulfill its ecological infrastructure function so the importance of occupancy control and land use. The second refers to the adoption of impermeable structures and rainwater drainage, which allows theoretically more vulnerable neighborhoods to have lower rates of occurrence, even with smaller areas covered by vegetation.

However, the number of occurrences and their intensity are minor or nonexistent in the northern sector of the municipality (Fig. 10), where the largest forest remnants are located and the population density is also lower.

Currently 25.5% of the municipal territory (71.5 sq km) still has significant vegetation cover, corresponding to 24.32 sq m per inhabitant, well above the minimum recommended by WHO that is 12 sq m per inhabitant. These areas correspond to the Natural Protected Areas (NPA) and forest remnants, both threatened by the expansion of the urban spot.

**Figure 10. Intensity of mass movements and flooding in Salvador**




*Source: The authors*

In neighborhoods where the occupation is already consolidated, the installation of ecological infrastructures may not be viable. In many cases, the costs of expropriation of buildings and the restructuring of the road system make this initiative unfeasible. In the case of slopes, the load exerted by the buildings on the ground and the conditions of occupation and drainage may require emergency or technically incompatible actions with structures based on the recovery of the natural environments, being presently adopted containment in concrete or geo-blankets (Fig. 11 and 12).

There are many arguments in favor of the use of ecological infrastructures, related to aesthetic issues, their role as corridors for the dispersal of fauna and flora; such as habitats and also as responsible for the maintenance of microclimates and the quality and quantity of water in rivers and other bodies of water (Elmqvist et al., 2015). In addition to these, the economic factor should also be evaluated.

**Figures 11 and 12. Containment facility in concrete and geo-blanket on the outskirts of the city**

*Source: Authors' collection, 2017*

In the last three years alone, some US $ 76 million has been earmarked (between invested and registered amounts) for slope containment works in the city through impermeable structures. The Government of the State of Bahia allocated US $ 63,637,000 for 98 works using concrete structures, which have a useful life of approximately 100 years. Another US $ 12,425,000 was used by the municipal administration in the installation of geo-blankets, produced in PVC (polyvinyl chloride) and polyester fibers with validity estimated in five years.

Considering the value per square meter installed, a concrete containment costs between US $ 151.00 and US $ 394.00; a geo-blanket between US $ 42.40 and US $ 51.50 and reforestation recovery between US $ 0.30 and US $ 1.51 per square meter. It is worth mentioning that in the period of 100 years (validity of concrete) the equivalent cost in geo-blanket can reach more than three times the value of a similar structure in concrete, due to its short validity. In the same way, macro and micro drainage works have values over US $ 100.00 per cubic meter, a very considerable amount, which usually makes interventions of this nature surpassing thousands of dollars.

## 4. Conclusions

Despite having two excellent urban plans made in the second half of the last century (EPUCS and PLANDURB, seen in Sampaio, 2011), Salvador failed to put its contents into practice, succumbing to real estate speculation and irregular subdivisions. This resulted in the conformation of numerous areas of risk in the city, targets of landslides and floods.

The neglect of land use and occupation control by the municipal administration in poor neighborhoods led to the predominance of self-construction of the buildings, without any type of technical control or supervision. These measures only occurred (and still occur) with effectiveness in middle-class or upper-middle-class neighborhoods that had the best HDI. Thus, the level of income determined

whether the actions carried out by the public administration were preventive (high income) or remedial (low income).

The maintenance of ecological infrastructures can represent a considerable saving to the public coffers and the protection of countless lives, as well as the allocation of financial resources to other sectors of the public administration, such as security, health or housing. For the purpose of comparison, only the amount spent on mitigating the problems caused by irregular occupation on the city's slopes in the last three years would be sufficient for the construction of approximately 3,600 popular housing (benefiting about 14,000 people). Investing in the control of land use and the maintenance of ecological systems should be one of the priorities established for Salvador in the coming decades, with a more sustainable and resilient territory as its horizon.

## 5. References

BARBOSA J. S. F., CORRÊA-GOMES L. C., DOMINGUEZ, J. M. L., CRUZ S. A. S. & SOUZA, J. S. (2005). "Petrografia e Litogeoquimica das Rochas da Parte Oeste do alto de Salvador". *Bahia, Rev. Bras. Geoc.*, Vol. 35 (4 - Suplemento), 9-22.

CODESAL – Defesa Civil de Salvador (2005-2013). *Registro de ocorrências.*

CODESAL – Defesa Civil de Salvador (2015). *Operação Chuva 2015*. Prefeitura Municipal do Salvador. Secretaria da Infraestrutura, Habitação e Defesa Civil – SINDEC.

CONDER (1992). *Companhia de Desenvolvimento Urbano do Estado da Bahia.* Base Cartográfica SICAR/RMS. Escala 1:2.000.

FELZEMBURGH, R. D. M., RIBEIRO, G.S., COSTA, F., REIS, R.B., HAGAN, J.E., et al. (2014) "Prospective Study of Leptospirosis Transmission in an Urban Slum Community: Role of Poor Environment in Repeated Exposures to the

Leptospira Agent". *PLoS Negl Trop Dis* ,8 (5).

HERZOG, C. P. (2013). *Cidades para todos: (re) aprendendo a conviver com a natureza*. Mauad X / Inverde: Rio de Janeiro.

Instituto Brasileiro de Geografia e Estatística (2010). C*enso Demográfico 2010.* IBGE.

MEA - Millennium Ecosystem Assessment (2001). *Living beyond our means. The natural capital and human well-being.* [Available in www.millenniumassessment.org/ documents/document.442.aspx.pdf].

OLIVEIRA, A. G; SILVA, G. B; SILVA, H. R. F; SANTOS, M. G; LIMA, U. D. S. (2013). "Mapeamento de índices de cobertura vegetal dos bairros de Salvador-BA com uso de imagens do sensor RapidEye para o ano de 2009". *Anais XVI Simpósio Brasileiro de Sensoriamento Remoto - SBSR*. Foz do Iguaçu.

PNUD-Ipea-FJP. (2014). *Atlas do Desenvolvimento Humano nas Regiões Metropolitanas Brasileiras*. PNUD: Brasilia.

PRUSKI, F. F; BRANDÃO, V. S. & SILVA, D. D. (2004). *Escoamento Superficial*. UFV: Viçosa.

RK Engenharia (2015). *Estudos de Concepção para Gestão das Águas Pluviais de Salvador.* Disponibilidade restrita.

SANTANA, N. S. (2014). *Análise da vulnerabilidade ambiental de Salvador: um subsídio ao planejamento e à gestão territorial da cidade*. Tese de Doutorado. UFBA-IGEO: Salvador.

SAMPAIO, A. H. L. (2011). "Do EPUCS e PLANDURB ao não-planejamento". In *A urbanização de Salvador em três tempos – Colônia, Império e República*. Instituto Histórico e Geográfico da Bahia: Salvador.

SAMPAIO, C. N. (2005). *50 anos de urbanização: Salvador da Bahia no século XIX.* Versal: Rio de Janeiro: Versal.

SILVERMAN, B. W. (1986). Density Estimation for Statistics and Data Analysis. Chapman and Hall: New York.

T. ELMQVIST., H. SETÄLÄ., S. N. HANDEL., S. PLOEG., J. ARONSON., J. N. BLIGNAUT., E. GÓMEZ-BAGGETHUN., D. J. NOWAK., J. KRONENBERG., R. DE GROOT. (2015). "Benefits of restoring ecosystem services in urban areas". *Current Opinion in Environmental Sustainability*, Vol. 14, 1-266.

UNITED NATIONS – Department of Economic and Social Affairs, Population Division (2014). *World Urbanization Prospects: The 2014 Revision, Highlights* (ST/ESA/SER.A/352). New York.

VALENTE, A. L. S. (1996). "Uso de SIG na determinação de áreas com restrições à ocupação urbana na sub-bacia do Arroio Feijó, RS". In *Congresso e Feira para usuários de geoprocessamento*, 2. SAGRES: Curitiva. Pp. 849-856.

# Billionaire cities of Bahia and the evolution of social indicators from a geostatistical point of view

Vanessa da Silva Vieira

*Universidade Estadual de Feira de Santana*

*Rubén C. Lois González*

*Universidade de Santiago de Compostela*

## Abstract

*To what extent has the strategy of increasing GDP, by attracting industries through fiscal incentives, impacted positively the social conditions of the population? This is the main question. Subnational governments claim that in the fiscal game of the Brazilian federalism, after the Federal Constitution of 1988, the increase in expenditure exceeded the increase in revenues. This tax conflict led those governments to embark in an intense search for more financial resources, and using the tax autonomy conceded to them, they adopted, without restrictions, a strategy of fiscal incentives, via tax reduction and exemption, land donations, and provision of infrastructure to attract external investments, mainly industries. According to studies carried out by the public administration, such strategy is justified by the positive impacts it has on Gross Domestic Product (GDP) growth, which increases revenues and fosters the creation of employment and income, and a better social performance of the territory. Certainly, scholars point out that the argument is fragile and that the strategy needs to be revised. Here we identified 20 municipalities in Bahia that, in 2010, had a GDP higher than 1 billion reals. Such municipalities have the largest urban areas and among the 20, are the 17 largest cities of Bahia, whose urban population represents between 80% and almost 100% of the total population of each municipality. In this way, municipal data are always very representative of urban areas and they draw us to conclude that if the municipalities are billionaire, it is in the cities that the social deficits are greater, that is, income inequality is more evident, the proportion of poor population is higher, and education deficits are more apparent.*

## 1. Introduction

Subnational governments claim that in the fiscal game of the Brazilian federalism, after the Federal Constitution of 1988, the increase in expenditure exceeded the increase in revenues. This tax conflict led those governments to embark in an intense search for more financial resources. And using the tax autonomy conceded to them, they adopted, without restrictions, a strategy of fiscal incentives, via tax

reduction and exemption, land donations, and provision of infrastructure to attract external investments, mainly industries.

According to studies carried out by the public administration, such strategy is justified by the positive impacts it has on Gross Domestic Product (GDP) growth, which increases revenues and fosters the creation of employment and income, and a better social performance of the territory (Souza, 2013; Dulci, 2002, Macedo, 2009, Ibanez, 2005). Certainly, scholars point out that the argument is fragile and that the strategy needs to be revised. In fact, although billionaire cities generate value internally through their economic production, they still lack means to provide for the quality of life of its population. These are places marked by the "dialectic game between the creation of wealth and the creation of poverty" (Santos & Silveira, 2001, p. 203).

In general, they integrate the main nodal points of the state of Bahia and are connected by a transport infrastructure where a needed infrastructure passes in order to have more money, information and merchandise necessary for the integration in the international economy. Tendentiously, they form urban areas which are vulnerable to income inequality, pockets of poverty, and high demand for education and health services, which do not benefit by governmental policies in the same proportion and speed as corporations do from tax benefits. Therefore, the question is: To what extent has the strategy of increasing GDP, by attracting industries through fiscal incentives, impacted positively the social conditions of the population?

## 2. Methodology

A starting point to recognise the distortions between the increase of GDP and the improvement of social conditions is the use of statistical data, which give rise to important reflections about the territorial matrix where government actions take

place. It is a two-way path, since government action can be inspired by the results of statistical data, but it can also limit the results from the model and priorities of the policy interventions they adopt. In any case, such data reveal accurately the spatial reality of the area, and provide important information about the population and the socioeconomic conditions of the territory. Therefore, to point out the fragile and limiting relationship between the increase of GDP and good social performance, we define the following methodological procedures; represented in summary in figure 1.

1. Selecting official data sources. In order to work with compatible data, we only used two research sources: a) the Atlas of Human Development of Brazil, developed by the United Nations Development Program (UNDP), Institute of Applied Economic Research (IPEA), and João Pinheiro Foundation, which provides information on all Brazilian municipalities and is based on the data provided by the Brazilian Institute of Geography and Statistics (IBGE); according to the Atlas itself, the purpose of disseminating such information is to promote reflection and guide paths towards human development; and b) the Brazilian Institute of Geography and Statistics provides official data from decennial demographic censuses that can be used to understand the spatial reality of the area.

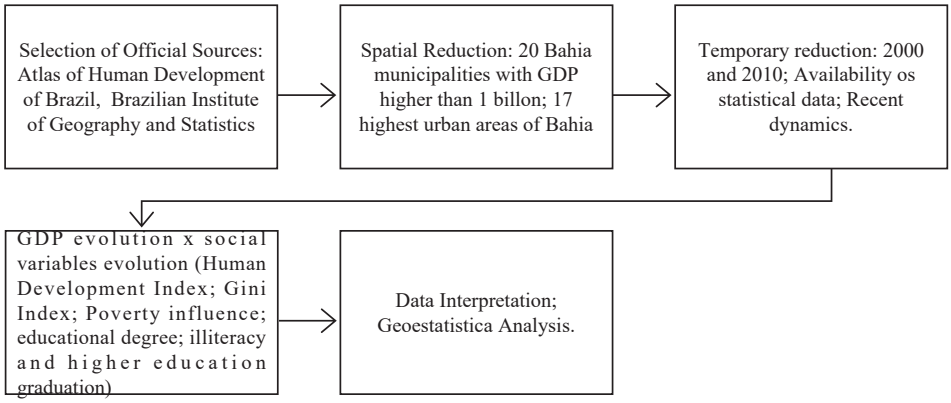
2. Selecting the spatial area. Our focus is to confront GDP growth with the evolution of social indicators. Therefore, we selected those municipalities from Bahia which, in 2010, had a GDP higher than 1 billion reals. We have identified 20 municipalities with those characteristics: Salvador, Camaçari, São Francisco do Conde, Feira de Santana, Candeias, Simões Filho, Vitória da Conquista, Lauro de Freitas, Itabuna, Ilhéus, Dias D'Ávila, Paulo Afonso, Luís Eduardo Magalhães, Juazeiro, Barreiras, Jequié, Alagoinhas, Teixeira de Freitas, Eunápolis, Pojuca. Such municipalities gain an even greater significance, as 17 out of 20 are amongst the largest urban areas of Bahia.

3. Selecting statistical data's temporal scale. We have focused on data from 2000 and 2010, aiming at three aspects: a) to highlight a recent and dynamic phase of the Bahian territory; b) municipal GDP has only started to be recorded by IBGE since 1999; c) the need to compare GDP numbers with the indices of social variables presented by demographic censuses every 10 years. To compare the results, we set the year 2000 as the first to be part of the comparative table.

4. Selecting variables to be compared with GDP. We have highlighted the evolution of municipalities according to the following variables: Municipal Human Development Index (IDHM); 2) Gini Index; 3) poverty incidence; and 4) education level (illiteracy index and high education index).

5. Data are interpreted for all items.

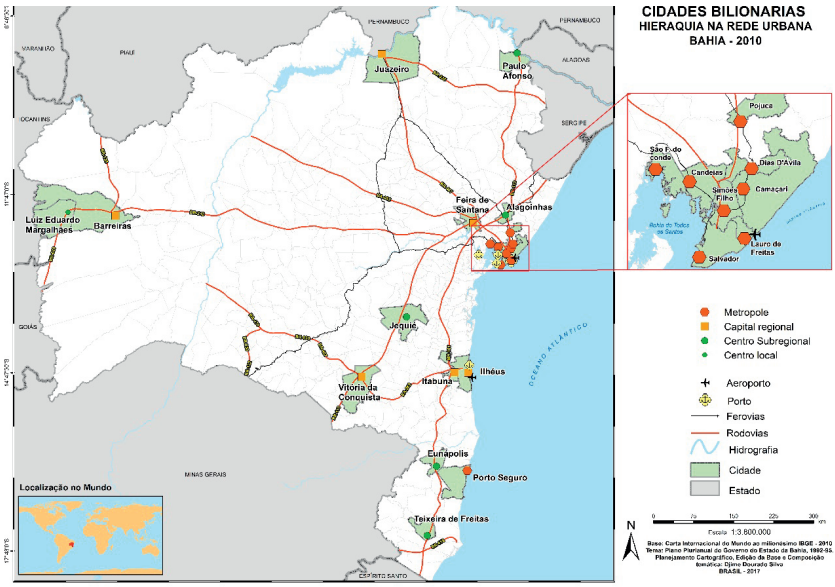
**Figure 1. Methodological Flowchart**



## 3. Billionaire cities of Bahia: limits and contradictions

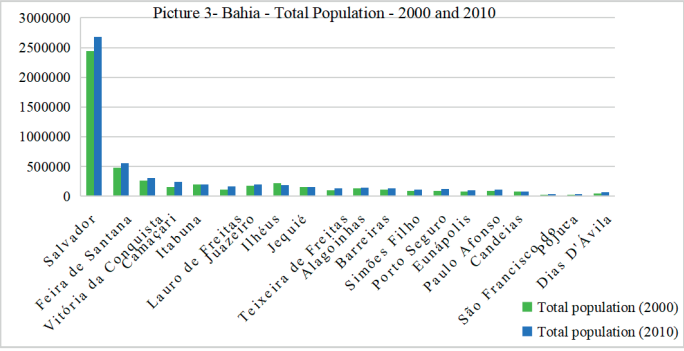
Before going any further, we highlight, once again, that, besides the statistical data are from the municipal sphere, the main production is in the urban reduction, and that is why we will use the expression "billionaire cities". Here we synthesise the results encompassing the 20 municipalities of Bahia that, in 2010, had a GDP higher than 1 billion reals. The municipalities are either located in the Metropolitan Region of Salvador, in its surroundings, or in the north, south, east, and west ends of the state; where there are important traffic roads. Among the 20 billionaire cities, except Luís Eduardo Magalhães, all of them have the highest urban net position of Bahia. Furthermore, we can find in this group, the 17 biggest cities of the state concerning population, which urban areas have the 80%, almost the 100% of the total population of the municipality. Figure 2 presents cartographically such specificity.

**Figure 2. Bahia Billionaire Cities 2010 – Hierarchy in the Urban Net**



In 2000, these municipalities had together a total population of 5 096 714 (millions of inhabitants), of which 93.74%, i.e., 4 764 084 (millions of inhabitants) lived in urban areas. In 2010, these numbers increased, respectively, to 5 771 478 (millions of inhabitants), 94.93% and 5 478 832 (millions of inhabitants). Among a total of 417 municipalities, 20 hold more than 1/3 of the total population, and half of the urban population of Bahia. In this way, municipal data are always very representative of urban areas and they draw us to conclude that if the municipalities are billionaire, it is in the cities that the social deficits are greater, that is, income inequality is more evident, the proportion of poor population is higher, and education deficits are more apparent. Figure 3 presents, graphically, the evolution of the total population of each locality, where we can also notice the distortion between the total population of Salvador, capital of the state, and other municipalities.

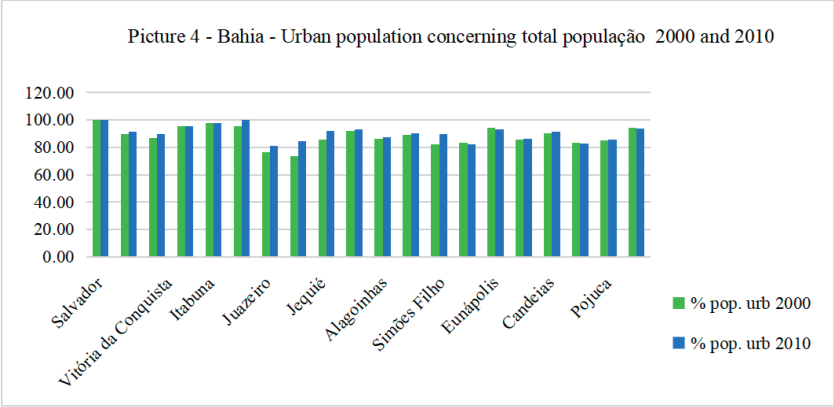
**Figure 3: Bahia - Total Population - 2000 and 2010**




*Source: Atlas of Human Development, 2013*

Figure 4 presents, graphically, the urban population percentage of the total population, making visible the super-dimensioning of the urban areas in the above mentioned municipalities.

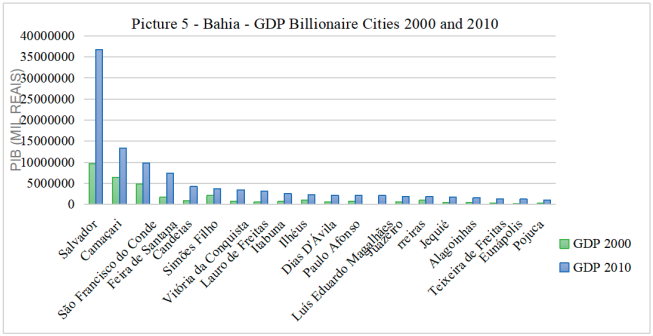
**Figure 4: Bahia - Urban population concerning total população 2000 and 2010**




. *Source: Atlas of Human Development, 2013*

Concerning the economical production, they concentrate about 50% of the GDP of all the State of Bahia. Both together reached in 2010, R$103,753.081 (billions of reals). Comparing with the year 2000, this value tripled, considering that in this year it reached the figure of R$ 32.987.161 (billions of reals). Regarding Salvador, the state's capital, we highlight that, on the one hand, GDP quadrupled in 10 years, increasing from R$ 9 679 867 (billion) in 2000, to R$ 36 744 670 (billion) in 2010, indicating economic efficiency. On the other hand, the city's ability to distribute income showed limited progress. By means of Picture 05 we can see the distribution of the economic production asymmetrically, in a group of 20 cities. For example, while the GDP in Salvador is equal to 24% of the taxes collected in Bahia; Pojuca, even with a billionaire GDP, represents just the 0,65%. If we can see this distortion among the richest clearly, considering the whole state, the disparities would be more stressed.

**Figure 5 - Bahia - GDP Billionaire Cities 2000 and 2010**




*Source: Brazilian Institute of Geography and Statistics (IBGE), 2010*

Table 1 shows social indicators of each one of the localities. The first one is Gini Index, which, according to the Atlas of Human Development of Brazil measures the degree of inequality among individuals according to household income per capita. Its value goes from 0, when there is no inequality (the household income per capita of all the individuals has the same value), to 1, when inequality is maximum (only one individual retains the whole income). The Gini Index "pendulum" is half way there between maximum inequality and voided inequality, and they tend to get closer one to the other. The Gini Index is a representative social indicator used to evaluate the relationship between economic growth and inequality. There was a reduction of inequality in Brazil going from 0,64 to 0,60 between 200 and 2010. In Bahia, considering the spatial reduction of this analysis, the statistics points to an inequality reduction; nevertheless, indexes are mainly, "half way there" but still oriented toward maximum inequality. Regarding Salvador, inequality remained similar, going from 0.64 in 2000, to 0.63 in 2010. Together with Salvador, the most unequal municipalities in 2010 were Lauro de Freitas (0.63), Luís Eduardo Magalhães (0.62), and Feira de Santana (0.60). Vitória da Conquista showed better performances, going from 0,62 to 0,55; although the GDP growth didn't happened as clearly as in Salvador.

The second indicator refers to Municipal Human Development Index that evaluates the development of the municipalities before the following indicators: GDP per capita corrected by the purchase power of each country; life expectancy when born; illiteracy rate and inscription rate in all the educational levels (SILVA, et. al, p.57). The IDHM is measured from 0 to 1 and when it is closer to 1, better performance in this indicator. Such index doesn't reveal the quality of life of the localities, but its evaluation is based on three indicators such as education, household and longevity, that represent important variables for a better human and social performance.

In general, there was also an improvement in IDHM, especially due to education. It is important to highlight that the improvement was not restricted to the analysed spatial reduction, neither to the State of Bahia, but to the whole country; resulting from the intensification and extension of the educational politics devoted to reduce illiteracy and to expand higher education. Having as a reference the PNUD classification, Salvador, Feira de Santana, Lauro de Freitas, Itabuna, Luís Eduardo Magalhães and Barreiras reached the status of "high IDHM". However, the connection between IDHM and economic growth cannot be understood in a linear way. Cruz das Almas, located in the Bahian "Recôncavo", even if it is not in the group of the richest cities, it got one of the best IDHM of the state in 2010, that is, 0,699, even the best result of most of the cities listed in Table 01. This proves that the quality of life does not rely on the wealth produced but on the alignment of such wealth with essential factors in order to build a socially healthy society, like education, health service and public leisure areas.

**Table 1. Bahia – Social Indicators – 2000 and 2010**

| Municipalities | Gini Indez | | IDHM | | % Poor | | % Illiteray Index (> 18) | | % with univ degree (>25) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2000 | 2010 | 2000 | 2010 | 2000 | 2010 | 2000 | 2010 | 2000 | 2010 |
| Salvador | 0,64 | 0,63 | 0,654 | 0,759 | 24,29 | 11,35 | 6,61 | 4,12 | 9,38 | 14,59 |
| Camaçari | 0,57 | 0,53 | 0,551 | 0,694 | 38,73 | 16,39 | 13,30 | 8,22 | 1,43 | 5,24 |
| São F. Conde | 0,57 | 0,50 | 0,518 | 0,674 | 48,87 | 18,84 | 18,24 | 10,83 | 1,01 | 3,74 |
| Feira de Sant. | 0,61 | 0,60 | 0,585 | 0,712 | 35,88 | 15,80 | 14,72 | 9,59 | 3,78 | 7,27 |
| Candeias | 0,54 | 0,48 | 0,548 | 0,691 | 39,95 | 17,44 | 14,67 | 9,60 | 0,5 | 2,76 |
| Simões Filho | 0,57 | 0,50 | 0,545 | 0,675 | 41,66 | 21,82 | 12,46 | 8,34 | 1,12 | 3,55 |
| Vit. Conquista | 0,62 | 0,55 | 0,538 | 0,678 | 36,36 | 18,07 | 21,12 | 14,16 | 2,95 | 8,07 |
| Lau. Freitas | 0,67 | 0,63 | 0,616 | 0,754 | 28,76 | 11,45 | 10,12 | 5,17 | 8,99 | 15,28 |
| Itabuna | 0,61 | 0,56 | 0,581 | 0,712 | 36,16 | 17,09 | 16,15 | 10,94 | 5,25 | 9,13 |
| Ilhéus | 0,64 | 0,58 | 0,521 | 0,690 | 46,36 | 19,66 | 21,80 | 13,25 | 3,95 | 8,56 |
| Dias D'Ávila | 0,53 | 0,50 | 0,540 | 0,676 | 36,41 | 20,72 | 13,14 | 8,74 | 1,13 | 3,58 |
| Paulo Afonso | 0,59 | 0,58 | 0,551 | 0,674 | 41,05 | 22,69 | 24,19 | 17,74 | 3,23 | 7,12 |
| L.E.M. | 0,63 | 0,62 | 0,547 | 0,716 | 17,28 | 10,52 | 16,47 | 7,79 | 2,92 | 9,24 |
| Juazeiro | 0,62 | 0,56 | 0,531 | 0,677 | 42,77 | 21,56 | 21,85 | 14,25 | 4,25 | 6,73 |
| rreiras | 0,62 | 0,56 | 0,572 | 0,721 | 33,91 | 16,27 | 16,91 | 11,08 | 3,24 | 8,23 |
| Jequié | 0,58 | 0,55 | 0,504 | 0,665 | 47,60 | 22,48 | 24,69 | 16,85 | 2,23 | 6,97 |
| Alagoinhas | 0,59 | 0,55 | 0,550 | 0,683 | 38,40 | 19,42 | 15,48 | 10,68 | 2,66 | 6,82 |
| Teix. Freitas | 0,62 | 0,53 | 0,539 | 0,685 | 36,07 | 15,92 | 23,30 | 15,78 | 2,22 | 6,69 |
| Eunápolis | 0,63 | 0,57 | 0,540 | 0,677 | 36,71 | 17,93 | 22,46 | 15,86 | 2,35 | 6,62 |
| Pojuca | 0,53 | 0,50 | 0,524 | 0,666 | 42,98 | 21,62 | 17,97 | 10,0 | 0,89 | 4,83 |

*Source: Atlas of Human Development, 2013*

Two other important indicators reveal a contradiction between economic density and social conditions, namely the incidence of poverty and illiteracy rate. There are two caveats about these indicators: a) although the rates are decreasing, they remain high, and b) although the percentage of poor and illiterate people is higher in rural areas, it is in urban areas that, in absolute numbers, live most of the people in such conditions.

According to PNUD, poverty is the proportion of individuals with a per capita household income equal to or lower than R$ 140.00, living in permanent residential households. In this case, Salvador led the ranking of poor population, in absolute numbers, in 2000, i.e., 593 764 (thousand inhabitants), which 24.29% of the total population living in poverty. If we compare it, poor population in Salvador was equivalent to the sum of all the inhabitants of the urban areas of Feira de Santana (431.730) and Camaçari (154.402). In 2010, although that percentage decreased to 11%, i.e., 303 686 (thousand inhabitants), Salvador kept leading the ranking in that regard, which corresponds to slightly less than the sum of the urban populations of the municipalities of Porto Seguro, Barreiras, and Paulo Afonso. In relative terms, the leading "poorest" municipality was Paulo Afonso, which went from 41.05% in 2000, to 22.69% in 2010. How can the government give so many tax incentives to large corporations with so many inhabitants living in poverty? This is a question that can be the starting point for the revision of the tax strategy model used by the government.

Regarding illiteracy, on the one hand it is encouraging to find that 14 out of the 20 municipalities have the lowest illiteracy rates of Bahia, but on the other hand there is the need to understand why municipalities with a similar GDP can have much better results on education indicators. The case of São Francisco do Conde is paramount, because it had the country's highest GDP per capita in 2010, with R$ 296 885 (thousand). In that year, such number was reached by dividing a GDP of R$

9 848 259, the state's third largest, by a population of 33 172 (thousand inhabitants). The main factor contributing to such economic density was the national oil refinery. Nonetheless, such enterprise did not guarantee the social development of the territory. Illiteracy, for example, affected more than 10.83% of the population over 18 years old, while only 3.74% of the people above the age of 25 had university degrees. We can find a big difference if we compare it with other localities with a similar GDP. In Taubaté (SP), i.e., with a GDP of R$ 9.778.529 the average of inhabitants with university degrees is 16,76% and, in Volta Redonda (RJ), with a GDP of R$ 9.170.922, the average is 15,23%. Regarding the poverty rate, although it developed positively, from 48.87% in 2000, to 18.84% in 2010, it remained critical. For each thousand inhabitants, almost two hundred lived with R$ 140.00 or less per month. We interpret this as a completely exogenous appropriation of the territory to meet the international demand for oil, and a "conservative" economic modernization project of the country.

Regarding also the inhabitants with university degree, Salvador, though it shows the best result of the state, it is still beneath other localities with similar economic production. Campinas, i.e., has GDP of R$ 36.688.629, but the average of people with a higher educational level is 21,71%. With such comparisons, we do not pretend to ignore the geohistorical specificities that conforms each locality over the time. The areas are appropriated in different ways due to different agents. Each territoriality shows a spatial arrangement organized according to the connections between public, private and civil actions. In this way, we confirm that the discursive strategy that connects tax benefits, GDP growth and an improvement of social conditions are incoherent, since it does not consider power relationships that are above the construction of that territoriality. So, it is not rare that economic and political corporate interests prevail.

GDP growth, through tax benefits and industrialization, is revealed as a strategy for (un)sustainable (under)development. (Under)development because, in general,

it does not proportionally "develop" residents and, many times, it also chokes other endogenous potential. (Un)sustainable because while such strategy is effective to attract industries quickly, it does not guarantee their stay after the benefits are provided. The mechanism used to attract large investments and increase GDP is contradictory because due to the widespread use of tax incentives, part of the taxes that could be converted to revenue for the municipalities and the state have already been converted into benefits for the corporations themselves. This is a game whose seed has been launched by a much larger international mechanism, but grows due to the political options foreseen in the governmental plans.

## 4. Conclusions

How has the strategy of increasing the GDP, drawing industries through tax incentives affected favourably population social conditions? This is the questions we tried to answer in this article. Firstly, we understand that the use of tax incentives, in order to draw investments, reached the goals of adding the territory into the economic conspiracy whatever the cost. The discourse of the necessity of raising the GDP meant (and still means) from an underlying point of view that the territorial development depends, basically, on the economic basis adaptation and on the spatial policies in the spectrum of technological globalization and modernization. In this way, it was a positive strategy because the goal was achieved, that is, the economic production of some Bahian cities was extremely increased and they were also introduced in the global routes of production in a competitive way. In 2010, we can count 20 billionaire cities in the group of 417 Bahian cities! On the other hand, the same strategy could not diminish, in the same amount, the economic and social imbalances in a territory marked by high poverty taxes, awkward educational conditions and high rate of household inequality, according to the statistics data presented.

## 5. References

ATLAS DO DESENVOLVIMENTO HUMANO NO BRASIL. [Available in: http://atlasbrasil.org.br/2013/].

DULCI, O. S. (2002). "Guerra fiscal, desenvolvimento desigual e relações federativas no brasil". *Revista de Sociologia. Política,* Vol. 18, 95-107.

IBAÑEZ, P. (2007). Território e guerra fiscal: a perversidade dos incentivos territoriais. Dissertação (Mestrado em Geografia). Universidade de São Paulo: São Paulo. [Available in www.cidades.ibge.gov.br].

MACEDO, A. A. (2009). Dinâmica do federalismo brasileiro e guerra fiscal. 2Dissertação (Mestrado em Geografia). Universidade de São Paulo: São Paulo.

SANTOS, M. & SILVEIRA, M. L. (2001). *O Brasil: território e sociedade no início do século XXI.* Record: Rio de Janeiro/ São Paulo.

SOUZA, C. (2013). "Para entender a nossa barafunda federativa." I*nsight Inteligência: Rio de Janeiro,* Vol. 61, 60-70.

MARICATO, E. (2011). *O impasse da política urbana no Brasi*l. Vozes: Petrópolis: Vozes.

MIRANDA, L. C. dos S. (2008). *Vizinhos do (in)conformismo: O Movimento dos Sem Teto da Bahia entre a hegemonia e a contra-hegemonia.* UFBA: Salvador.

PEDON, N. R. (2013). *Geografia e movimentos sociais: Dos primeiros estudos à abordagem socioterritorial.* Editora UNESP: São Paulo.

PORTO-GONÇALVES, C. W. (2010). "A reinvenção dos territórios: a experiência latino-americana e caribenha". In COELHO NETO, A. S.; SANTOS, E. M. C.; SILVA, O. A. da (Orgs.). *(Geo)grafias dos movimentos sociais.* UEFS Editora: Feira de Santana. Pp. p. 15 -170.

RIBEIRO, D. M. M. (2011). *Morar na Carlos Gomes: possibilidades e limites para a habitação de interesse social no centro*. Universidade Federal da Bahia: Salvador.

SANTOS, R. E. (2011). *Movimentos sociais e Geografia: sobre a espacialidade da ação social*. Consequência: Rio de Janeiro.

SOUZA, M. L. de (2006). "Together with the state, despite the state, against the state: Social movements as 'critical urban planning' agents". *City*, Vol. 10, nº 3, 327-342.

SHIMBO, L. Z. (2012). *Habitação social de mercado: A confluência entre Estado, empresas construtoras e capital financeiro*. C/Arte: Belo Horizonte.

TOURAINE, A (2006). "Na fronteira dos movimentos sociais". *Sociedade e Estado*, Vol. 21, nº. 1, 17-28.

ZIBECHI, R. (2007). *Autonomías y emancipaciones: América Latina en movimiento.* Universidad Nacional Mayor de San Marcos: Lima.

# Urban Agglomeration and Metropolization in Brazil and Colombia: a comparative study of the cities of Ilhéus-Itabuna in Brazil and Girardot-Ricaurte-Flandes in Colombia

Paolo Andrés Jimenez Oliveros
*Universidade Federal da Bahia*

Antonio Angelo Martins da Fonseca
*Universidade Federal da Bahia*

## Abstract

*This work has the goal of analyzing two urban agglomerations (Ilheus-Itabuna and Girardot-Ricaurte-Flanders) in two countries with different state models: the Brazilian federal model and the Unitary model of Colombia. This article is divided into three stages: in the first, it is discussed the existence of an aspatial structure that influences the urban-regional reorganization. This structure has three principles nowdays: the informational capitalism, the regime of flexible accumulation and globalization as a sociocultural movement; the second stage discusses the role of the state in the aspatial structure through socioeconomic policies; and in the third stage the two urban agglomerations are analyzed as the result of the relationship between the aspatial structure and the socioeconomic particularities of each State.*

## 1. The urban structure

The term structure is often used in the analysis of urban reality, but this frequent use has led to a certain emptying and elasticity of its meaning (LENCIONI, 1998). Lepargneur (1972), due to the fact that the word presents multiple possibilities, prefers to use the term "structuralisms", claiming the lack of a single structuralist thought, openly showing how the thinkers sometimes relinquish the effort of finding common ground in the scientific universe.However, Ekeh (1982) finds a common ground in the structuralisms: the search for fixed universal laws that act in man`s life, not only in contemporary man, but that have acted in primitive man, that is, laws that have conditioned man throughout history. And for Piaget (1972)

the structure is defined as a system of transformations that has its own rules and that is maintained due to these transformations, which do not exceed the limits of the system. That is, in the view of the said author, a closed system that presents changes in time.

Therefore, the universal fixed laws mentioned by Ekeh (1982) are equivalent to the own rules mentioned by Piaget (1972). Both authors emphasize the permanent character of the structure, and the lack of concreteness in the concept in man`s reality.

Meanwhile, in Marxism structure is understood as a whole articulated through social relations, prevailing the material production over ideological, political and moral formulations. This whole (structure) would be composed by two elements: the infrastructure, its material part (productive force, social relations and means of production); and the superstructure (the state, religion, ideology), being its immaterial part.

In this analysis the term structure is understood as the prevailing economic-political-cultural constraint in a society at a given time in history. And this structure is aspatial (hereafter referred to as the aspatial structure) and would be close to the superstructure mentioned by Marxist theory and the set of laws mentioned by Ekeh (1982). However, even being close, it has fundamental differences with the aforementioned.

In the case of Marxist theory, the difference lies in the fact that the relations between superstructure and infrastructure would be vertical, with the temporal dimension being preferred over space.

However, the space-time focus in the analysis of the aspatial structure makes it really possible to see the historical verticalization of social relations and the consequences of these social dynamics in space.

This because space has been the scenery in which society is divided and the conflict between classes is expressed. Therefore, a space-temporal analysis is the only way to understand the urban structure and the urban-regional structure entirely.

In the case of the approximation of the notion of structure as a set of laws it is necessary to take into account the root of the word law that comes from the Latin *ligare* which means "what binds". And the aspatial structure is linked directly to the urban (spatial) structure exerting direct influence (conditioning) on the urban reality, and eventually, been possible the fact that this reality may also have influence on it.

Law in the sense of conditioning factors that have direct influence on man`s life, and that its concreteness cannot be seen in the aspatial structure, but in the urban structure, because this aspatial structure is not visible at first.

With this, there is an approximation with the structure meaning of Santos (1985), where a structure has no immediate exteriority, is invisible and it underlies the form, a "kind of matrix" where the form is generated.

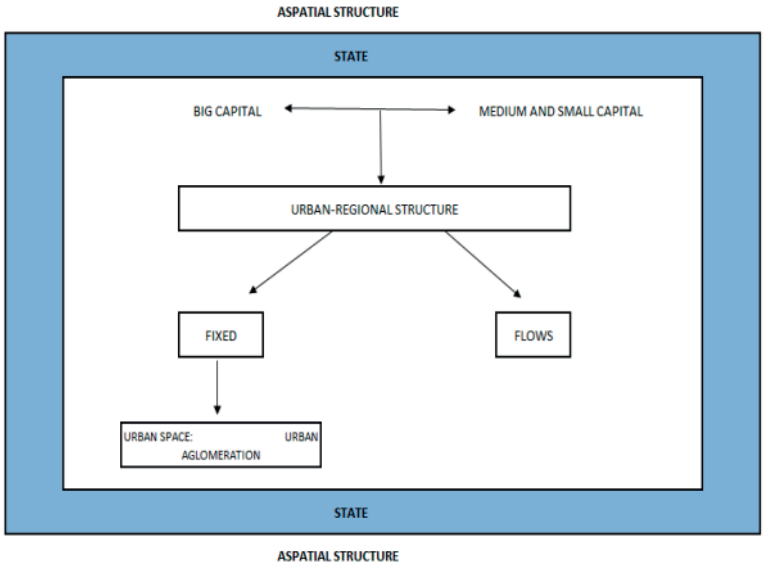
The main characteristic of the aspatial structure is its permanence, due to the connections made between its three conditions or principles, establishing a structural status quo that conditions the urban structure and this, in turn, conditions the urban dynamics.

These conditions or principles are currently: in the economic-political sense, the informational capitalism and its doctrine neoliberalism; in the productive sense, flexible accumulation; and in the socio-cultural sense, globalization. This makes the urban-regional reorganization directly influenced by the aspatial structure because the latter is expressed solely in space.

## 2. The role of the State in the aspatial structure

The urban-regional structure is directly impacted by the socio-economic policies of the states in the course of history; policies which, in turn, are influenced by the conditions of the aspatial structure. This causes the State to have two types of impact on the spatial-temporal pattern of the urban-regional structure: first, indirectly, because it is the intermediary between the aspatial structure and the urban-regional structure (through the adoption of public development policies and the macroeconomic management of the economy); secondly, in a direct way, by the fact that it constitutes part of the great capital, which also includes the transnational corporations. With this, it changes the urban-regional structure through the allocation (or not) of investments (Fig. 1).

**Figure 1. Role of the State in the aspatial structure.**




*Source: The authors*

The state being a political-administrative figure whose process of birth, consolidation and weakening - from the city-states to the modern states - has happened concomitantly with the consolidation of the capitalist economic model.

The fact that the modern State was born in the second half of the fifteenth century makes its origin directly related to capitalism (in the form of mercantile capitalism of the time) that emerged since the first half of that century. In the eighteenth century, the birth of the forms of unitary state (French revolution of the year 1789) and federal state (American revolution of 1776) occurred in industrial capitalism, specifically in the context of the first industrial revolution. Nowadays, even when it is mentioned the weakening of the State as a political, administrative and economic figure - due to the emergence of transnational entities such as the World Bank and the International Monetary Fund, including the power exercised by transnational corporations - the State still has some functions in the structural status quo in this twenty-first century with its administrative, regulatory and repressive functions.

## 3. The urban structure of the city

The analysis of the cities of Girardot in Colombia and Ilhéus in Brazil (as well as of the urban agglomerations that conform) begins with a factor in common pointed out by Adam Smith in his work The wealth of the nations (1776). Said author considered as an important factor of the trade between countries their geography, and particularly the proximity to a river or to the sea.

This factor has meant that the cities located close to the sea or a river have historically had economic importance at the national level and, likewise, a more direct contact with the aspatial structure; A structure that impacted, more quickly than in other cities, in its functional morphology. That is, in their urban functions, expressed spatially in certain forms. These forms, in turn, having a locational pattern that allows seeing both the urban structure and the progressive

urban expansion that has produced processes such as the current conurbation and regionalization of these two agglomerations.

The city of Ilhéus is currently located in the Ilhéus-Itabuna Microregion in the south of the State of Bahia, in the Federative Republic of Brazil. The history of this city began in the year 1534 when it was created by the crown of Portugal the "Capitania of St. George of the Ilhéus" with the purpose of populating and administrate the territory having as capital the town of São Jorge dos Ilhéus. The process of growth and consolidation of the city took place in the context of an economic-agricultural model based on land concentration and export of products, in the context of mercantile capitalism and after based on the production of sugar and cacao in industrial capitalism. Throughout the nineteenth and twentieth centuries continued the progressive importance of cacao cultivation in the economy of the town of Ilhéus making it the main export product of the region in the context of advances in chocolate manufacturing techniques in Europe.

In this logic, the geographical location of Ilhéus on the Atlantic coast and the cocoa production made the town an important export port for several products from other areas of the colony. And because of this, the village became a city by Provincial Law n. 2.187 of 1881.

Currently the cities of Ilhéus along with Itabuna, which is also an important city of the region, exert great influence in the southern region of Bahia. They are two cities near each other, almost conurbated, and with daily spatial interactions because of the flows of goods, of people and of capital. These interactions also generated complementarities and because of this, the urban agglomeration Ilhéus-Itabuna was formed.

An urban agglomeration that, historically, has been the scenery of socio-spatial reorganizations arising from the impact of the spatial structure. The latter of this

reorganizations being produced by the crisis of the Fordist model of production and the advent of flexible accumulation. Thus, establishing a specialization of functions where Ilhéus's economic activity focused on tourism while Itabuna focused its economy mainly on commerce.

In this specialization of functions have principal roles two economic actors. On one hand the big capital, represented by the Brazilian State (in the national and local level), the private banks and the transnational corporations; on the other hand the medium and small capitals, represented by the regional and local enterprises of different sectors mainly the tertiary sector.

These actors being the means by which the aspatial structure acts and transforms the urban structure of the agglomeration and, therefore, the urban-regional structure. All of these actors looking for one thing: earning more profit.

The city of Girardot, in turn, is located in the province of Upper Magdalena in the south-west of the department of Cundinamarca, in the Republic of Colombia. The history of this city began in the year of 1852 when the parish of Girardot was founded in the center of Colombia, in a period of height in the creation of cities in the country that, according to Zambrano; Bernard (1993), occurred between the years of 1840 and 1860 by the emergence of coffee cultivation in temperate zones.

The coffee culture made the parish district of Girardot acquire importance because of its strategic location (on the banks of the Magdalena River) as a necessary passage between the center of the country and coffee growing regions in the south-west. The denomination of parish of Girardot was replaced by the denomination of municipality (1912) in a period of economic growth of the city produce by the entry and exit of agricultural products and goods by the port of the city.

After a period of economic crisis in the country, in the 1930s, the city found in the tourist activity an economic alternative viable due to its geographical location

and its proximity to the capital of the Republic, Bogota.

This led to the establishment, gradually, of a region of influence of the city of Girardot, which is expressed especially in the agglomeration that it forms with the municipalities of Ricaurte and Flandes. In this agglomeration the socio-spatial reorganization, produced by the advent of flexible accumulation, create changes in socio-economic relations in the agglomeration but maintained (and amplified) the dominance of the city of Girardot inside the agglomeration and the region.

Nowadays the importance given to this city by the Colombian State (big capital) has created the conditions for the allocation of enterprises of the tertiary and quaternary sectors producing the increase of flows of people and goods from and to Girardot having a direct impact in the cities of Ricaurte and Flandes; cities with which form a conurbation

## 4. Final considerations

At the present time, the cities of Ilhéus-Itabuna have complementary relations resulting from the progressive growth of the economic importance of Itabuna; while the cities of Girardot-Ricaurte and Flandes show relations of dependence because Girardot concentrates the economic activity. This caused by the action of the big capital and the medium-small capital both groups having an impact in the socioeconomic relations among cities on the local context and the regional and national one.

The two agglomerations exemplify the fact that urban centers, from their beginnings, have become centers of political, economic and social management and, even with the current time-space compression, they continue their main role within the urban-regional structure , establishing themselves as centers of management of a regional territory.

At present, not only metropolitan agglomerations present regional influence and greater functional complexity, but also urban agglomerations without metropolitan characteristics have regional influence and functional complexity and specialization in the context of both urban (intra-urban) structure and urban-regional structure.

These structures (the urban and the urban-regional) being the product of the action of the aspatial structure on space and, specifically, the action of the three principles on which the structure is currently based on: informational capitalism, flexible accumulation and globalization.

In the functional specialization the natural advantages can bring benefits to the activities in the four economic sectors (primary, secondary, tertiary and quaternary); however, the greatest impact is in the terciary sector (trade and services). A beach, a mountain, a waterfall, attracts people in search of leisure and rest.

In view of the above, it is necessary to consider the impact on the urban space and, consequently, on the urban-regional structure, of the advance of the tertiary and quaternary sectors (education and research) in Latin America, in a scenario of deindustrialization, the crisis of the welfare state and the implementation of neoliberal policies in the second half of the twentieth century.

## 5. References

CASTELLS, M. (1989). *La ciudad informacional. Tecnologías de la información, estructuración económica y el proceso urbano-regional*. Alianza Editorial: Madrid.

EKEH, P. (1982). *Structuralism, the Principle of Elementarism, and the Theory of Civilization. In: ROSSI, I. Structural Sociology*. Columbia University Press: New York. Pp. 122-148.

LEPARGNEUR, H. (1972). *Introdução aos Estruturalismos*. Herder: São Paulo.

LENCIONI, S. (1998). Reestruturação: uma noção fundamental para os estudos transformações e dinâmicas metropolitanas. In *VI Encontro de Geógrafos da América Latina*. Universidade de Buenos Aires: Buenos Aires. Pp. 1-10.

PIAGET, J (1968). *O Estruturalismo.* Difel: São Paulo.

SANTOS, M. (1985). *Espaço e método.* Nobel: São Paulo.

SOJA, E (2010). *The city and spatial justice.* University of Minnesota Press: Minneapolis.

ZAMBRANO, F. & BERNARD, O. (1993). *Ciudad y territorio: el proceso de poblamiento en Colombia*. Fundación de estudios históricos: Bogotá.

# Representation of the city and participatory processes in the Information Age[1]

Vítor Meneses

*Universidade Federal do Ceará*

Daniel Cardoso

*Universidade Federal do Ceará*

## Abstract

*Manuel Castells defined as the "Information Age" the era in which a new social, economic and cultural paradigm is observed in contemporary societies. Through the study of this context, this paper approaches the influence of Information and Communication Technologies (ICTs) in the processes of representation and planning of the city, especially with regard to participation. Several authors corroborate the profound transformations of technologies, especially in urban areas. Geographic Information Systems (GIS) allow the mapping and interpretation of large urban territories; Virtual social networks, through the use of smartphones, help organize large mobilizations and keep citizens connected. From the Internet and digital based technologies, forms of communication have multiplied, and with them, instruments of participation and social control have emerged from society and from governments. But how do virtual instruments contribute to the representation and planning of the city? To reflect on this questioning, this research conceptualizes representation and planning of the city and makes a survey of virtual devices of citizen participation. Through the analysis of the devices, the objective is to understand how Information and Communication Technologies can be used as an instrument to support popular participation, both for purposes of representation and planning of the city, in order to build a more democratic and egalitarian city..*

## 1. Introduction

The participation of the population in urban planning processes exerts a great influence on the production of space and is fundamental for the construction of more democratic cities. However, ordering and managing a participatory process, whether for the construction of a public policy, a municipal budget or a Development Master Plan, is a very complex activity. This is because the city, product of many actors,

1 This article is the result of a research developed in the master's degree in Architecture and Urbanism and Design of the Federal University of Ceará and counts on the support of FUNCAP (Cearense Foundation for Scientific and Technological Development Support) through a postgraduate scholarship grant.

is produced by a great diversity of events that act dynamically simultaneously in a "social collective full of conflicts and contradictions and a considerable dimension of unpredictability." (Souza, 2006).

Since the City Statute (2001), popular participation in the elaboration of Executive Plans became mandatory, a fact that contributed greatly to the expansion of this conduct. Even so, surveys that evaluate the production of master plans after the City Statute (Pereira, 2015) point to a permanence of the technocratic conduct, even if in the form of "participatory". It is observed that there is, therefore, a conflict of interest between the genuine participatory processes, in which the demands of the population can be exposed and debated, and the planning model practiced by the State, which, in most cases, contributes to the permanence of the Context of inequality. Arnstein (1969) analyzes these processes and classifies them by defining various "types of participation".

One of the factors that contribute to bring the population closer to the production process of space is the representation of the city. To feel represented, you have to represent. In this way, considering the various obstacles to participatory processes, Information and Communication Technologies (ICTs) emerge as a means of communication and representation, creating virtual environments of participation through digital interfaces and the Internet. Through the ubiquity of these technologies in everyday life, and especially with the advent of the Internet, a deeply computerized and connected context was created, defined by Manuel Castells as the "Information Age" (Castells, 1999).

In pursuit of broadening popular participation channels or improving existing ones, a number of grassroots and government initiatives have emerged with the help of connected platforms to leverage information and reduce barriers of space and time between citizens and the state. Virtual participation devices are defined here as systems that use the Internet as a work base for communication, mobilization,

information and collaboration purposes in processes of collective interest, often allowing participation, empowerment and popular autonomy.

Understanding the complexity of the city and the need for popular participation in urban planning, this research studies the use of Information and Communication Technologies (ICTs) as a tool for the construction of routines, channels and participatory processes. The investigation starts from the following question: How is the use of Information and Communication Technologies (ICTs) in participatory processes?

To reflect on this issue, a survey of virtual devices of participation was carried out through research in the respective site / application, without restriction of origin. Through a theoretical debate and inspired by the "participation ladder" (Arnstein, 1969), parameters of virtual participation were defined to analyze and classify the raised devices.

## 2. Participation and Representation in the Contemporary City

According to Pateman (1992), the word "participation" gained prominence in the political sphere in the late 1960s, in the context of France's student claims. In Brazil, the conquest of direct elections and the promulgation of the Federal Constitution of 1988 also represent a claim for participation, in this case, for the right of the population to give political opinion on the future of the country, state and city. With intense action by social movements and other sectors of society, in 2001 the City Statute was drawn up which, among other things, made it mandatory to hold Executive Plans in a participatory manner.

It is possible to follow a broad evolution of the debate around participation, however, this reality does not necessarily mean a breakthrough for the inclusion of the population in urban planning. In a recent survey of municipal councils, Elson Manoel Pereira points out that, in many cases, participatory processes are still

carried out from a political marketing perspective, that is, they are much more focused on image formation Municipal management than to meet the popular demands (Pereira, 2015).

In addition to the pragmatic issues in which there are arguments about the need for alignment between the elaborated planning and the demands of the city, participation is, above all, an innate human need to feel a part, to act in a way In the construction of a common goal (Bordenave, 1983). The relationship that the inhabitant establishes with the city when participating in its planning is fundamental for the learning of citizenship and contributes to the construction of spaces with meaning, reinforcing the feeling of belonging and identity.

In the context of contemporary cities, digital based technologies have been widely used in the construction of devices and spaces of participation and there are already several studies on the use of digital media, virtual social networks and new media as a channel of communication between government and citizens (Rocha & Pereira, 2011). The ubiquity of these technologies in urban space, especially Information and Communication Technologies (ICTs), establishes new ways of acting and relating. On the events that characterize the transformations of society from this, François Ascher describes:

*Western societies are changing, entering a new phase of modernity, which witnesses the profound evolution of the ways of thinking and acting, science and technology, social relations, economy, social inequalities and forms of democracy. These mutations imply and make important transformations necessary in the design, production and management of the cities and the territory. (Ascher, 2010. pp. 17-18)*

This context presents a new social, economic and cultural paradigm for contemporary societies, which Manuel Castells conceptualized as "The Information Age", a transition from industrial urban society to the interconnected information society (Castells, 1999; Ascher, 2010). The Internet, being the focus of the new social system, functions as a great platform for sharing information and collaborative actions, transforming virtual spaces into extensions of physical space

and creating a hybrid locus of relations and information sharing in the city, A set of "interconnected networks" (Ascher, 2010).

Moreover, with the connectivity enhanced by the Internet, these technologies also modified the forms of representation of the city. This transformation refers mainly to the inclusion of elements of time and space in the communication process, giving it new dynamics and expanding the possibilities of representation. In this sense, both with regard to citizens, who access urban information and their systems through applications and connected tools, as well as managers and planners, who have complex databases spatialized through Geographic Information Systems (GIS) The representation of the city is transformed and influences in the planning and the production of the urban space.

The size and diversified set of connected elements and potential of connection in the city transforms, through Information and Communication Technologies (ICTs), the urban space into an "enlarged space" (Firmino & Duarte, 2008). Ferrara describes, with respect to this process, the formation of a virtual city, of interconnected services and people:

*Now it is a city that is not concrete, but potentially real, virtual: it is not built but is built through ideas that are disseminated electronically, through fiber optics and telephone networks [...] Is determined by its commercial or industrial productive activities in a contiguous time / space and determined by a clear relation of cause and consequence. The virtual city teaches time to blend into space and to transform with it. This is the way in which virtual city researchers have interpreted the challenges that modern technology imposes on its object of study " (Ferrara, 2000).*

Pierre Levy defines this new dimension as "cyberspace" or "network" which, according to the author, refers "not only to the material infrastructure of digital communication, but also to the oceanic universe of information it houses, as well as human beings who Navigate and nourish this universe "(Levy, 1999). In this way, cyberspace can be seen as a hybrid space, which admits no more distinctions between the real and the virtual, enlarging the physical space.

It is well-known that the possibilities offered by Information and Communication Technologies (ICTs) allow new forms of participation, but the Internet and its tools, as well as devices connected through the network, do not constitute a guarantee of participation alone and, when This participation does occur, there is no guarantee as to its quality and its impacts. According to Gomes, despite this, it is possible to find alternative aid and increment for traditional participation through the Internet, therefore, it is relevant to investigate these aspects (Gomes, 2011). The author points out that there is a difference between the general political participation and the participation that occurs through the Internet that divides into two poles:

*... on the one hand, by the political participation in which the internet (this is, the tools,the languages, the products and the machines and digital connection machines) is instrumental and, on the other, by civil participation in which The internet is essential.*
*(Gomes, 2011. p.20)*

This differentiation is based on the specific use of the Internet, for example, who uses an e-mail to make political contacts, only changed the way of communicating, making in this case, the Internet is only "instrumental". However, when the user uses tools such as blogs, Facebook, Twitter, it happens that the internet is "essential" because these resources, although they are also forms of communication as traditional forms, keep possibilities of communication and interaction that are proper and Which were developed specifically for these tools. The most relevant issue raised by these definitions lies in the debate about the new mechanisms of interaction brought on the Internet and the new media and the possibilities of this for participation.

However, in a study of virtual social networks as spaces of participation, Rocha and Pereira attest that virtual environments created by the state have been exploited "for a type of unidirectional communication" (Rocha & Pereira, 2011). The state's underutilization of these tools is a reflection of what is often the case with traditional (or non-digital based) participation tools. As previously mentioned, the "participatory routines" (Souza, 2006) do not always go beyond the information

phase. However, the disclosure of information regarding management and its actions is an important step towards achieving a level of social control.

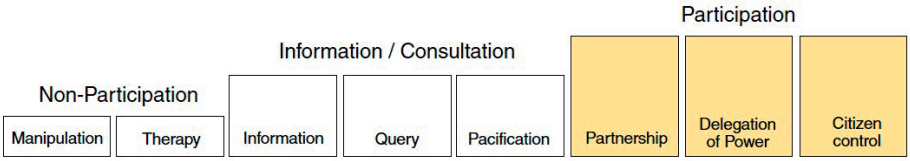
## 3. Levels of Participation in Urban Planning

In the 1960s, Sherry Arnstein proposed a classification of popular participation called the "participation ladder", a critique of the "participatory" label given to processes led by government teams, arguing that these processes did not always occur from A true participation.

The author's ideas remain current because, given the current crisis of democracy, there continue to be so-called participatory processes without any commitment to the real popular demands. The participation ladder is composed of the following classifications: Manipulation, Therapy, Information, Consultation, Peacemaking, Partnership, Delegation of Power and Citizen Control, from the smallest to the highest degree of participation.

According to the author, the first two "steps" (Manipulation and Therapy) are considered examples of non-participation. The levels of information and consultation open up a broader range of possibilities, but still with a number of restrictions since, despite providing dialogue, it is not guaranteed that the position of the population is taken into account in the decision-making process. The so-called Pacification level (also understood as "appeasement") consists of an evolution of the last two steps described, with the possibility of greater dialogue opening (Fig. 1). Only the last three steps represent cases of genuine popular participation, where the true citizen power is expressed. In the first case, the population can realize a "Partnership that allows them to negotiate on an equal basis with those who traditionally holds power" (Arnstein, 1969). On the last two rungs, the population holds the majority of power in the decision-making process or holds the power altogether.

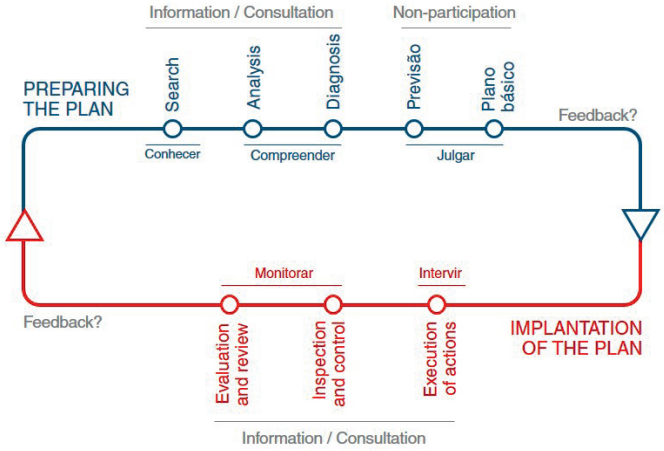
**Figure 1. Re-reading of the types of participation.**




*Source: Elaborated by the authors from Arnstein (1969).*

From the reflection on the act of planning, it identifies itself as stages of urban planning: knowledge of the area to be planned (Know); Understanding and reflection on reality (Understanding); Judgment of the situation studied (Judge); Proposition of solutions and interventions (To intervene) (FERRARI, 1986). According to Ferrari (1986), urban planning can be divided into two main stages: Elaboration of the plan and the implementation of the plan (Fig. 2).

**Figure 2. Diagram of the phases and actions of urban planning and the traditional forms of participation used.**




*Source: Elaborated by the authors from Ferrari (1986) and Saboya (2000).*

Saboya (2000) defines that the basic structure of planning is composed by Description of the System, Definition of the problem, Determination of the objectives, Definition of alternatives, Evaluation and selection of the best alternative, Implementation and Monitoring (Saboya, 2000). Merging the two structures, we have a diagram that demonstrates the planning process as a cycle, composed of phases and actions, which do not always count on the adequate participation of the population.

Considering the city as an object of urban planning, it is necessary that this planning be continuous and dynamic, allowing new interpretations and adaptations through a cyclical process of feedback, allowing the planning to approach the dynamics of transformation of the city and occur with The supervision and social control required at all stages. In this sense, Ascher (2010) warned of the need to build adaptive planning, composed of a set of dynamic forecasting and feedback tools that would continually be "reinvented" in an attempt to get closer to the dynamics of the city.

## 4. Survey and Classification of Participation Devices

According to François Ascher, contemporary urbanism must be constructed dynamically, through a set of dynamic devices that are constantly fed and evaluated (feedback) to produce new parameters of development. Considering these concepts, a survey was made of some devices that use digital base technologies, internet and mobile devices to act. They were classified into three types: Information Devices, Mobilization / Activism Devices, and Didactic Devices / Research. The Title: The title should be informative and concise but not overly long. Avoid using acronyms in the title. Give a list of authors and institutional affiliations and index using numbers as shown above. Include the principal author's email for correspondence.

### 4.1 Information Devices

The first typology of device is perhaps the most traditional: information portals. They are designed to disseminate information about the city, state or country to which they refer. Often, however, they function only as management marketing environments, displaying previously selected data to build a positive image of public power. In addition, when they are maintained by initiatives of society without governmental ties, they play a role of support for social control. The purpose of this type of device is related to the sharing of information so that the citizen can follow the events and can act. However, there is not always room for user interaction. Even so, it is an interesting initiative because access to information is the first step in the process of participation in space planning.

#### *Collaborative Mapping of Fortaleza City Hall*

The IPLANFOR - Planning Institute of Fortaleza, a municipal agency responsible for urban planning in the city, is developing a development plan called Fortaleza 2040. During the meetings and assemblies to discuss the plan, a community demand arose for a mapping that was carried out by Comprehensive manner and included all persons, including those not present at meetings. In response to this request, the City team developed, from free software and using the openstreetmap[2] database, an interactive system on the Fortaleza 2040 site to perform a collaborative mapping. The project went into operation in September 2015 and, although the plan's diagnosis phase has already ended, collaborative mapping continues to exist as a tool to constantly capture the population's demands.

Collaborative mapping only depends on an internet computer. The user must enter the site of the project, choose a thematic legend in which the information to be mapped (Leisure and social spaces, Violence, Accessibility, Culture and memory,

2 The openstreetmap.com platform is an open source collaborative mapping tool. Anyone can register and contribute to the mapping from anywhere in the world. To use, just a computer or smartphone with internet

Health risk, Economy, Environment) and enter the data with a brief description. The system receives user-supplied data and generates reports periodically. This information goes through a screening process that divides the records into Permanent Records, data on the physical structures of the city that can be accessed on the Fortaleza website in Maps in thematic map format and the Demand Records, which are circumstantial information and are forwarded In specific reports for the sectors of the Municipality responsible for the actions of resolution of the mentioned conflicts.

### *Observatory Citizen of Piracicaba*

The observatory is a portal created through the association of several public and private entities in the city of Piracicaba - SP with the intention of sharing information of interest of the citizen in the municipal sphere. Calling itself a tool of social control, the observatory gathers information divided in Environment, Goals, Social Participation and Public Transparency. The data are presented in the form of indicators that were constructed from diverse sources, allowing the citizen to carry out analyzes on the construction and implementation of public policies of the municipality.

As the information typology has been described, the Piracicaba Observatory does not allow interaction with the users of the Portal, only providing the information and sources so that the citizen assumes an active behavior in another environment, that is, as an environment Collection and sharing of information.

## 4.2 Mobilization / Activism Devices

This typology can be called “network” because it provides its users with the possibility of connecting with other citizens (mobilization) and to decision makers (pressure and feedback). The transformation of the passive citizen’s behavior, only information consumer, to the behavior of active citizen, that integrates in a

greater movement of mobilization and activism, is made possible by the change of relation between portal and user. The objectives of this type of device are related to the concrete actions of the citizens. From the online petitions mechanism (which only modified the means of collecting signatures) to the possibility of approving popular initiative bills, all these tools presuppose citizen participation in the debate of collective issues about the city and the country.

### *Nossas: Encouraging networks of mobilization and activism*

Nossas is a non-profit, non-partisan network with thousands of people in many cities in Brazil. Acting as an incubator of organizations at the municipal level (My River, My Sampa, My Recife, etc.) to act in favor of local causes, the network is composed of volunteers who unite to claim actions to the public power, creating spaces of social control. The entire structure of Nossas was thought from the aid of digital based technologies, using the potential of connectivity between citizens.

One of the tools is the "Pressure Cooker" allows the user, through the website, to pressure the managers in certain decision making process. The tool allows the citizen to send messages directly to the political figure through email, facebook, twiter or phone, without intermediaries. Through this tool the citizen can participate by creating a mobilization on a theme or by supporting the mobilization created by another person, helping to press.

Another tool, called "Legislando", is an application that allows users to create, support, sign and adopt bills. This tool represents a major advance in popular participation in the Brazilian legislative process, since it brings citizens closer to the legislators, making popular demands heard and influence legislative decisions.

The tool accepts collaborative bills, which can be initiated by any citizen, and bills of parliamentary initiative, which can only be initiated by councillors or state deputies. In all cases, anyone who initiates a bill puts it to appreciation and possibly

to suggestions of members of the legislating (editing in document on Google Drive), until it can be referred to parliament through the adoption of bill, action Made by a member who is a parliamentarian. This tool has wide use with several success stories for the city.

### *Change.org*

Change.org is a petition-building platform on a variety of popular topics and supports initiatives in various parts of the world. The system is simple and works in the traditional way of an undersigned, but with the help of the internet and artificial intelligence, the platform makes the undersigned seen by people who are interested in the subject and who, at the end, reaches the decision makers, pressing and influencing the conduct of the managers.

In order to participate, the user must register in the site free of charge, insert the title of the undersigned and choose the "person who decides", in this item, it is necessary to search the name and position of the manager responsible for the decisions on the subject matter. Once created, the undersigned will start receiving signatures and supports until the goal is reached and the document is sent to the responsible.

## 4.3. Mobilization / Activism Devices

This third and last typology of participation device resembles the "Information" typology, however, inserting interactivity mechanisms and allowing analysis, comparisons and configurations in the data display. Generally created through the association of companies and private institutions, these devices, although also aimed at sharing information to empower citizens, also have a didactic and research concern. In addition to providing data to the user, these portals also provide interactive mechanisms for organizing and analyzing this data, adding more complexity to the construction of scenarios in grouping information.

### *Democratic warning*

Initiative of the Instituto Reos[3] supported by international institutions, Alerta Democrática is a platform for building scenarios related to democracy in Latin America, making predictions allowing the carrying out of searches and research related to various topics. Formed by leaders of several countries of the Latin American continent, the platform works with the Methodology of Transforming Scenarios.

The purpose of the scheme is to use scenarios for Latin American democracy by 2030 to support the construction of agendas and conduits in political, academic and social spheres. In this way, allowing the user a critical and contextualized reading of the political situation of the continent, the device defines the following scenarios: Democracy in Transformation, Democracy in Tension, Democracy in Mobilization and Democracy in Agony.

### *Update Politics: A network of networks*

Understanding that each tool has a potential for action through the establishment of a network, the Update - Laboratory of Political Innovation in Latin America brought together diverse initiatives of citizen control and democratic participation in a network, allowing the integration and exchange of ideas between groups. The platform carried out a survey of democratic tools (generally using the Internet) in Latin America, using the socio-political context of this part of the world as a backdrop. This research divided the tools into groups and classified them as to their objectives and the possibilities of action offered. The result is an overview of emerging initiatives in several Latin American countries.

The two modes of access and analysis of the database created are the Signs and Hubs, as defined on the platform's website: "Signs are evidence and evidence of

3 Non-profit association that acts on the social challenges of Brazil. For more information, http://institutoreos.org.br/.

political practices that reduce the distance between civil society and public power. "Signals are divided into the following themes: Independent Communication, Social Control, Political Culture, Government 2.0, Citizen Participation, and Transparency & Accountability. The Hubs are the actors who create, publicize and execute the actions, are classified in the following natures: Companies, Parties, Academia, Informal, Multilateral Organizations, NGOs, Constellations, Government.

The platform is therefore a meeting of tools and initiatives in Latin America, providing a space for knowledge, debate and exchange among the actors involved. This network is a way of strengthening and sharing ideas about political innovation, meeting the current demand of more just and democratic societies.

## 5. Conclusions

According to the information presented, a correspondence was made between the objectives of each device and the stages of urban planning. In the initial activities, represented by the verbs Know and Understand, we see that the devices of the type Information and Didactics / Research are more adequate. In the second stage, when actions become Judge and Interven, the tools of the type Mobilization and Activism, whose objectives allow interaction and decision together. Finally, aligning with the concept of a device planning (Ascher, 2010), which proposes the construction of dynamic plans that allow adaptations based on feedbacks, the action that permeates the entire planning process, Evaluation and Social Control, Can be aided by devices of two types: Mobilization / Activism and Didactics / Research. The diagram below presents the conclusions presented here.

**Table 1. Correspondence between the planning stages and the devices that can be used.**

| Phase | Actions | Stage | Device Used | Type of Participation |
|---|---|---|---|---|
| PREPARE | To Know | Research | Information Didactics / Research | Information / Consultation |
| | Understand | Analysis | | |
| | | Diagnosis | | |
| | To Judge | Prediction | Information Mobilization / Activism | Participation |
| | | Basic plan | | |
| IMPLEMENTATION OF THE PLAN | To intervene | Execution of actions | Mobilization / activism | Information / Consultation Participation |
| | To monitor | Inspection and control | Mobilization / activism Didactics / Research | Information / Consultation Participation |
| | | Evaluation, revision and updating of the plan | | |

*Source: The authors*

From the devices of participation in the context of the interconnected digital city and, perceiving how the use of Information and Communication Technologies in various situations of the participatory processes occurs, it can be realized that the participatory routines can be largely aided by the virtual devices, It is necessary to consider in which stages of the urban planning process the virtual environment of participation can be useful, since in many situations it can not replace the physical presence of citizens in the streets and in other places of debate and decision.

## 6.References

ARNSTEIN, S. R. (1969). "A ladder of citizen participation". *Journal of the American Institute of Planners,* Vol. 35, 216-24.

ASCHER, F. (2010). *Os novos princípios do urbanismo.* Romano Guerra: São Paulo.

BORDENAVE, J. E. (1983). *O que é participação?.* Editora Braziliense: São Paulo.

CASTELLS, M. (1999) *A era da Informação: Economia, sociedade e cultura*. Volume 1: A sociedade em rede. Paz e Terra: São Paulo.

FERRARA, L. D. (2000). *Os Significados urbanos*. Editora da Universidade de São Paulo: São Paulo.

FERRARI, C. (1986). C*urso de Planejamento Municipal Integrado: Urbanismo.* Pioneira: São Paulo.

FIRMINO, R. & DUARTE, F. (2008) *Cidade infiltrada, espaço ampliado.* Arquitextos: São Paulo.

GOMES, W. (2011). "Participação política online: Questões e hipóteses de trabalho". In ROUSILEY, C. M. M., GOMES, W. & Marques, F. P. J. A. (orgs.). *Internet e participação política no Brasil*. Sulina: Porto Alegre.

LÉVY, P. (1999). *Cibercultura. Tradução de Carlos Irineu da Costa.* Editora 34: São Paulo.

PATEMAN, C. (1992). *Participação e teoria democrática*. Paz e Terra: Rio de Janeiro.

PEREIRA, E. M. (2015). *A alegoria da participação. Planos diretores participativos pós-Estatuto da Cidade.* Editora Insular: Florianópolis.

ROCHA, M. C. F. & PEREIRA, G. C. (2011). "Mídias Sociais e espaços de participação". *Simpósio em Tecnologias Digitais e Sociabilidade*. Salvador.

SABOYA, R. T. (2000). "Análises espaciais em planejamento urbano – Novas tendências". *Revista Brasileira de Estudos Urbanos e Regionais,* nº 2.

SOUZA, M. L. (2006). *A prisão e a ágora: reflexões em torno da democratização do planejamento e da gestão das cidades.* Bertrand Brasil: Rio de Janeiro.

NOSSAS (2017) [http://www.nossas.org/]

FORTALEZA EM MAPAS (2017) [http://mapas.fortaleza.ce.gov.br/#/]

UPDATE POLITICS (2017) [http://updatepolitics.cc/]

OBSERVATÓRIO DE PIRACICABA (2017) [http://

www.observatoriopiracicaba.org.br/] Alerta Democrática (2017) [http://

alertademocratica.org/]

Change.Org (2017) [http://change.org/]

# Tourist use and urban planning policies of public spaces in the Old Town of Havana

Yamilé Pérez Guilarte

*Universidade de Santiago de Compostela*

Maité Echarri Chávez

*Universidad de Havana*

Lucrezia Lopez

*Universidade de Santiago de Compostela*

## Abstract

*In the last decades, the search for territorial development in the cities have renewed theoretical approaches and interpretations about the socioeconomic processes that affect them and about the competences and the role they can play even within the tourist activity. Therefore, studying the planning of their public spaces in shaping urban systems with polycentric territorial structures that favour a balanced territorial model is relevant. The aim is to achieve integrated development and non-overexploitation of cultural resources, as well as improving the quality of life of the local population. This research makes a diagnosis of the use made by the visitors of the Main System of Squares of the Historic Centre of Havana. The objective of the study is to contribute to the decision making by the management entities of the territory, in terms of territorial planning and the improvement of cultural tourism offers integrating them within the patrimonial system that constitutes the Historic Centre of Havana. For the collection of information non-participatory observation was used as empirical method. An analysis was made comparing the information obtained in the fieldwork with the tourist policies established in the Plan of Integral Development of the Historic Centre of Havana, and some recommendations to improve the competitiveness of the destination were proposed as well.*

## 1. Introduction

The profound changes that are taking place in cities require new approaches and analyses that help minimize the risks and uncertainties inherent in them and, at the same time, take advantage of the opportunities they generate. It is about finding an integrated development model capable of making economic competitiveness, social well-being, cultural identity, environmental sustainability and moderation

of territorial imbalances compatible. At the same time, the satisfaction of a cultural tourist who seeks the interrelation with the local host population should be guarantee (Caravaca et al., 2009).

The adaptation of the tourist activity to the public space at world-wide level, as well as the vision of its function inside the modern city makes necessary a revalorization of the historical centres (Troitiño, 2003). It is a matter of preserving its historical, cultural and social value, but also of its economic dimension, which allows the achievement of a self-financed integral development to make recoverable and productive its restoration and conservation investment (Troitiño, 2003). In terms of reaching this goal, the integration of cultural, tourist and urban policies, together with the resident's participation in the decision-making is relevant.

The Old Havana suffered moments of serious decay due to the deterioration process associated with the growth of the city in the XIX century, the consequent loss of buildings, as well as the devastating effects of tropical hurricanes.In this scenario, the avant-garde intellectuals of Cuba in the 1930s complain about the urgent need to protect historic buildings and monuments and to deepen and disseminate Cuban culture and nationality. As a result of this movements, in 1938 the Office of the Historian of Havana was created in order to carry out an integral rehabilitation process that last until nowadays. In 1998 the Special Development Plan (PED) was developed to constitute a practical guide to govern actions in the territory, ensuring the coherence of interventions and physical recovery. Rehabilitation was structured linking integral development criteria, self-sustaining recovery and cultural development mechanisms (Leal, 2007).

However, although the Integral Development Plan defines the intervention strategies at the level of public spaces in the Historic Centre of Havana, a study is necessary in order to evaluate the interactions that take place between the territorial planning of tourism and the use and functions of public spaces (Rodríguez Neila,

1994). This raises the following research problem: Does the visitors' use to the main squares linked to tourism in the Historic Centre of Havana reflect the territorial development plans for tourism? This work aims to answer this question doing a diagnosis of the use made by visitors to the main squares linked to tourism in Old Havana. This research deals holistically with the tourist consumption in the Main System of Squares in the Historical Centre of Havana and the spatial repercussion that this use implies. It proposes the diagnosis of the use that visitors make of this system. The objective is to contribute to the decision-making by the local management entities in terms of territorial planning actions appropriated to the development of tourism.

## 2. Theoretical background

Urban public spaces are those areas which have public property and free access and its quantity and quality are important factors in living conditions (Zoido et al., 2013). Public spaces are mainly created by a specific authority (local, regional or state), which controls them and establishes the rules under which people may use them. Public spaces fulfil a wide variety of functions within urban space, including economic, political, cultural and touristic.They are also the place of relationships and identification between people and institutions. The dynamics of public space play a central role in the formation of the city because the streets, parks, squares and other shared spaces are symbols of collective life, sites of public encounter, formation of civic culture and significant spaces of political struggles.

In the majority of historic cities, heritage tourism is located in the city centre ignoring new shopping areas, residential areas, business centres or industrial estates located in the outskirts or in suburban residential districts (Timothy, 2011). In some cases, this behaviour results in the overcrowding of main squares and areas surrounding major attractions, causing the deterioration of the place and the experience. To avoid such situations in historic cities, tourism should be following

sustainable development models, further than only ensuring the protection of heritage (Mercie, 2010). Sustainable tourism in historic cities is closely related to the carrying capacity (physical, social, economic, environmental and perceptual). According to the literature there are different types of measures to manage the carrying capacity, such as: traffic regulation, signage, limits to free access, limits to specific activities, concentration or dispersion of tourist flows and pressures, land use/spatial planning measures; economic tools such as pricing, taxes and incentive schemes; organizational tools such as booking systems, information management, education, training and market control (Massiani and Santoro, 2012; Barrera, Arista and Azevedo, 2014).

In the Historical Centre of Havana, World Heritage since 1982, a Plan of Integral Development is carried out by the Office of the Historian of Havana. It aims at the revitalization and integration of prioritized zones, in territorial, socio-economic and socio-cultural scope, including the revitalization of public spaces. The objective is to revitalize the historic centre by reconciling cultural values with socio-economic development, preserving its residential character and guaranteeing the sustainability of the process. Since 1981 the strategy has been focused on recovering the most important public spaces, including its squares system and its interconnection axes.

The historic centre has been classified by functional sectors differentiated by typological characteristics such as traditional functions and future roles (Salinas and Echarri, 2005). This territorial division was directed to complete the following objectives: (1) protect and respect the residential vocation of the historic centre; (2) promote tourism and the tertiary sector in terms of permissible uses and in areas suitable for such purposes; and (3) promote those uses and functions that allow a diversified centre, taking into account the layout, customs and physical potential for each area.Thus, eight functional sectors were identified. Two of them with a

tourist and tertiary nature, two tertiary, two residential, one mixed-residential and the other mixed. It was mainly in tertiary areas where tourism planning was developed, constituting the theoretical and practical development of rehabilitation and re-purposing programs of the tertiary and tourism sectors. In this manner, tourist's focus of the first and second categories, the routes connecting them and the areas of influence formed were identified (Fig. 1).

**Figure 1. Foci of first and second category and routes connectors**


*Source: The authors*

## 3. Methodology

The research methodology is based on the use of secondary sources from a review of significant literature. In addition, empirical methods for the collection of information such as direct non-participatory observation were used. The direct observation was selected, since it allows the appreciation of relevant elements for the research without the necessity of an intervention that could bias the situation. This made possible to obtain the information associated with the use visitors make of the main squares linked to tourism. The research was carried out in 4 squares: San Francisco de Asís Square, Old Square, Cathedral Square and Plaza de Armas Square (Fig. 1).

Data were collected taking into account 5 age groups: children (0-9 years), adolescents (10-17 years), youths (18-24 years), adults (25-59 years) and older adults (more than 60 years). The activities carried out by the visitors were classified in three categories: recreational, leisure and rest. Besides, the sex and whether visitors were foreign or domestic were recorded.The months chosen for the field work were February and March of 2015 those of greater influx of visitors according to opinions of the experts consulted from the Office of the Historian of Havana, the local tourism authority. We selected 10 days at random for observation in each square.The connecting axes with the highest flow of visitors and the points of entry of the tourist offers were taken as reference point.

## 4. Results

During the implementation period of the observation guide an overall total of 21,440visitors was quantified, with a prevalence of foreigners (75%) and women (53%). The places with greater affluence are the Plaza de Armas Square with a total of 7,222 visitors and the San Francisco de Asís Square with 6,641 (Fig. 1). The adults between 25 and 59 years (domestic and foreigner) are who mostly consume

the spaces (more than 50%), although there is a significant consumption of adults over 60 years, corresponding to 30% of the visitors (Fig. 2). The fact that 84% of the users of the squares are adults or older adults is an indicative of the need for cultural and recreational offers for a younger audience.

**Figure 2a. Number of visitors in the studied squares**

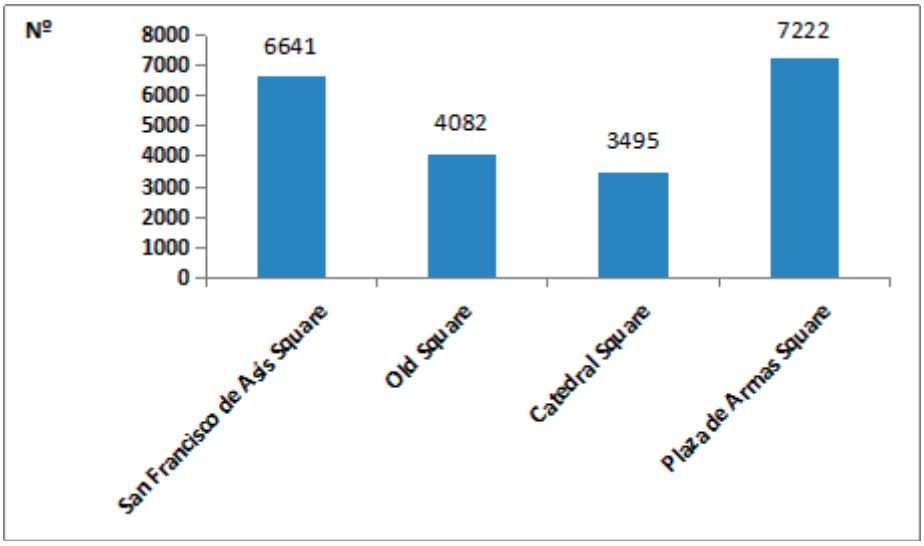
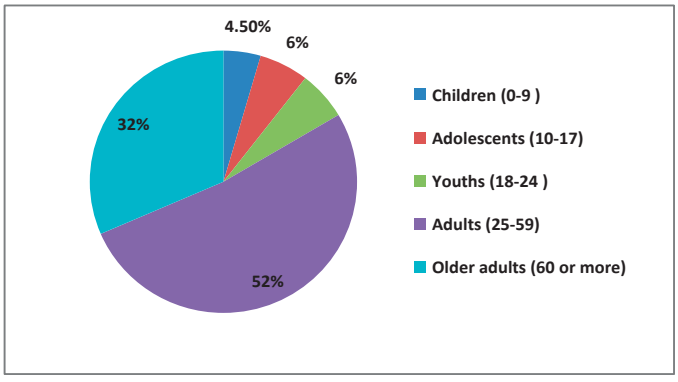



**Figure 2b. Distribution of visitor's age**




*Source: The authors*

During the observation, a considerable volume of groups of tourists were detected in the four places (Fig. 3). Likewise, there are organized tours with national students of primary, secondary and pre-university education. Among the activities that prevail most are taking photos, talking, reading, listening to music, consuming the gastronomic offer, and visiting museums or galleries. In the same way, resting by making use of the public furniture is another use of the squares. However, it should be noted that the squares have very few or no furniture to enable rest. This would be an aspect to be improved in the future, since as previously mentioned the users of the places are mainly adults or older adults.

**Figure 3. Group of visitors in Plaza de Armas Square (left) and Old Square (right)**

*Source: The authors*

Likewise, although it is true that children can be seen playing active games such as football in the squares (Fig. 4) and in the commercial portals, recreational activities are very poorly developed. There are no play activities for young people and the few small playgrounds are underused because they are generally closed. Similarly, there is a significant deficit of sports activity, extremely depressed by the degradation of the image of sports facilities such as Sala Polivalente, Sala Trejo or SalaKidChocolate. In this scenario, public space has become the play area for local children and adolescents, showing the authenticity and uniqueness of the activities being carried out.

**Figure 4. Children playing football in the Old Square**

*Source: The authors*

It was determined that the focus of greater centrality corresponds to the Plaza de Armas Square (Fig.5), leading the centrality of cultural, commercial and gastronomic services. During the field work could be observed tourists buying books or attending book presentations. In addition, new forms of use of space appear as sellers of flowers and souvenirs, women making braids, people making caricatures, troubadours and musical groups and Cuban mulatas with baskets of flowers posing for visitors.Regarding the cultural centrality, after the Plaza de Armas Square the order in importance is as follows: Plaza de San Francisco Square, the Old Square and Catedral Square.

The study allowed to appreciate some differentiation in the use of the squares. In this way, the Plaza de Armas, specializes in the fair of old books, the presentation of books, and the exhibition of works in the perimeter bars of the Castle of the Real Force. For its part, the Catedral Square stands out for the celebration of dinners, special galas, concerts of music, lyric, choirs, theatre and ballet. The Old Square currently has a commercial and service function due to the presence of several shops and restaurants. The San Francisco de Asís Square also has a commercial vocation although to a lesser extent than the Old Square. It is an ideal place for the

celebration of popular fairs of art and crafts, all together with the exhibitions of sculptural works and the performance of concerts of classical music. This is much more diverse than the others even having an administrative character due to the near location to the company Habaguanex and the Commerce Market (Lonja del Comercio).

**Figure 5. Visitors in the Plaza de Armas Square**

*Source: The authors*

In correspondence with this, the predominant function of the main squares system declared in the Plan of Integral Development is the culture, both now and in the future projections. Likewise, the strategic objectives are aimed at increasing the number of activities associated with tourism: culture, gastronomy, specialized trade, recreation and physical culture. However, at the present time in terms of recreation and sport there is no offer of specialized services linked to tourism. There are no party rooms, dancing or discos; there is no other type of activity of youth interest related to active leisure. Similarly, there is no specialized offer for seniors and families. Taking into account this situation, it is necessary to promote activities related to physical culture and health, such as SPAs, gyms, massage and beauty salons, body and relaxation therapy rooms, traditional cuban dance academies, and shows and sports activities in the littoral such as regattas and fishing.

The impulse of new cultural manifestations in public spaces that are being

imposed as part of the urban environment are detonating elements of the functions they are acquiring within the tourist activity of the territory and a way to contribute to exchange between citizens and foreigners. Hence the Office of the Historian of Havana conducts a research process on new popular manifestations that are emerging within the community and could be a complement to the activities carried out in public spaces. Promoting culture as the backbone of local development based on a specific program orientated to the knowledge and enjoyment of culture, such as the aforementioned manifestations, together with important international festivals in public space are priorities of the Office of the Historian of the City. Outdoor plastic arts exhibitions and performance should be increased, making a more intensive use of public spaces for the realization of diverse cultural activities, according to the theme, the public and the schedule.

## 5. Conclusions

The study of the tourist use of the main squares of Old Havana showed that the greater flow of visitors is concentrated in Plaza de ArmasSquare, given its location near one of the most important commercial corridors of the Historical Centre (Obispo Street), and in San Francisco de AsísSquare, taking into account the influence of artistic exhibitions in the square. Besides, although there are common activities (taking photos, talking, reading, listening to music, etc.), there is a diversity in the use visitors make of the squares in study. There were no significant differences in type of visitors, age range, gender and activities performed. However, the greater female presence is in correspondence with the characteristics given on the profile of cultural visitors. Likewise, the majority use of public space by adults over 25 years of age implies a greater economic availability for the consumption of cultural proposals. Nevertheless, more options for younger and children should be promoted to increase the destinations attractiveness for this groups.

Through the analysis carried out in the present research it is evident that the use made by visitors of the main squares linked to tourism in the Historical Centre of Havana are generally in correspondence with the functions and intervention actions reflected in the territorial planning instruments.However, it is necessary to diversify the activities that are currently taking place as they concentrate on taking photographs and other leisure activities both active and passive. Taking into account the lack of recreational and sports services, the current strategies of the Plan of Integral Development should prioritizes the incorporation of specialized facilities in this area, as well as the regulation of visitor flows to maintain a balance between the tourist and residential functions in the historical centre.

## 6.References

BARRERA, D., ARISTA, L. C., AZEVEDO & E. M. (2014). "Tourist use of historic cities: Review of international agreements and literature". *International Humanities Studies*, Vol. 1 (2), 1-11.

CARAVACA I., FERNÁNDEZ V. & SILVA R. (2009). Ciudades, culturas y fronterasen un mundoencambio. *IX Coloquio de Geografía Urbana.* Consejería de ObrasPúblicas y Transportes, Dirección General de Planificación: Sevilla.

LEAL E. (2007). *La Rehabilitación del Centro Histórico: unaobraesencialmentehumana. La Habana.* [Availabel in www.cccb.org/rcs_gene/eusebioleal.pdf].

MASSIANI, J. & SANTORO, G. (2012). "The relevance of the concept of capacity for the management of a tourist destination: theory and application to tourism management". Venice. *RivistaItaliana di Economia Demografia e Statistica*, Vol. LXVI (2), 141-146.

MERCIE, G. (2010). "To Whom does the World Heritage City belong?". In CASTRO, Mª B., LÓPEZ, L. & PIÑEIRA, Mª J. (Cood.). *Processes of Heritage*

*Making in Geographical Space*. Universidad de Santiago de Compostela: Santiago de Compostela. Pp. 161-175.

RODRÍGUEZ NEILA, J. F. (1994). "La intervención en los bienes culturales". In AYUNTAMIENTO DE PRIEGO DE CÓRDOBA E INSTITUTO ANDALUZ DEL PATRIMONIO HISTÓRICO (Eds.). *Patrimonio y Ciudad. Reflexión sobre CentrosHistóricos.* Junta de Andalucía, Consejería de Cultura y Medio Ambiente. Instituto del Patrimonio Histórico: Córdoba. Pp. 67-70.

SALINAS E. & ECHARRI M. (2005). "Turismo y desarrollosostenible: el caso del Centro Histórico de La Habana-Cuba". *Pazos*, Vol. 3 (1), 171-188.

TIMOTHY, D. J. (2011). *Cultural heritage in tourism: an introduction*. Channel view: Bristol.

TROITIÑO VINUESA, M. A. (2003): "La Protección, recuperación y Revitalización funcional de los centros históricos". *ColecciónMediterráneoEconómico "Ciudades, arquitectura y espaciourbano,* Vol. 3, 131-160.

# Lisbon's historic center: a real estate enclave in the periphery of the Eurozone

Iago Lestegás

*Universidade de Santiago de Compostela*

## Abstract

*This paper studies how the interaction between austerity and dependency encourages the commodification of Lisbon's historic center. Dependency theory is adopted as analytical framework to address the subordinate insertion of Portugal in the Eurozone and its detrimental role in unequal international exchange. Applying a case-study methodology, the analysis of socio-economic statistics is combined with 12 structured interviews with relevant stakeholders. We argue that the financial dependency of Portugal and its specialization in tourism as a low-value-added product trigger an outflow of surplus value that perpetuates the country's economic backwardness. We conclude that, being Portugal peripheral and dependent within the EU and the Eurozone, subordinately integrated in global finance and subject to austerity, the gap between actual and potential real estate rents in Lisbon's historic center owes much to the gap between the domestic and the external markets' disposable incomes. As it strangulates the domestic market, the interaction between financial crisis and austerity in a dependent structurally backward economy encourages the sale of valuable assets on the global market — including real estate property. Developers target the external markets with greater incomes and an enclave-type exploitation of the housing stock emerges in Lisbon's historic center to meet a foreign demand based on real estate speculation and the profitability of the short-term rental market. Providing greater returns to investment, the local accommodation business expands and dwellings are removed from the residential market, triggering urban commodification and tourism gentrification as the local population is excluded from housing in Lisbon's historic center and its surroundings.*

## 1. Introduction

Lisbon's historic center is an interesting case for the study of urban commodification in the dependent periphery of the Eurozone due to the combination of two factors. On the one hand, Lisbon is the main city of a semi-peripheral country that joined the European Economic Community (EEC) in 1986 and thus has been a member of the European Union (EU) since 1993. Furthermore, Portugal adopted the euro as soon as it came into circulation in 2002, and experienced a profound process of dependent financialization and modernization until the crisis of 2008. However,

Portugal is one of the countries that have suffered most the impact of the latter, and austerity has been imposed there with special harshness. On the other hand, Lisbon's historic center is worth analyzing because it is experiencing a rapid transformation that, fueled by foreign real estate investment amid a tourism boom, started and developed while the country was subject to austerity under the increasing burden of sovereign debt.

## 2. Methodology

Dependency theory provides a rich theoretical framework to study underdevelopment and peripherality (Borón 2008; Litonjua 2012). Montoya (2009) emphasizes the usefulness of that theory and of its reformulation in world-systems analysis to study the spatial patterns and economic roles of peripheral and semi-peripheral cities under globalization. The study of urbanization is, for this author, closely linked to that of development. Indeed, in the periphery and semi-periphery of the world-economy, the production of space is both function and materialization of foreign interests operating at the global scale (Santos, quoted in Montoya 2009). Despite its underestimation or rejection by hegemonic thinking, dependency theory is useful to grasp the subordinate role of Portugal within the Eurozone and understand the forces driving the commodification of Lisbon's historic center.

The transformation of Lisbon's historic center is an ongoing process that takes place amid the crisis of the periphery of the Eurozone. The case-study methodology has thus been chosen to guide its analysis, since it allows the examination of "[...] an existing, real-life situation in all its complexity, exploring it as close to the people concerned as possible, describing the situation in as much detail as possible, and finally explaining the findings in a clear and comprehensible way." (Kyburz-Graber 2004: 54).

This research combines the analysis of socio-economic statistics with 12

structured interviews with four local government officials, four real estate developers and agents, and four representatives of neighborhood groups and community organizations identified in table 1. All participants were asked between June and September 2016 a common questionnaire addressing the different facets of the ongoing transformation of Lisbon's historic center.

**Table 1. Interview participants**

| **Public Sector** | **Private Sector** | **Civic Sector** |
|---|---|---|
| André Moura<br>Lisbon Tourism Observatory (Coordinator) | Catarina Lopes<br>EastBanc Portugal (General manager) | Inês Andrade<br>Renovate Mouraria (President) |
| Miguel Coelho<br>Parish of Santa Maria Maior (President) | Ernesto Portugal<br>Habitat Invest (Marketing manager) | Rita Silva<br>Habita (President) |
| Paula Marques<br>Lisbon City Council (Councillor for Housing and Local Development) | Nuno Martins<br>ERA Chiado/Lapa (Partner) | Leonor Duarte<br>Citizenship Academy (Member) |
| Pedro Miranda<br>Territorial Intervention Unit of the Historic Center (Senior technician) | Eduardo Miranda<br>Portuguese Local Accommodation Association (President) | Maria de Lurdes Pinheiro<br>Heritage and Population Association of Alfama (President) |

## 3. Theoretical framework

### 3.1 Comparative advantage and unequal exchange

According to the theory elaborated by David Ricardo, territories must specialize in those products in which they enjoy a comparative advantage. International trade, he argued, is positive for any player regardless its role within the world-economy as long as that rule is observed. Instead, the notion of unequal exchange of Arghiri Emmanuel describes the exploitation inherent to the trade of raw materials and low-cost products from the backward periphery for manufactured goods and advanced

services from the core, emphasizing the subsequent drain of peripheral surplus value (Wallerstein 2006). According to Amin (1990), it is this outflow of surplus value towards the core that impedes capital accumulation in peripheral nations, which remain structurally backward and dependent.

### 3.2 Dependency theory and world-systems analysis

Elaborated in Latin America in the sixties and seventies, dependency theory describes a global context in which peripheral economies are conditioned and constrained by the expansion dynamics of the core. Challenging modernization theory, it defines peripheral underdevelopment not as an early stage in a linear path towards development but as the counterpart of the development of the core and the product of the periphery's historical insertion within global capitalism (Dos Santos 2011; Frank 1979). For Litonjua (2012: 32), "[t]he significance of dependency lies in the fact that it constituted an epistemological break in development theory [...]. Dependency continues to be an important point of departure and a methodological guide in the comparative study of poverty and underdevelopment."

World-systems analysis reformulates dependency theory with the capitalist world-economy as its essential element of study. According to Wallerstein (2006), it is the division of labor and the flow of peripheral surplus value towards the core due to unequal exchange that holds the world-economy together. While world-systems analysis coincides with dependency theory in identifying the exploitation of the periphery by the core due to unequal exchange, the former studies the impacts of this relationship not only on the constituent parts but on the world-economy as well (Petras 1981). Furthermore, world-systems analysis introduces the semi-periphery to the description of the international division of labor in the capitalist world-economy. The semi-periphery relieves capital excess at the core, absorbs core activities that become less advanced, and mitigates conflicts between core and periphery (Wallerstein 2006).

### 3.3 Uneven development and the rent gap

According to Harvey (2012), uneven development is the consequence of capital migration towards locations offering greater potential profits. For Smith (2010: 4), "[t]he uneven development of capitalism is structural rather than statistical. […] uneven development is the systematic geographical expression of the contradictions inherent in the very constitution and structure of capital." Brenner and Theodore (2002: 355) argue that "[t]he resultant patterns of core–periphery polarization and socio-spatial inequality exist at all spatial scales; their contours are never inscribed permanently upon the geographical landscape but are continually reworked through capital's dynamic of uneven spatial development […]."

Smith (1996: 83) argues that it is at the urban scale that uneven development becomes more complete. The former is guaranteed in the city, he argues, by the development, underdevelopment, and redevelopment of areas by real estate capital moving free across the urban territory. However, he indicates that "[t]he rhythm and periodicity in an urban economy is closely related to the broader rhythms and periodicity of the national and international economy." According to Smith, the metropolitan core-periphery duality is the most remarkable local manifestation of uneven development. Suburbanization encourages capital accumulation in the metropolitan periphery and capital devalorization and disinvestment in the inner city. It creates the conditions for eventual reinvestments in the latter through the generation of a rent gap, defined as "[...] the disparity between the potential ground rent level and the actual ground rent capitalized under the present land use […]." (p. 65). Gentrification —i.e. the displacement of low-income neighbors by new middle-class inhabitants in devalued central areas under refurbishment— starts when the rent gap is wide enough to encourage investment (Smith 1996).

## 4. Empirical analysis

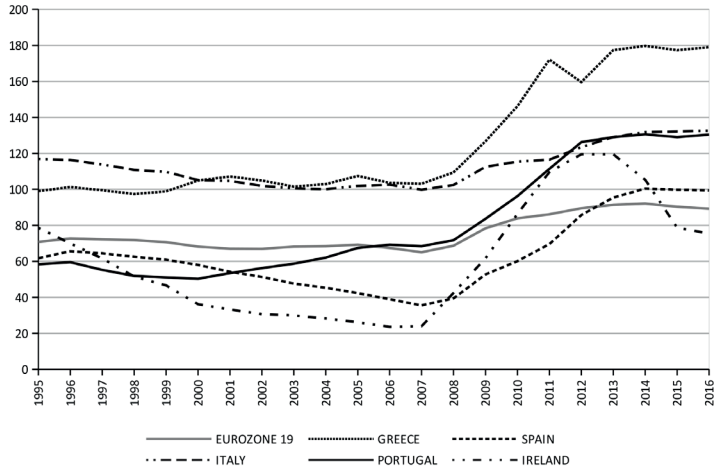
### 4.1 Portuguese peripherality and dependency

I According to Rodrigues and Reis (2012: 192), the European core-periphery divide expanded after 2008 as austerity reduced income and living standards in the periphery. They argue that the European crisis is due to "[…] the macroeconomic imbalances generated by the Euro and the operation of financial capital, as well as the irredeemable interdependencies between public, private, and foreign debts." Similarly, Fujita (2013: 19-20) suggests that the crisis "[...] has revealed the fundamental problems of the EU: democracy, regional gap in income and growth, and internal social inequality".

In the periphery of the Eurozone, the imposition of austerity has been supported by a narrative pointing at allegedly excessive public debts that, as evidenced in figure 1, were not real in Portugal, Spain, and Ireland before 2008. The Portuguese general government gross debt represented 71.7% of the GDP in 2008 —only slightly above the Eurozone-19 average of 68.6%. However, the former expanded significantly after 2008 and reached 130.6% of the GDP in 2014 —far from the Eurozone-19 average of 92% (Eurostat 2017a). Statistical data evidence that, as suggested by Blyth (2015), excessive public debts are not cause but consequence of the crisis in the periphery of the Eurozone.

Portugal is a financially dependent country, peripheral within the EU and the Eurozone and semi-peripheral within the world-economy, subordinately inserted into global finance, and subject to structural adjustment. Modern financial system and consumption habits coexist with a backward economic structure that was not improved by the abundant foreign credit that flowed towards the Portuguese private sector since the mid-nineties. This was absorbed by the non-tradable construction, real estate, and infrastructure sectors that were more protected than manufacturing from international competition under globalization (Rodrigues et al. 2016).

**Figure 1. General government gross debt (% of GDP)**




*Source: Eurostat (2017a)*

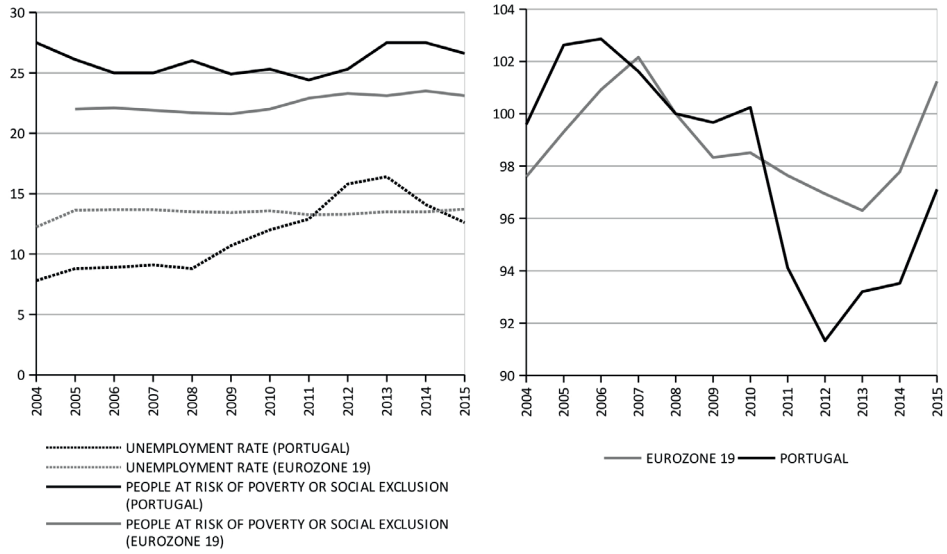
As of 2014, the median hourly earning is 5.12 euro in Portugal —little more than a third of the Eurozone-19 average of 14.08 euro. In France —the country supplying the vast majority of purchasers of real estate in Lisbon's historic center— the median hourly earning is 14.94 euro (Eurostat 2017b). In 2017, the monthly minimum wage is 650 euro in Portugal and 1,480 in France (Eurostat 2017c). The average pension wealth in US dollars is 166 thousand for men and 191 thousand for women in Portugal, while it amounts to 435 and 522 thousand respectively in France (Organisation for Economic Co-operation and Development 2013).

## 4.2 Austerity and impoverishment in Portugal

Crisis and austerity had a severe impact on the Portuguese average income. In a context of economic stagnation and increased dependency within the Eurozone, Rodrigues and Reis (2012) argue that Portugal still suffers high levels of inequality, unemployment, and precariousness. It is against this socio-economic background

that the commodification of Lisbon's historic center and the massive sale of its housing stock at rising prices on the global real estate market are taking place.

**Figure 2. Left: Unemployment rate (% of labor force) and people at risk of poverty or social exclusion (% of total population). Right: Real adjusted gross disposable income of households (per capita in PPS).**




*Source: Left: Eurostat (2017f, 2017d). Right: Eurostat (2017e).*

As shown in figure 2, the percentage of people at risk of poverty or social exclusion increased between 2006 and 2013 in Portugal from 25% to 27.5% of the population (Eurostat 2017d). During that period, the Portuguese unemployment rate doubled from 8.9% to 16.4% of the labor force (Eurostat 2017f). In Lisbon Metropolitan Area (AML), 18.5% of the labor force was unemployed in 2013 (Eurostat 2017g). Meanwhile, the real adjusted gross disposable income of the Portuguese households decreased between 2006 and 2013 from 102.86 to 93.20 per capita in purchasing power standards (PPS), and has remained far below the Eurozone-19 average since 2011 (Eurostat 2017e).

President of the parish council of Santa Maria Maior Miguel Coelho argued that "many saw their incomes decrease brutally [under austerity] due to the government's cuts on benefits, pensions, and subsidies. Purchasing power dropped, people lost their jobs, the middle class lost resources..." Similarly, president of Habita association Rita Silva indicated that austerity increased unemployment and taxes, reduced income, and damaged cohesion, health, and education. President of the Heritage and Population Association of Alfama (APPA) Maria de Lurdes Pinheiro argued that "the EU and the euro were devastating for our economy". According to councillor for Housing and Local Development Paula Marques the EU was an "interesting project" when Portugal joined it, but "what we have now is a great disequilibrium between countries with great productive and financial capacity and countries with less capacity."

### 4.3 From suburban expansion to urban "regeneration" in Lisbon

The financial crisis of 2008 deepened the deceleration of the Portuguese real estate market. The latter had been stimulated by a national policy encouraging suburban home ownership that would trigger the expansion of the built metropolitan area by 14.2% between 2001 and 2011 —despite population having grown by 6% during that term (Seixas et al. 2015). Suburban expansion was paralleled by the sustained abandonment of Lisbon's historic center since the eighties. When the latest national census was elaborated in 2011, 32.4% of the conventional family dwellings in the parish of Santa Maria Maior, 26.8% of those in Misericórdia, 23% of those in Santo António, and 20% of those in São Vicente were empty (Instituto Nacional de Estatística 2016).

Figure 3 shows that, having peaked in Portugal in 2005 and in the AML in 2006, the number of real estate purchase agreements dropped theresince and registered a minimum in 2012. However, between 2012 and 2015 that number increased 22.3% in Portugal and 105.9% in the AML (Instituto Nacional de Estatística 2017a).

**Figure 3. Number of real estate purchase agreements in the AML (left) and Portugal (right)**


*Source: Instituto Nacional de Estatística (2017a)*

Member of Citizenship Academy Leonor Duarte argued that a new real estate boom based on urban regeneration is developing in Lisbon. According to marketing manager of Habitat Invest Ernesto Portugal, "the real estate market is recovering, but the Portuguese economy is still anemic. This is evidenced by the lack of Portuguese customers. We had to turn to foreign markets where there is money, demand, and investment." General manager of EastBanc Portugal Catarina Lopes added that "it makes no sense for us investors to focus on the Portuguese market, because the economy is still very depressed." Councillor for Housing and Local Development Paula Marques explained that "the Portuguese have suffered a great loss of economic and financial capacity. The private initiative responds to demand, but the public sector must promote balance and define limits. Senior technician at Lisbon City Council Pedro Miranda mentioned the dramatic increase of housing prices as "the dark side of regeneration" as locals are priced out of the market by foreign investors and tourists.

According to André Moura, "prices have rosen, of course, but that's the market

law: if something becomes more attractive it automatically becomes more expensive [...]". Meanwhile, the marketing manager of Habitat Invest interpreted the rise of real estate values as a positive trend stimulating a market that used to be stagnant. While he recognized that "access to housing may be more difficult" now, he highlighted that the former supply of degraded dwellings in derelict buildings has been replaced by a high-quality stock of refurbished apartments. President of Renovar a Mouraria association Inês Andrade indicated that private investors retain the benefits of urban regeneration. President of the Portuguese Local Accommodation Association (ALEP) Eduardo Miranda indicated that many purchasers of real estate in Lisbon during the crisis were "gigantic, often foreign real estate funds" that bought groups of properties or entire buildings and waited for the right moment to sell. Now they are doing so on the external market due to the income loss and the lack of access to credit of the Portuguese middle class after 2008.

### 4.4 The real estate enclave

The average value of traded dwellings was 26% higher in 2015 than in 2011 in Lisbon —and 18.2% higher in Portugal as a whole (Instituto Nacional de Estatística 2017b). In Lisbon's historic center, the average housing price rose 22.3% only in 2015. A total of 2,199 sales worth 709 million euro were registered that year in that territory —11% and 37% more respectively than in 2014 (Confidencial Imobiliário 2016). This dramatic increase of housing prices is fueled by a booming tourism, an expanding short-term rental market, and a substantial foreign real estate investment encouraged by a legal and fiscal framework that was implemented amid crisis to attract capital towards the Portuguese economy. With few or no valuable raw materials to place by Portugal on the world market, it is Lisbon's real estate stock as a "spatially embedded commodity" (Weber 2002: 521) that enters the global sphere of capital circulation and accumulation when purchased by transnational investors.

*Lisbon's historic center*

Urban regeneration explains the new dynamism of the Portuguese real estate sector, "[...] owing to greater demand from international investors, fuelled by the potential of tourism and the international public's growing interest in high and medium-high quality housing products." (Cushman & Wakefield 2016: 14). New developments target the upper-middle and premium markets on which foreign investors and wealthy Portuguese operate —particularly the short-term rental market of tourist apartments as it provides greater returns to investment than the conventional residential one (JLL Research 2016). Ernesto Portugal indicated that "there has been a general sustained growth and I believe this trend will continue in the next years, because we're still far from the values of other European capitals". Partner at ERA Chiado/Lapa Nuno Martins indicated that the average property price in Lisbon's most premium areas is "very high for the national reality, it's brutal, but there's a small percentage of the population with lots of capital who can afford it." For Eduardo Miranda, Lisbon's real estate prices are not compatible with the domestic market but still have margin to increase on the external one.

In Lisbon's historic center, the international rent gap generated by the great difference between the domestic and external markets' disposable incomes adds to a remarkable local rent gap. The latter was triggered by decades of abandonment, depopulation, and low rents paid by tenants with contracts previous to 1990 until the liberalization of the Portuguese lease market in 2012. Encouraged by new online booking platforms such as Airbnb and by an advantageous fiscal framework, the local accommodation business expands in Lisbon's historic center and housing supply for permanent residence drops. In fact, the ongoing regeneration of Lisbon's historic center is failing to stop its depopulation. Between January 2002 and December 2015, the parish of Santa Maria Maior lost 32.8% of its registered voters, Misericórdia lost 30.3%, São Vicente lost 23.6%, and Santo António lost 22.1%. During that period, the municipality as a whole lost 11.5% of its registered voters while the AML gained 7.5% (Ministério da Administração Interna 2016).

## 5. Conclusions

The financial dependency of Portugal and the unequal exchange of tourism and other low-value-added products for manufactured goods and advanced services from the core trigger a sustained outflow of surplus value that perpetuates the country's structural economic backwardness. In Lisbon's historic center, the corollary of this economic specialization according to a detrimental international division of labor is the mass sale of its housing stock on the global real estate market and the rapid commodification of the city at the hands of transnational capital.

Until 2008, suburbanization generated disinvestment in Lisbon's historic center and materialized in the emergence of a wide rent gap in that urban area. However, the credit crunch due to the global financial crisis would trigger the collapse of the model of suburban expansion and encourage real estate investors to purchase cheap properties in the historic center, shifting from suburban development to urban regeneration.

Being Portugal peripheral and dependent within the EU and the Eurozone, subordinately integrated in global finance and subject to austerity, the gap between actual and potential real estate rents in Lisbon's historic center owes much to the gap between the domestic and the external markets' disposable incomes. This difference expanded after 2008 and most dramatically between 2010 and 2012 while Portugal was subject to strict austerity and conditionality. As it strangulates the domestic market, the interaction between financial crisis and neoliberal adjustment in a dependent structurally backward economy encourages the sale of valuable assets on the global market —including real estate property. Developers target the external markets on which disposable income is greater and a real estate enclave emerges in Lisbon's historic center.

Detached from the local and national socio-economic dynamics, the enclave-type exploitation of the housing stock of Lisbon's historic center responds to

an external demand based on real estate speculation and the profitability of the short-term rental market of tourist apartments. Properties are purchased by global investors at rising prices that are out of most of the locals' reach in a context of general impoverishment and financial dependency. Providing greater returns to investment, the local accommodation business expands and dwellings are removed from the conventional residential market. Urban commodification and tourism gentrification emerge as the local resident population —whatever its nationality— is excluded from housing in Lisbon's historic center and its surroundings.

## 6. References

AMIN, S. (1990). "Colonialism and the rise of capitalism: a comment". *Science and Society*, Vol. 54(1), 67-72.

BLYTH, M. (2015). *Austerity: the history of a dangerous idea.* New York: Oxford University Press.

BRENNER, N. & THEODORE, N. (2002). "Cities and the geographies of actually existing neoliberalism". *Antipode*, Vol. 34(3), 349-379.

BORÓN, A. (2008). "Teoría(s) de la dependencia". *Realidad Económica*, Vol. 238, 20-43.

CONFIDENCIAL IMOBILIÁRIO (2016). Imobiliário no centro histórico de Lisboa valoriza 22,3% em 2015. [Available in http://www.confidencialimobiliario.com/? q=content/press-release-imobiliario-no-centro-historico-de-lisboa-valoriza-223- em-2015]

CUSHMAN & WAKEFIELD (2016). *Marketbeat Portugal Spring 2016.* [Available in www.cushmanwakefield.pt/en-gb/research-and-insight/2016/marketbeat-portugal-spring-2016/]

DOS SANTOS, T. (2011). *Imperialismo y dependencia.* Caracas: Biblioteca Ayacucho.

EUROSTAT (2017a). *General government gross debt.* [Available in http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tsdde410&plugin=1]

EUROSTAT (2017b). *Median hourly earnings, all employees* (excluding apprentices) by sex [Available in http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=earn_ses_pub2s&lang=en]

EUROSTAT (2017c). *Monthly minimum wages* - bi-annual data. [Available in http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=earn_mw_cur&lang=en]

EUROSTAT (2017d). *People at risk of poverty or social exclusion*. [Available in http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&pcode=tsdsc100&language=en]

EUROSTAT (2017e). *Real adjusted gross disposable income of households - per capita in PPS* (index = 2008). [Available in http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&pcode=tepsr_wc310&language=en]

EUROSTAT (2017f). *Unemployment rate – annual data.* [Available in http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&pcode=tipsun20&language=en]

EUROSTAT (2017g). *Unemployment rates by sex, age and metropolitan regions.* [Available in http://ec.europa.eu/eurostat/web/products-datasets/-/met_lfu3rt]

FRANK, A. G. (1979). *Dependent accumulation and underdevelopment.* New York: Monthly Review Press.

HARVEY, D. (2012). *Rebel cities: from the right to the city to the urban revolu-*

*tion*. London: Verso.

INSTITUTO NACIONAL DE ESTATÍSTICA (2017a). *Contratos de compra e venda (N.º) de prédios por localização geográfica (NUTS - 2013) e tipo de prédio, anual.* [Available in https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0008649&contexto=bd&selTab=tab2]

INSTITUTO NACIONAL DE ESTATÍSTICA (2017b). *Valor médio dos prédios transaccionados (€/N.º) por localização geográfica (NUTS – 2013) e tipo de prédio, annual.* [Available in https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0008649&contexto=bd&selTab=tab2]

INSTITUTO NACIONAL DE ESTATÍSTICA (2016). *Proporção de alojamentos familiares clássicos vagos (%) por localização geográfica. [*Available in https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0006987&contexto=bd&selTab=tab2]

JLL RESEARCH (2016). *Residential market: unrivaled dynamics. [*Available in http://www.jll.pt/portugal/en-gb/research/residential-market-unrivalled-dynamics]

KYBURZ-GRABER, R. (2004). "Does case-study methodology lack rigour? The need for quality criteria for sound case-study research, as illustrated by a recent case in secondary and higher education". *Environmental Education Research,* Vol. 10 (1), 53-65.

LITONJUA, M. D. (2012). "Third World/Global South: from modernization, to dependency/liberation, to postdevelopment". *Journal of Third World Studies,* Vol. 29 (1), 25-56.

MADDEN, D. & MARCUSE, P. (2016). *In defense of housing: the politics of crisis.* London: Verso.

MINISTÉRIO DA ADMINISTRAÇÃO INTERNA (2016). *Recenseamento eleitoral.* [Available in http://www.sg.mai.gov.pt/AdministracaoEleitoral/RecenseamentoEleitoral/ResultadosRecenseamento/Paginas/default.aspx]

MONTOYA, J. W. (2009). "Globalización, dependencia y urbanización: la transformación reciente de la red de ciudades de América Latina". *Revista de Geografía Norte Grande,* Vol. 44, 5-27.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (2013). P*ensions at a glance 2013: OECD and G20 indicators.* Paris: OECD Publishing.

PETRAS, J. (1981). "Dependency and world system theory: a critique and new directions". *Latin American Perspectives,* Vol. 8(3/4), 148-155.

RODRIGUES, J., & REIS, J. (2012). "The asymmetries of European integration and the crisis of capitalism in Portugal". *Competition and Change,* Vol. 16(3), 188-205.

RODRIGUES, J., SANTOS, A. C. & TELES, N. (2016). *A financeirização do capitalismo em Portugal.* Coimbra: Conjuntura Actual Editora.

SEIXAS, J., TULUMELLO, S., CORVELO, S. & DRAGO, A. (2015). "Dinâmicas sociogeográficas e políticas na Área Metropolitana de Lisboa em tempos de crise e de austeridade". *Cadernos Metrópole,* Vol. 17(34), 371-399.

SMITH, N. (1996). *The new urban frontier: gentrification and the revanchist city.* New York: Routledge.

SMITH, N. (2010). *Uneven development: nature, capital, and the production of space.* London: Verso.

WALLERSTEIN, I. (2006). *World-systems analysis: an introduction.* Durham: Duke University Press.

WEBER, R. (2002). "Extracting value from the city: neoliberalism and urban re-development". Antipode, Vol. 34(3), 519-540.

# The Lebanese Silicon Valley : Beirut Digital District (BDD). From creativy to innovation

Liliane Buccianti-Barakat

*Saint-Joseph University of Beirut*

## Abstract

*The countries able to invent, innovate and quickly assimilate technological advances have expanded rapidly these last years. Arab countries of the South and East coasts of the Mediterranean Sea, although displaying a variety of economies, have been very similar in their relation to research and innovation. The pro-growth initiatives of Lebanon's Central Bank, with investment from the UK and venture capitalists are positioning Beirut as the future "Silicon Valley of the Middle East". Beirut now seeks to take the lead and capitalise on this transnational cultural shift to tech sector growth. The City could see major shifts in the next few decades in the direction of high-tech industry. The forerunner is Berytech, created by Saint-Joseph University in 2001. It was the first technological pole in Lebanon and the region that provides a conducive environment for the creation and development of innovating starts-ups, hence taking part in the economic revival of the country, participating in wealth and job creation and retaining graduates and hi-level skills. To date, Berytech has housed more than 170 entities and launched in 2012 the Beirut Digital District (BDD). The question is: Will BDD be a success story over the next few years ? Because Beirut's tech future still has many unanswered questions because of the region's political instability and Internet capabilities.*

## 1. Introduction

The wave of revolts that swept the Middle East in 2011, introduced many in the region, to the power of the internet, and led to an exponential rise in internet access. Across the Middle East, young men and women have created new products, started new companies and inspired hopeful talk of replicating the start-up scenes in America and Europe. These entrepreneurs are a potential boon to the region's economies, which suffer from slow growth and high unemployment, especially among the young.

Unknown to most American investors, a quiet tech revolution is building in the Middle East. Beirut's economy could see major shifts in the next few decades, according to Lebanon's Central Bank, which has committed millions of dollars for tech growth in the city.

A recent report by CNN, labelled Beirut as a "resilient, transformation city" with a culture of freedom and diversity which could serve as a solid base for the Middle East's growing on-line revolution : » this "Beast of the Middle East" is gradually inching its way towards a seat at the big kids' table – and closer to the current leader of the pack… Silicon Valley. »

The growth is partly as a result of the Beirut Digital District (BDD), launched in September 2012 as a tech incubator for startups and existing nontraditional digital businesses. International tech investors are adding projects in Beirut — in hopes of establishing an up-and-coming tech hub for the MENA region.

But before, what about innovation sector in emerging countries?

## 2. Innovation in Emerging Countries

Social Entrepreneurship and innovation are being promoted as important drivers of economic and social progress in the latest global discussions and forums.

Culture and creativity are inter-related and key components of any society's well-being, as they have tremendous impact on economic growth and human development.

There is a large body of empirical literature available on determinants of innovation in the context of developing countries. The relationship between innovation and firm size or not, has been investigated in many countries: Turkey, Argentina, Brazil, Czech Republic, Sri Lanka…

The inconclusive results justify the inclusion of many control variables in order to obtain robust results on the effect of size and competition on innovation capacity of the firms. Such, is the case of the average education, level of production workers, export intensity and market structure.

Arab countries of the South and East coasts of the Mediterranean sea, although displaying a variety of economies, have been very similar in their relation to research and innovation: they are rather low performing industries, mainly based on traditional products with low added value, such as textiles and agri-food, plagued with very basic and infrastructural problems that divert the attention of entrepreneurs, mainly focused in resolving production problems and solution, rather than investing in innovative activities.

Nonetheless, this situation is changing thanks to a large variety of policies designed to foster research and innovation, implemented during the past decade (Arvanitis, M'henni, 2010). A number of innovation and creative activities have been launched in many countries: EAU, Qatar, Tunisia, Morocco, Egypt, and recently in Lebanon.

## 3. The Lebanese context

Lebanon is a small-sized economy, with an estimated population of 4 million inhabitants. It is usually assumed that the economy is mainly driven by services such as banking and tourism representing 75.8% of GDP (Gross Domestic product). Industry represents 19.7% of GDP, thus making it a rather non-negligible economic sector, in contrast with the usually belief, that Lebanon has no industry.

The main problem of the country is the political instability both internally and externally, due to the war in Syria (2012) and Iraq, that translates in a very high number of refugees (almost 2 million) and political insecurity concerning the future. Prior to the so-called "Arab spring", Lebanon experienced a rather

strong economic growth reaching 8.5% in 2009. Since 2012, economic growth has substantially dropped, reaching 1.5% in 2011 and 1% in 2016.

Lebanon has a small but diverse and fragmented Science & Technology community embedded in 56 universities and higher education institutions and 5 rather small public research centers. All indicators (publication output, research budget, number of active researchers, etc.), show that most of the research is mainly carried out, in five universities:

- Lebanese University (UL), the only public university in the country
- American University of Beirut (AUB),
- Université St-Joseph (USJ),
- Lebanese-American University (LAU)
- and Balamand University (UB).

Moreover, research is quite active, with strong and increasing collaborations, mainly with European Union and a variety of international organizations such as the World Bank, many United Nations organizations (ESCWA, UNDP, UNIDO, UNRWA, UNESCO) as well as a large number of foreign foundations. There are also an increasing number of small private research institutes, often NGOs that carry out studies. They very frequently use the services of university staff and their students (Hanafi, 2011). In recent years, partnerships have focused in particular on innovation and computer science.

Lebanon is a very active entrepreneurial country, with numerous experiences to support an “entrepreneurship ecosystem”, in particular because of post-civil war and persistent political difficulties that translate in high emigration and instability in the region.

So, in order to provide some support to young graduates, and also trying to attract foreign investment, the Lebanese government created an "Investment Development Authority Lebanon" (IDAL), seeking to enhance entrepreneurship through tax incentives, administrative reforms and the support of the incubators.

## 4. A Business incubator : BERYTECH

The forerunner is Berytech, created by Saint-Joseph University in 2001, on the Science & Technology campus. It was the first technological pole in Lebanon and the region, that provides a conducive environment for the creation and development of innovating starts-ups, hence taking part in the economic revival of the country, participating in wealth and job creation and retaining graduates and hi-level skills.

**Figure 1: Berytech Logo**


*Source Berytech website*

In 2006, it was the first in the region to receive the EU accreditation as a « Business Innovation Center » (EU BIC label), opening up access to its companies to international networks. Encouraged by this recognition, Berytech grew to a second technology pole one in 2007, and to a third center in 2013.

In 2008, the first 6M$ venture capital fund for Lebanese technology startups, was funded. Berytech Fund's mission is to invest in early growth Lebanese companies whose business is in almost any field, in exchange for equity ownership. With over 51M$ under management in 2017, the Fund focuses on technology companies (and others) in Lebanon with proven commercial viability.

Several entrepreneurial activities are managed by Berytech: Incubation Awards, entrepreneurship contests, summer schools & regional academies for entrepreneurs, "from idea to startup" courses to engineers, Micro-entreprise Acceleration Programs, university roadshows, local & international exhibitions & workshops, Entrepreneurs Forums, startup-weekends, mentoring programs, networking events, lunch-debates with key stakeholders, etc.

In 2012, and with the support of the EU, Berytech launched the Beirut Creative Cluster (called now the Beirut Digital Disrict – BDD), grouping more than 30 leading companies in the multimedia industry, and received the European Bronze Label for « Cluster Management Excellence ». Other business incubators of smaller size and less successful, have been created in the North of Lebanon (BIAT in Tripoli), and in the South (Southbic in Saida).

To date, Berytech has housed more than 170 entities, assisted more than 2000 entrepreneurs in several outreach programs, disbursed more than US$ 350000 in grants to start-ups, and invested more than US$ 5 million in Lebanese technology companies.

It's interesting to note that all the initiatives in favor of this business sector have been supported by private institutions and mostly by a variety of academic non-for profit institutions, which is a Lebanese asset. Such is the case of Saint-Joseph University (USJ) that housed and supported the creation of Berytech.

## 5. Could Beirut become the Silicon Valley of the Middle East?

Over the past three years, to halt the brain drain and boost local employment, whilst recognizing the need to fuel a knowledge-based economy, Lebanon's Central Bank (BDL) introduced Circular 331 to inject $600 million dollars in the Lebanese entrepreneurship ecosystem. Since, Beirut has begun to emerge as a regional tech powerhouse in MENA (Middle East and North Africa) – with greater access to funding, government support and a growing number of accelerators and incubators.

Being one of the most liberal states in the MENA region, Lebanon has everything it needs: a highly entrepreneurial culture, experienced incubators and accelerators, venture capital, favourable government policy and access to growth funding.

But we should not ignore that the rise of the local startup ecosystem is not only supported by its relatively liberal culture, its multi-language society and its reputation as a cultural engine of the Middle East. Lebanon has also one of the best educational sectors in the Arab World, as said before, with many universities and tech campuses.

According to Middle East online, the Arabnet report identified three sectors for growth in Lebanon:

- Financial technology;
- The well-being sector;
- And the retail visualization sector, which re-imagines consumers' shopping experiences via new channels of purchasing, such as e-commerce

The report indicates that Lebanon is now in second place regionally, after the United Arab Emirates, for the number and value of investments in its tech sector.

## 5.1 The Beirut hub

As Beirut builds on those prospects, UK officials helped the momentum by launching a new project in cooperation with Lebanon's Central Bank. Named "The UK-Lebanon Tech Hub", it is aimed at supporting the growth of the knowledge economy in Lebanon. The UK government has opened a new office for Lebanese tech entrepreneurs in London. The "Tech Hub" office is meant to allow Lebanese entrepreneurs to use the UK as a springboard for tech growth.

*"For thousands of years Lebanon has had a reputation for trading and entrepreneurship. Despite tough conditions in the region, this spirit is evident in the new generation of entrepreneurs that are developing the country's tech scene" said Colm Reilly, (CEO of the UK-Lebanon Tech Hub).*

The pro-growth initiatives of Lebanon's Central Bank, with investment from the UK and venture capitalists are positioning Beirut as the future "Silicon Valley of the Middle East". Beirut now seeks to take the lead and capitalise on this transnational cultural shift to tech sector growth.

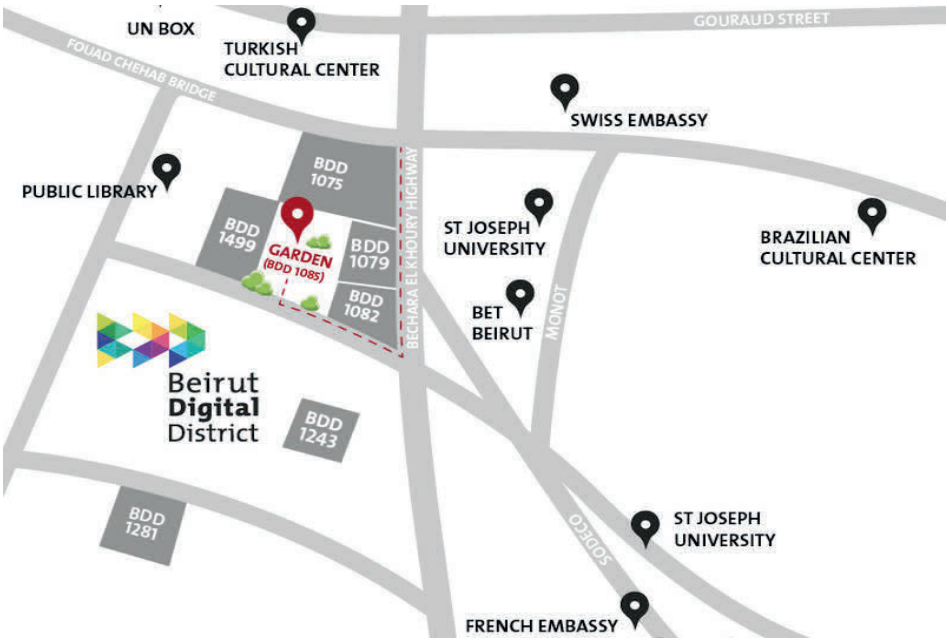
Beirut is using its culture of freedom, its diversity, its low-cost high living standards and its location to its advantage in the Arab region attracting a number of successful entrepreneurs generating new startups at a lively rate. Furthermore, the wider ecosystem is also buzzing with accelerators and events such as Co-Working 961, Startup Bootcamp, Startup Megaphone, SETT, Speed Lebanon ..

## 5.1 The Beirut hub

In line with its vision to grow and support a higher number of Startups and SMEs (small and medium size enterprises), Berytech initiated with the Ministry of Telecommunications Beirut Digital District area (BDD), in 2012.

The project is located in the Bachoura district in the center of Beirut City. Its development has been separated into 4 phases. The first one was completed in 2016: the total area nowadays is 17,500 square meters.

**Figure 2: BDD location**




*Source BDD website*

It is meant to become the center for Incubator/Accelerator Parks designed to host ICT startups and Commercial established ICT companies… When joining the park, a selection process applies to all community members focusing on gathering like-minded people, open for collaboration and presenting viable technology innovations.

Berytech Digital Park (BDD) is attracting a dynamic and growing community of resident entrepreneurs, that benefit from a shared infrastructure, high-tech environment, advanced office structures, learning environment, customized services, visibility, common spaces and networking in addition to business support programs tailored to their needs, and access to funding and expertise.

**Table 1: Due completion of BDD**

| Phase | Year of completion | Area surface | Dedicated to |
|---|---|---|---|
| **A** | 2016 | 17,500 sq. | Office spaces |
| **B** | 2020 | 44,500 sq. | Office spaces |
| **C** | 2025 | 84,000 sq. | Office spaces + residential units |
| **D** | 2030 | 150,000 sq. | Multiple offices + residential units |

### 5.3 Some success stories

For example…

- Startup Lifesense: cardiodiagnostic by Ziad Sankari – reinventig cardiac care
- 209 Lebanese Wine
- Falafel Games
- Wamda network : Mynurse
- Startup Myki

## 6. Conclusion: Challenges ahead

*"Beirut is rapidly shaping up to be a powerhouse for startups in the Middle East. It has many of the key elements: a highly entrepreneurial culture, incubators and accelerators, venture capital, some gradually favourable government policy, and access to growth funding," said Mike Butcher, editor of Tech Crunch.*

A database compiled by Arabnet, indicates that Lebanon is now in second place regionally, after the United Arab Emirates, for the number and value of investments in its tech sector. It also has nearly 200 startups.

The question is: Will BDD be a success story over the next few years ?

Because Beirut's tech future still has many unanswered questions:

Stakeholders in various studies have identified considerable and persistent obstacles to innovation:

- Weakly enforced intellectual property;
- A limited market;
- Meager training on innovation;
- and Internet capabilities.

What is absolutely certain is:

- A lack of institutional innovation: banks and other financing institutions are especially seen to be conservative ;
- Lack of institutional support and infrastructures by the state;
- And a very unstable and rapidly changing market to which firms need to adapt.

The region's political instability :

- the threat of the Islamic State group persists,
- Hizbollah's involvement in the war in Syria
- and the lebanese army fighting against groups of islamists on the borders with Syria.

If Lebanon manages to survive the spillover from the war in Syria and Iraq and develop its political institutions and infrastructure, this brand newcomer to the international hish tech scene will compete with the other arab countries of

the MENA region and with the Israeli Silicon Wadi (Wadi is an arabic word for « valley »).

# Place and play in contemporary China and Brazil

Elena Kilina

*Universidade Estadual de Campinas*

## Abstract

*This paper is concerned two main points: public place and state of play (leisure) as an interaction in terms of case of Brazil and China. Public spaces are public goods even before the process of urbanization. Furthermore, it strives to provide a contrast between China and Brazil about the questions of public place, interaction between space and people in terms of state of play. The idea constraints on public space and class stratification are "loss of habitat" for the democratizing social effects of free play between adult strange. How do new unplanned public places and planned interactions in those spaces coexist in Brazilian megapolices? How a phenomenon of public leisure in Chinese art hubs zones acts as a re-emergence of interactions? The idea of play does a particularly interesting base for analyzing the use of public space; activities for utility the place to create a common sense and everyday "good shape". The State of Play is the use of a public built space for activities other than those for which the space was designed; specifically social interaction, communication and leisure. The State of Play also signifies manners of interaction, games or public ceremony conditioned by or arising out of a utilitarian public space.*

## 1. Introduction

This paper is concerned two main points: public place and state of play (leisure) as an interaction in terms of case of Brazil and China. Public spaces are public goods even before the process of urbanization. Furthermore, it strives to provide a contrast between China and Brazil about the questions of public place, interaction between space and people in terms of state of play. The idea constraints on public space and class stratification are "loss of habitat" for the democratizing social effects of free play between adult strange.

How do new unplanned public places and planned interactions co-exist in Brazilian megapolices? How a phenomenon of public leisure in Chinese art hubs zones acts as a re-emergence of interactions? The idea of play does a particularly

interesting base for analysing the use of public space; activities for utility the place to create a common sense and everyday "good shape" (Simmel, 1950).

## 2. The main research question

The main objects of the research are public spaces (parks, public squares) and interactions between place and people. I intend to make some generalizations comparing types of public space where people "play" with account and equalize for climate, transportation culture infrastructure and urbanization in Sao Paulo and Shanghai. The main research questions are what influence does spontaneous play have on public place? What level of special dynamics of public places is shaped by the interaction of play?

The State of Play is the use of a public built space for activities other than those for which the space was designed; specifically social interaction, communication and leisure. The State of Play also signifies manners of interaction, games or public ceremony conditioned by or arising out of a utilitarian public space.

"Summing up the formal characteristic of play, we might call it a free activity standing quite consciously outside 'ordinary' life as being 'not serious' but at the same time absorbing the player intensely and utterly. It is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner. It promotes the formation of social groupings that tend to surround themselves with secrecy and to stress the difference from the common world by disguise or other means" (J. Huizinga: "Homo Ludens", 1955).

According to Huizinga the idea of play that all these phenomena individually and collectively can be understood through a single cognitive construct of "play" (sub specie ludi), and accordingly, contains some inherent structure corresponding to this construct. He approaches to the determination of the structural nature of the

"play" as the category of "representation", allocated as a universal (paradigmatic) construct culture. Anticipating the observation of subsequent chapters, we note that the notion of "representation" clearly emerges the idea of "reflection" and special psycho-physical state of "pleasure", "disinterested pleasure", etc (ibid, 1955). In this context, the term "representation" can easily be reinterpreted in other categories, trying to grasp certain concepts using the same construct the essential.

The big city needs to cultivate "micro plazas" to solve the possible problems in countries of 'no place to play'. As I assume the "problematic" point is the lack of play space available for free integrated interaction between various groups.

**Figure 1. (Parque Minhocão) Sao Paulo case**

The great discussion at the moment is not between maintenance as an highway and park, the polarization is between the group of activists who believe in the re-signification and reuse of Minhocão as an exclusive area for pedestrians and the group of demolition that believes that the best solution for All the problems of the place would be the return to an idealized city of the past. During the periods that works as a Park, the Minhocão is used for sports (such as racing, soccer, cycling, skateboarding), yoga, leisure (walking with dogs, hiking), public demonstrations, educational actions and projects, community gatherings, Bookshops, food trucks, art collectives, fashion productions, music, theater and video projections and book launches (including my "A Viaduct Called Minhocão").

Cristina Gossmann notes in 1960, São Paulo was a modest town of about two to three million people, but the movement has been a problem even then (Gossman, 2012). Then-Mayor Paulo Maluf proposed corridor movement that literally raises the issue: increased a highway. In 1969, it was the largest project of reinforced concrete in all Latin America.

Minhocão is an example of this urban phenomenon, which is considered in the context of the public space of São Paulo, as the urban construction without the involvement of residents of surrounding areas. Such an urban planning gave a result of this temporary transformation from the highway into the interactive and recreational space for thousands of paulistanas, who assigned this place as an informal and spontaneous. The devaluation and deterioration of properties bordering Minhocão was immediate and still without improvements for living spaces around. The big city needs to cultivate "micro spaces" to solve the possible problem in Brazil of 'no place to play'.

Social inequality is probably the most apparent characteristic for public places in Brazilian cities. But in recent decades inequality, public values and relationships between spaces and people are changed significantly. Some leisure activities

include cultural expression and mobility and circulation of young people besides of their houses, in spaces which are more open and where social interactions are more complex.

IBASE / Polis (2006) shows young people face difficulties in gaining access to culturally-oriented recreation, precisely because most of them live in areas where there is a lack of "space dedicated to culture and recreation", they condemn the "concentration of cultural facilities in urban areas inhabited by people with more purchasing power " lack of support or sponsorship, capable of reducing the costs of "cultural and leisure activities, in addition to "the lack of public safety". The ability to use space and time for rest increases to become independent (Souza, 2009), to interact in public places and return home safely. In this sense, leisure, conducted in the context of urban mobility is important for society and in the formation of utility of public places.

**Figure 2. Creative industrial zone "Redtown" Shanghai anti-case**

At the local, regional, national and global context, space is not an empty element, but is complicated mixture of social and public relations and meanings. Modern urban situation is full of spatial dilemmas and variety of leisure choice in it. We are facing the impact of the ever-increasing inequality of income and wealth, as well as the evolution of the multi-ethnic and multicultural city, where aging society becomes dependent. The growth of urbanization and urban growth due to the housing market and local politics makes a utility of the public place as an important question. The space (small) as the place for activities and interaction is luxury even for the middle classes.

Spacious zones and people doing "activities in a space that was not intended to be a park? And designed only for a walk after museum visit? A lot of low middle class picnicking, teen couples courting and skateboarding on the grounds or special areas like in front of Long Museum- new private space in Shanghai. Redtown remains of the old Shanghai No. 10 Steel factory in Hongqiao now houses the Shanghai Sculpture exhibition hall and a collection of cafes, art studios and offices related to design and art. Pitched as a "creative zone," it has become popular with families and weekenders who come to picnic among the freestanding sculptures in the grassy central areas (Redtown, Ten years, p.55). This is the example of leisure in a frame of commercial art and design public space surrounded by private buildings, where so –called "free play" demonstrates the utility of these space by visitors and locals who live there. What unintended uses does Redtown have? A geographic landmark, a portal from one street to another, a place to walk dogs, a party site for party members? Did Chinese real estate companies use the "gallery" spaces for storing stationary? I suppose I could contrast the Brazilian site and Redtown and try to identify some factors regarding why one "works" for play and one doesn't. Redtown can be defined as "The Still-Birth of an Incubator" basically looking at the site and the surroundings and identifies reasons why it does not work as a planned arts hub and all the reasons it never worked as a site of play.

## 3. Methodology

I am producing a document, together with several informants. Methods include interviews (recorded in Chinese and in Portuguese and transcribed in English), participation, observation and translation. Interviews are done with experts about the targeted spaces and the visitors (users of the space) about their relations to the public place, how active is interactive, what that dynamics of the play, their environment. The difficulty of doing ethnography in the space such as Redtown which is art creative zone which is going to be torn down, is that they want to continue their work/leisure and you want to ask them questions about the problems of "no place to play" or "art zones public failure". I listen and observe conversations and transactions. The work requires what anthropologists call "tacking" between smaller questions for informants and larger questions for analysis (Glaser, 55). The concrete and the abstract. And the space in between? Ruth Behar refers to it as heartbreak (Behar 1996), Clifford Geertz as a missing genre (Geertz 1989). I am interested in how people make place and what they relate to it; here the place is constructed by interactions, different activities, through a particular kind of labor.

This research builds on the conversation about the relationship between space and people, especially with the introduction of state of play/interactions, or the anthropology of the place (Fox, 78). Also it is expected to present the qualitative conclusions about the main research question, data of statistic and interactive map of visual findings in localities with anthropological/ethnographic analysis. The following to case of geographical focus and visual methods of study the research is intended to build a urban-anthropological map of interactive photographs (optionally videos) with analysis of interaction between public place and people co-existing there.

Methodology – is at this stage predominantly observational, phenomenological developing case studies to do the observable to test that there are phenomena and

doing comparative analysis when it's obvious that there is something to compare with. Through observation we describe the dynamics. Tacking (Glaser 55) is there any correlation with observable phenomena and the dynamics that are occurring. Key is understanding the space between "the relationships" of people and what they are using as a "space" to operate and act in.

## 4. Preliminary results

Thus, I assume that main problem is no place to play or fewer places to play. In the face of restrictions on public and undefined space -- what are some personal improvisations carving out "free-play public space" from private property or zones that have never been considered for leisure in the past. The problem is the economic and political tendency to regiment (or mediate) all activity in public space (for example China's sudden need to regulate public square dancing) or the elite profit motive imposing a shopping or TV mediated lifestyle...everywhere people gather. Also--free public space or 'play space' is not the same as "green space" – free play needs to happen where people meet by chance in the city, it cannot be designated by planners or ghettoized in sectors -- it is not something is commuted to (like a stadium.)

In case of China Shanghai has many parks that operate as squares in terms of leisure activities and people' interactions within the space. The main contradiction is restrictions in pubic places (limitations for geriatric dancing for example), while in Brazil this problem reflects the use of public place in general. In China the problem is runaway development eliminating little spaces -- indeed little neighbourhoods and in Brazil, for example, Sao Paulo needs not to integrate but to fragment with small spaces. What is the correlation between obsolescence and free play in planned public spaces?

We can call Redtown as Shanghai chosen space as an anti-case because it

underlines an obsolescence describing the current situation of this site. What people were doing in the sculpture garden that had nothing to do with the sculpture--also how the site was a passage from one area to another. Redtown is currently "falling apart" which enables people to "play" there. Minhocao as a new space with planned activities while disappearing Redtown is an incubator zone for unplanned leisure in planned space.

## 5. References

COLLIER, M., ET ALT. (1986). *Visual Anthropology. Photography As a Research Method.* University of Mexico: Mexico.

ENTRIKIN, N. (1991). *The Betweenness of Place.* Johns Hopkins University Press: Baltimore.

RICHARD G. (1977). *Urban Antropology: cities in their cultural settings.* Prentice Hall: Englewod Cliffs,

GLASER, B. (1965). "The Constant Comparative Method of Qualitative Analysis". *Social Problems*, 12 (4), 436-445.

GOFFMAN, E. (1972) *Encounters: Two Studies in the Sociology of Interaction.* Allen Lane, The Penguin Press: UK.

HUZINGA (1955). *Homo Ludens, a study of the play-element in culture*. Beacon Press: Boston.

JACOBS, J. (1933). *The death and life of great American cities.* New York: Random House.

JENKINS E. (2008). *To Scale: One Hundred Urban Plans.* Routledge: New York.

LEFEBVRE H. (1996). *Writing on Cities*. Blackwell Publishers: Oxford.

LIU, K. (2006). *Globalization and Cultural Trends in China.* University of Hawaii Press: Honolulu. Pp. 86-94.

MISHRA, P. (2006). *Getting Rich: Pankaj Mishra Reports from Shanghai.* Review of Book: London. Pp. 5-7.

PEIXOTO-MEHRTENS, C. (2010). *Urban Space and National Identity in Early Twentieth Century São Paulo. Brazil: crafting modernity.* Palgrave Macmillan: UK.

PU, M. (2011). "Public Places in Asia Pacific Cities: Current Issues and Strategies" Springer: Netherlands.

REDTOWN: TEN YEARS (2015). Tongji University Press: Tongji.

RYKWERT, J., (2000). *The seduction of place: the city in the twenty-first century.* Pantheon Books: New York.

SHI, M. (1998). "From Imperial Gardens to Public Parks: The transformation of Urban Space in Early Twentieth-Century Beijing". *Modern China*, Vol. 24, 219-254.

SIMMEL, G. (1950). The metropolis and mental life. In SIMMEL, G. & WOLFF, K. H. *The sociology.* Free Press: Glencoe. Pp. 409-426.

SOUZA, M. (2009) "Cities for people, not for profit—from a radical-libertarian and Latin American perspective". *City Journal: analysis of urban trends, culture, theory, policy, action,* Vol.13 (4), 483-492.

YING, X. (2001). *Dahe yimin shangfang de gushi*. Sanlian Shudian: Beijing.

YU, K. & PADUA, M. G., (2007). "China's Cosmetic Cities: Urban Fever and Superficiality." *Landscape Research*, Vol.32, nº.2, 255- 272.

# Teaching urban geography in baccalaureate classrooms in Spain. Some reflections on understanding the city in the Information society[1]

Francisco X. Armas Quintá

*Universidade de Santiago de Compostela*

Francisco Rodríguez Lestegás

*Universidade de Santiago de Compostela*

Xosé Carlos Macía Arce

*Universidade de Santiago de Compostela*

## Abstract

*The information and communication technologies revolution radically changed the established social and economic dynamics over the last decades of the last century and this revolution has left its mark on education. In this particular case, the information society was also responsible for the changes that took place in the cities of the new millennium due to the emergence of teleworking and electronic commerce, among other factors. Similarly, nowadays the main cities worldwide face a number of challenges, including those stemming from population growth and the pressure this exerts on infrastructure, equipment and services. These profound changes taking place in cities, with greater incidence since the beginning of the new century, led us to research into how urban geography is being taught in baccalaureate classrooms in Spain. The contents and learning standards established by the compulsory secondary and baccalaureate curricula and the contents of four different editorial textbooks were reviewed and cover the period of the last three educational laws to be in force in this said country.*

1 This research has received funding from the State Programme for Research, Development and Technological Innovation oriented to the Challenges of Society (CSO2016-75236-C2-1-R) and the National Plan of R&D from the Spanish Government (EDU2015-65621-C3-1-R) co-financed with ERDF funds from the European Union.

## 1. Introduction

The study of urban geography in general, and particularly the current city, could not have been understood without bearing in mind the information and communication technology revolution. The Information Society, in which we are more and more immersed, is radically changing all the social and economic dynamics established in the last decades of the twentieth century. In the city of the new millennium there are already new variables to think about when dealing with the complex definition of the "city". Most authors who have undertaken this task have concluded that it is a complicated concept that resists definition and the proposals that were made range from very simple criteria, like determining a population threshold that separates the urban from the rural, to complex indices with multiple variables but, in no case, has a consensus been reached within the scientific community.

In the late eighties of the last century, authors such as Puyol, Estébanez and Méndez (1988) pointed out the existence of several reasons that prevented a satisfactory definition of the city. These indicated that the distribution and nature of the settlements meant that the city and the urban areas were not precisely distinguished in the landscape. These authors asserted that it was easy to identify extreme situations, but "in the continuum that goes from the isolated village to the metropolitan area or the megalopolis, there is no point of rupture or a division that separates the rural from the urban, the town or the village of the city in a resounding and unambiguous way" (pp. 364-365). Almost three decades later this difficult task has become more complex because we are moving towards a society where distances are disappearing and where communication and information exchange instantaneously take place from anywhere on the planet.

Rapid urban growth is one of the most notorious characteristics of developed countries and, despite being a relatively recent phenomenon, its magnitude is such that only a few regions in the world are free of its influence (Puyol, Estébanez and

Méndez, 1988). In the last two centuries, urban growth has been so fast that some authors have spoken of an "urban explosion", this at the same time as the division of labour took place and a spectacular growth of production intensively altered society's structure (Berry, 1975). However, the traditional logic of building a city in a compact, intense and dense structure, since the end of the last century in Spain, is giving way to a model of the dispersed city that is diluted in territorial proximity. New building typologies are appearing, arising from functions that in the past did not exist in the immediate rural environment, and the proliferation of dispersed urbanisations has progressively left a mark on the ways of building present-day cities (Cebrián, 2013).

In the Industrial Society information, technology and knowledge were exclusively the property of the advanced nations and, within these, of the grand metropolis and cities of reference. Nevertheless, the technological revolution, and more specifically the boom and spread of the Internet, has caused, more than ever, the narrowing of a space-time relationship with new concepts emerging such as "the end of distance", "the death of distance", "a world without distances", "virtual space" or "cyberspace" (Cairncross, 2001). All these meanings conclude that we are witnessing a grand global openness where flows of information, communication of the economic kind, and political, social and cultural types are created in a large global network (Short and Kim, 1999). In turn, this global network is changing both the relationships between the cities themselves and the links between urban and rural areas. From a financial point of view, new technologies, and especially the Internet, eliminate trade barriers and favour the development of international business (Méndez, 1997). Moreover, a global market is being enabled in which rural areas that once underwent disadvantages from physical conditioners and distance from urban centres can now access and "compete". In terms of space, new technologies contribute to global cities and concentrate a high percentage of wealth and power, thus consolidating themselves as the true economic and political references of

modern States (Sassen, 2003, Veltz, 1999).

The Information Society has also brought with it changes in the urban model due to the emergence of teleworking and electronic commerce, among other factors. Teleworking and e-commerce make it possible to decentralise residence and metropolitan areas of work (Zárate, 1991), both to peri-urban municipalities and to nearby rural spaces (in space or in time). In addition, new technologies are forming a new type of city that is called a "Smart City" and affects both large urban areas and medium and small cities. This new concept of city emerged, in the first instance, to address the problems of sustainability, with a focus on energy efficiency and the reduction of carbon emissions. However, nowadays smart cities are closely linked to R&D activities and have a qualified human capital, an innovative and competitive industrial network and are committed to their environment, not only from the environmental point of view but also from cultural and historical one (Piñeira, Armas & Macía, 2014; VV.AA., 2011).

These fundamental changes taking place in the city, with greater intensity since the beginning of the new millennium, has led us to analyse how urban geography is being taught in baccalaureate classrooms in Spain. This issue addresses the subject of geography being taught to the second year of baccalaureate in the modality of Humanities and Social Sciences, an optional subject. In order to achieve the aims proposed, the contents and learning standards established by the compulsory secondary school and baccalaureate curricula were revised (Royal Decree 1105/2014, of December 26, establishing the basic curriculum of compulsory secondary school and baccalaureate), and the contents of four textbooks from different publishers that, in turn, cover the last three educational laws: Organic Law 1/1990, of October 3, of General Management of the Educational System (LOGSE); Organic Law 2/2006, of May 3, on Education (LOE); and Organic Law 8/2013, of December 9, for the improvement of educational quality (LOMCE). The textbooks

that were revised for the subject of geography taught to the second year of baccalaureate were: Grupo Anaya (2001), with the LOGSE being in force; The textbooks published by the publishers Rodeira-Grupo Edebé (2009) and Vicens Vives (2009) with the LOE in force; and finally, the textbook published by Anaya (2016) with the current law, LOMCE.

## 2. The study of the city in the baccalaureate curriculum

The subject of geography, according to the contents of the curriculum for compulsory secondary education and baccalaureate, aims to understand and interpret the territory in an interrelated way by looking at each geographical phenomenon and offering mechanisms that explain the existing problems. Undoubtedly, the study of the city and urban geography contribute to this goal when considering the intense urbanisation process that took place in Spain in the second half of the last century. The Industrial Revolution marked the beginning of the transformation processes in cities and urban concentrations that are still felt today. According to World Bank data for 2015, more than half of the world's population and three out of every four European citizens lived in urban areas, thus justifying the need to study how that process had taken place, its characteristics, evolution and where the city of the 21st century is heading.

The basic curriculum for compulsory secondary education and the baccalaureate organises the contents taught in the subject of geography in the second year of baccalaureate into twelve thematic areas, one of which is dedicated to the study of urban space. The contents chosen to study this thematic unit are the concept of the city and its influence on land management, morphology and urban structure, urban planning, characteristics of the urbanisation process, urban land use, the Spanish urban network and the characteristics of the spatial growth process in cities. From our point of view, the curricular contents are of little detail and some deficiencies have been detected. Among these can be cited that the study of the stages of urban

development and urban functions are not included.

Regarding the first reason cited, the curriculum contemplates the characteristics of the urbanisation process and establishes learning standards as that of students being able to identify the characteristics of the urbanisation process, but without making any kind of concretion. In this way, the study of the different stages in urban development, especially the post-industrial stage linked to the information and communication technology revolution and globalisation, is not contemplated or, at least, not specified. In the current Information Society, technology is increasingly present in our lives and, at the same time, it also determines and influences the way in which the new cities of the 21st century evolve and shape.

Nowadays, major cities worldwide are facing many challenges, including those stemming from population growth in recent decades. This population growth's influence, in turn, puts significant pressure on the infrastructures, equipment and city services including water, energy, housing, transport, basic services, environmental impact, health problems, and scarcity of resources, among others (Washburn et al., 2010). In the contexts of the economic crisis and reduction of financial resources, cities are limited in their capacities to face these challenges, so the adoption and integration of new technologies in their management contribute to increasing their efficiency, reducing cost and, in the end, improving inhabitants' quality of life (Falconer and Mitchell, 2012). The students of baccalaureate must know and understand the problems that the big cities must confront and that are related to strong demographic growth over the last few decades.

The second deficiency detected in the thematic area dedicated to study of the city comes in the fact that it does not contemplate the analysis of the urban functions and, particularly, the new functions that the cities have acquired in the post-industrial stage, which are highly linked to the ICT sector. In the current information society, cities are adopting the new technologies as a pillar to improve public ser-

vices and move towards a horizon of sustainable cities which can offer a series of services and benefits to improve inhabitants' quality of life. This is in addition to increasing their capacity and becoming more competitive and growing economically (AMETIC, 2013). The new "Smart City" collects a large amount of data to improve functionality, modernise basic infrastructures, implement possible new transport management systems in the city, control traffic and monitor environmental pollution. Today, many services offered on the Internet go far beyond the checking of an e-mail or the search for information (Lois, Macía & Armas, 2010). The intensive use of these technologies also allows the development of essential health services (e-health) (Hernández-Muñoz et al., 2011) and generates advanced services related to new technologies such as teleworking, e-commerce, e-government or e-banking, among others (Macía & Armas, 2012).

E-commerce presents itself as a great opportunity, given that local markets become part of a large global market where everyone "connected" has access regardless of place of residence. Every day more citizens buy and sell through the Net and this fact can be confirmed by the European Union (EU-28) where, in just over a five-year period, the number of Internet users who used this service doubled. Drucker (2001) has already stated that electronic commerce would be, in the Information Society, what was once the railway in the Industrial Revolution. On the other hand, teleworking can be carried out from a private dwelling, on commuter journeys, in places such as airports or hotels, or at satellite centres specifically designed for remote working and located strategically to reduce the movement of workers (Macía & Armas, 2012; Martínez et al., 2006). All these aspects should not be omitted in the curricular contents for the subject of geography that is taught in the second year of baccalaureate, given that this is a new model of the 21st century city that is being configured.

## 3.Urban geography in textbooks

The analysis of the textbooks was another aspect that was considered when analysing how urban geography is being taught in second year classrooms of baccalaureate in Spain. This research examined four textbooks from different publishers over the last fifteen years and covering the last three educational laws. The purpose of this selection was none other than to examine how the curricular contents in the study of urban space have been addressed since the change of century to the present. The textbooks that have been revised were those published by the Anaya Group (2001) with LOGSE being in force; that published by Rodeira-Grupo Edebé (2009) and Vicens Vives (2009) with LOE in effect; and, finally, a textbook published by Anaya (2016) under the current law, LOMCE. The greatest weakness detected in the review of the mentioned textbooks is related not so much to the lack of content, but rather to the way in which they are structured and their level of detail.

The Anaya Group (2001) organises the contents for the subject of geography in the second year of baccalaureate into four big thematic blocks: the Spanish physical environment; occupation and settlement; economic activities and territorial organisation; and the international projection of Spain. The four thematic blocks contain eleven teaching units in which the contents of the subject are grouped, being only one dedicated to the study of the "Rural and urban population". That is, to understand urban space, this textbook offers a teaching unit shared with the study of the rural environment with a remarkable imbalance observed between the space given to the study of the rural environment (seven pages) and that given over to urban areas (forty-three pages). From our point of view, regardless of the thematic imbalance in this teaching unit, both the study of the rural environment and the urban space would require, at least, one dedicated teaching unit each.

When the contents gathered for the study of the city are reviewed, the contents' imbalance again becomes clear. One example that shows this fact is that fourteen

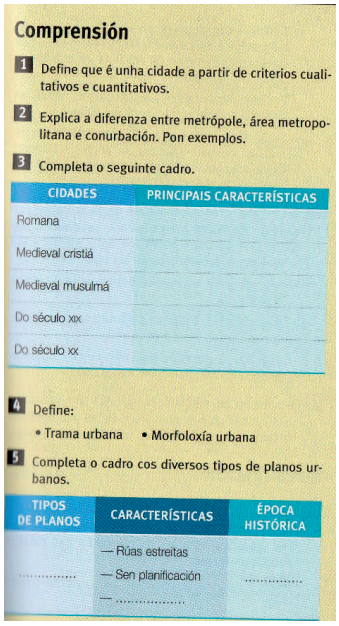
of its forty-three pages are devoted to the study of the urban structure of the city (which is almost a third of all contents), while only a single page is devoted to the post-industrial city, two pages to the problems of Spanish cities, or again one page to the Spanish city system. From the point of view of content, the biggest drawback is that the city of the Information Society and the role that new technologies are having in shaping the cities of the future is hardly studied.

The Rodeira-Grupo Edebé publisher (2009) structures the contents of the subject of geography in four thematic blocks: Spain in the European and world context; the physical environment and the protection of the natural environment in Spain; the population and the urban system; and economic activities and regional contrasts in Spain. Apart from these four thematic blocks at the beginning of the textbook, there is an introduction explaining geography as science and a teaching unit with a representation of the territory. The four thematic blocks comprise of eighteen teaching units and only one of them (the urban system) is devoted to the study of urban space and an epigraph of another (the settlement) to deal with urban settlement.

The greatest weakness detected in the revision of this textbook is the lack of content on the study of urban space. It dedicates only one teaching unit of the nineteen in the content structure and it is done in a very brief form; all the sections of this subject are explained in thirteen pages of the almost four hundred in the textbook, thus representing little more than three percent of the total, yet, the teaching units of topography, climate, waters, or the study of activities in the primary and industrial sector are twice as large. This fact significantly influences how the different aspects affecting urban spaces are reflected. In addition, the same lack was detected as in the case of Anaya (2001), but more markedly because, in this case, no reference was made to the post-industrial city and, therefore, to the new city model that is being developed from the Third Industrial Revolution.

One more aspect to emphasise, and rather curious, is the proposed activities for the teaching unit dedicated to urban space. Paradoxically, the deficiency of the contents is, however, replaced by numerous activities that students must do (about twenty-five), being most of them repetitive. Examples are exercises where students are asked to "identify the most serious social problems facing cities" (activity 9, p. 249) and "explain the main problems facing large cities" (activity 25, p.250). The activities associated with the traditional or the transmissive teaching model also dominate, where descriptive and rote geography is taught instead of an active, reflexive and critical geography (Macía, Rodríguez & Armas, 2015). These aspects can be observed in activities such as defining what a city is, explaining the difference between metropolis, metropolitan area and conurbation, or knowing what types of urban plans exist (Fig. 1).

**Figure 1. Comprehension activities, p. 249**



**Comprensión**

1. Define que é unha cidade a partir de criterios cualitativos e cuantitativos.
2. Explica a diferenza entre metrópole, área metropolitana e conurbación. Pon exemplos.
3. Completa o seguinte cadro.

| CIDADES | PRINCIPAIS CARACTERÍSTICAS |
|---|---|
| Romana | |
| Medieval cristiá | |
| Medieval musulmá | |
| Do século XIX | |
| Do século XX | |

4. Define:
   - Trama urbana
   - Morfoloxía urbana
5. Completa o cadro cos diversos tipos de planos urbanos.

| TIPOS DE PLANOS | CARACTERÍSTICAS | ÉPOCA HISTÓRICA |
|---|---|---|
| ..... | — Rúas estreitas<br>— Sen planificación<br>— ..... | ..... |

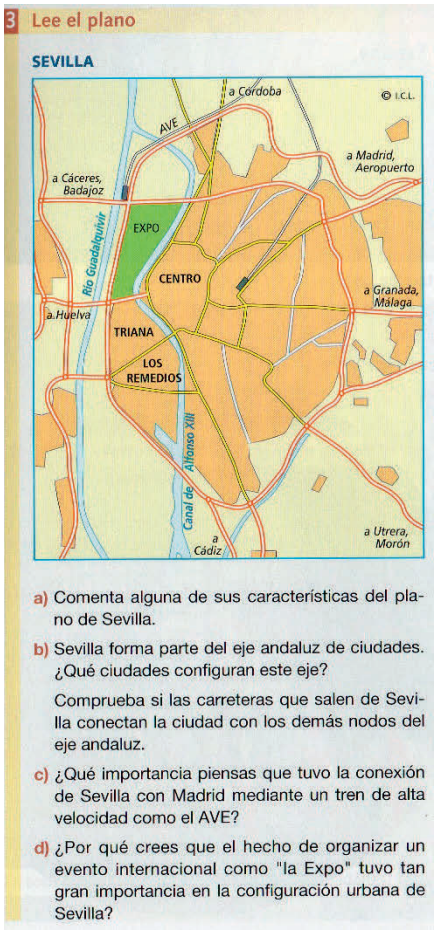
*Source: Garrido González, 2009*

The Vicens Vives publisher structures the contents of the subject in four thematic blocks: nature and environment; territory and economic activities; population and urban system; and Spain in Europe and a global world. The sixteen teaching units come in four blocks, of which the contents are organised in two analysing urban space, "the city and the urban" and "the urban phenomenon in Spain". The first one deals with the concept of city, urban social agents, urban morphology and urban functions, while the second is focused on the study of city evolution in Spain; its networks and city systems and the Spanish cities' transformations due to globalisation. This is undoubtedly a very positive aspect, given that it at least addresses the question of the post-industrial city and its role in the global world, even if briefly, especially considering that this aspect is not even included in the curriculum itself. A section is also interesting at the end of each teaching unit that, under the title of "review the essential", gives a planned summary of the most relevant concepts and contents in each unit.

In relation to the proposed activities, it is perceived that the teaching of active, reflexive and critical geography is opted for, so that the result of these will provoke reflection, critical attitude and interpretation and a relation of concepts (Macía, Rodríguez & Armas, 2016; Souto, 1998).

An example of this is reflected in one of the activities where students should comment on some of the characteristics of a city map (in this case Seville) and explain what influence that city's connection to a high-speed railway network can have, or the fact of organising an event of the magnitude of a Universal Exhibition (Fig. 2).

**Figure 2. Activity 3, p. 241**




*Source: Albet y Benejam, 2009*

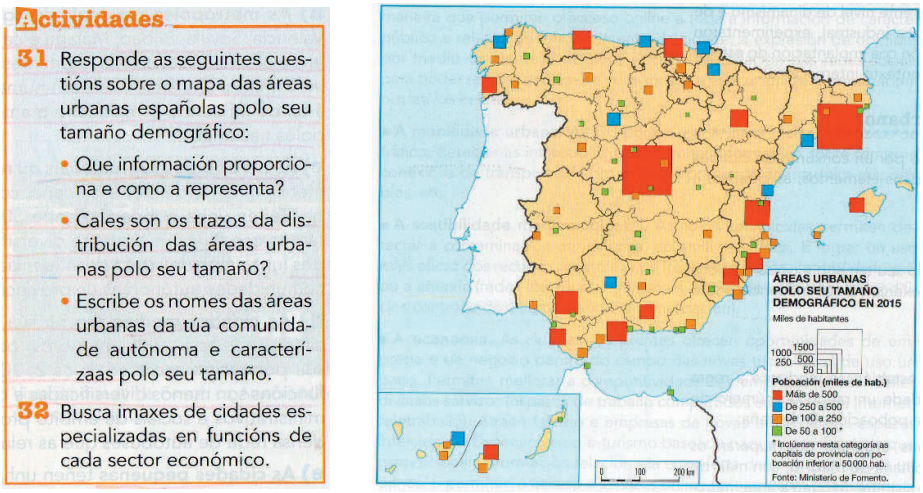
Finally, the Anaya textbook (2016), updated to the current educational law, organises the contents in twelve teaching units. There is an introduction devoted to geography, geographical space and geographic sources, a cartographic appendix with physical and political maps of Spain and Europe, and a statistical appendix with data of economic activities and the population of Spain at provincial level. Of the twelve teaching units, one of them is dedicated to the study of urban space. It addresses the concept of the city and the process of urbanisation, morphology and

urban structure, the problems with Spanish cities, urban space management, and the Spanish and Galician urban system.

In this textbook two weaknesses in the content were also identified: the imbalance between the different headings and the omission of the impact that new technologies and globalisation are having on the transformation of the cities in the new millennium. Thematic imbalance is clearly seen in the epigraph on the study of the urban structure, considering that sixteen of the forty-three pages are dedicated to theoretical content (almost 40% of the teaching unit) and yet only four pages are given over to urban space and urban planning, and only one to the urban morphology. The question of the post-industrial city is analysed in two epigraphs whereby the urbanisation process and urban structure are addressed, but in none of them does it allude to the role of the Information Society and the information and communication technologies shaping the cities of the future.

In addition, and in the same way as the textbook from Rodeira-Grupo Edebé (2009), numerous activities are presented. Throughout the different epigraphs there are forty tasks helping students to reinforce what they have been taught but, just by its nature, it implies great commitment. There are examples of summarising the main theoretical contents (activities 3, 14, 17, 26, 40) or searching for information (from different sources) that complement the theoretical contents (activities 13, 15, 16, 18, 22, 27, 29, 32) (Fig. 3). Apart from these, at the end of the teaching unit, "synthesis activities" are proposed, consisting of defining concepts, discussing different types of plans and working with maps. From our point of view, this large amount of work (which requires great effort from the students) is disproportionate and, for the most part, it is associated with the traditional and transmissive teaching model where descriptive and rote geography is taught instead of promoting an active, reflexive and critical geography (Macía, Rodríguez & Armas, 2015).

**Figure 3. Activities with Spanish urban areas map, p. 383**




*Source: Muñoz, 2016*

## 4. Teaching in the cities of the future, the Smart Cities

The result of the analysis on compulsory secondary education and the baccalaureate curriculum and four of the textbooks for the subject of geography taught in the second course of Baccalaureate has revealed to us that there are, on the one hand, deficiencies in the content, especially in relation to the study of the post-industrial city and the influence they have had on the configuration of information and communication technologies in cities. On the other hand, a large proportion of the learning standards that are included in the curriculum and the activities proposed in the textbooks are still in line with the traditional or transmissive teaching-learning model where descriptive and rote geography learning is taught. As a result, a teaching proposal for the study of the city in the new millennium is proposed.

The rapid evolution of the information and communication technology sector, as well as the reduction in the cost of devices, Internet access and the widespread use of broadband, are influencing the configuration of the cities of the future, the

Smart Cities.

These cities, which are often defined as "wired cities" connected to multiple networks have the purpose of providing an enormous amount of data in relation to the movements of people and materials, are also cities that have a highly qualified human capital causing an impact on an innovative and competitive industrial network. Smart Cities are not only exclusive to large cities, but also include much smaller urban centres that also make intensive use of new technologies to increase their citizens' quality of life.

Students studying in the second year of baccalaureate must understand that today's cities must face the challenge of strong urban growth which requires more intelligent ways of management. In addition, they should be aware that creating a Smart City is a complex process, requiring the intervention of numerous agents and it is a long-term process. One of the first phases to be carried out is aimed at solving the real problems of the city by giving infrastructures all the data collection devices needed to improve functionality. To provide sustainable prosperity to both citizens and businesses, cities must be ever more "smart" and must use information and communication technologies to optimise their resources (IBM, 2010).

The axes in which the creation of a Smart City is articulated are related to urban mobility, energy efficiency, sustainable management of resources, infrastructure management, participatory governance and public safety, as well as health, education and cultural areas (Giffinger et al., 2007). In this way, it could be synthesised into six blocks to define a Smart City: Smart Economy, Smart People, Smart Governance, Smart Mobility, Smart Environment (natural resources), and Smart Living (quality of life), all of which are closely related to each other (Piñeira et al., 2014).

In short, the baccalaureate students taking geography must know, when studying the urban space, where the city of the new millennium is going, and not only the challenges, but also the opportunities on offer to improve inhabitants' quality of life.

## 5. Conclusions

As a final reflection, it is noticeable that there is a necessary revision of the baccalaureate curriculum on the contents proposed for the subject of geography, especially those that refer to the study of urban space, as well as evaluable learning standards. Likewise, the textbooks analysed suffer from, in general, the same weaknesses as the curriculum and, in addition to the lack of content, a large part of the activities are not conducive to a reflexive and critical teaching-learning model. This revision would be highly necessary for the students to understand and reflect on the new city model being configured in the current, ever connected Information Society. In this society of the 21st century, technology is present in almost every walk of human life and its influence in cities is becoming more palpable every day. Knowing how to explain and confront the problems of overpopulation, management of different urban services, environmental pollution, etc., involves the design of contents and activities that promote an active, reflexive and critical geography.

## 6. References

ALBET MAS, A. & BENEJAM ARGUIMBAU, P. (2009). *Geografía*. Vicens Vives: Barcelona.

AMETIC (2013). *Informe de Smart Cities 2012*. Madrid: Asociación de Empresas de Electrónica, Tecnologías de la Información, Telecomunicaciones y Contenidos Digitales. [Available in http://dg6223fhel5c2.cloudfront.net/PD/wp-content/uploads/2014/06/Informe_Smart_Cities.pdf].

BERRY, B. J. L. (1975). *Consecuencias humanas de la urbanización.* Pirámide:

Madrid.

CAIRNCROSS, F. (2001). *The death of distance 2.0. How the communications revolution will change our lives*. Texere: London.

CEBRIÁN ABELLÁN, F. (2013). "Las transformaciones recientes operadas en las periferias de las ciudades medias. El contexto de ciudad difusa en la realidad española". In CEBRIÁN ABELLÁN, F. & PANADERO MOYA, M. (2013). *Ciudades medias. Formas de expansión urbana*. Biblioteca Nueva: Madrid. Pp. 25-38.

DRUCKER, P. (2001). "Detrás de la Revolución de la Información". *La Factoría*, nº1 3. [Available in www.seinest.com/pdf/artigo2.pdf].

FALCONER, G. & MITCHELL, S. (2012). *Smart City Framework. A Systematic Process for Enabling Smart+Connected Communities.* Cisco Internet Business Solutions Group (IBSG). [Available in www.cisco.com/web/about/ac79/docs/ps/motm/Smart-City-Framework.pdf].

GARRIDO GONZÁLEZ, A. (DIR.) (2009). *Xeografía*. Rodeira-Grupo Edebé: A Coruña.

GIFFINGER ET AL. (2007). *Smart cities. Ranking of European medium-sized cities. Centre of Regional Science* (SRF). Vienna University of Technology. [Available in www.smart-cities.eu/download/smart_cities_final_report.pdf].

HERNÁNDEZ-MUÑOZ, J. M., BERNAT VERCHER, J.; MUÑOZ, L., GALACHE, J. A., PRESSER, M., HERNÁNDEZ GÓMEZ, L. A. & PETTERSSON, J. (2011). "Smart Cities at the Forefront of the Future Internet". *Lecture Notes in Computer Science*, Vol. 6656, 447-462.

IBM (2005). *The mobile working experience. A European perspective*. IBM Corporation: New York. [Available in www-1.ibm.com/services/us/imc/pdf/

g510-4029-mobile-working-experience.pdf].

LOIS GONZÁLEZ, R. C., MACÍA ARCE, J. C. & ARMAS QUINTÁ, F. J. (2010). "ICT inequalities in the Spanish urban system". *Journal of Urban and Regional Analysis,* 2(2), 19-32.

MACÍA ARCE, X.C., RODRÍGUEZ LESTEGÁS, F. & ARMAS QUINTÁ, F.X. (2016). "Innovación TIC en la formación del profesorado para educación secundaria: Un ejemplo de buenas prácticas a propósito del diseño e implementación de una unidad didáctica sobre paisaje y desarrollo sostenible en Europa". In LÓPEZ FACAL, R. *Ciencias Sociales, educación y futuro. Investigaciones en didáctica de las ciencias sociales.* Universidade de Santiago de Compostela: Santiago de Compostela. Pp. 1180-1195).

MACÍA ARCE, X. C., RODRÍGUEZ LESTEGÁS, F. &ARMAS QUINTÁ, F. X. (2015). *Manual de aprendizaxe e ensinanza de Xeografía e Ciencias Sociais para Educación Secundaria*. Andavira: Santiago de Compostela.

MACÍA ARCE, X.C. & ARMAS QUINTÁ, F. X. (2012). "Consumption of Advanced Internet services in the enterprises sector: The spread of telework in the metropolitan aera of Madrid". *Journal of Urban and Regional Analysis* 1, 51-61.

MARTÍNEZ SÁNCHEZ, A., PÉREZ PÉREZ, M., DE LUIS CARNICER, P. &,VELA JIMÉNEZ, M. (2006): "Trabajo y flexibilidad: efecto moderador sobre los resultados de la empresa". *Cuadernos de Economía y Dirección de la Empresa*, vol. 29, 229-262.

MÉNDEZ, R. (1997): *Geografía económica. La lógica espacial del capitalismo global.* Ariel: Barcelona.

MUÑOZ-DELGADO, Mª C. (2016). *Xeografía*. Grupo Anaya: Madrid.

MUÑOZ-DELGADO, M. C. (COORD.) (2001). *Xeografía*. Grupo Anaya: Madrid

PIÑEIRA MANTIÑÁN, M.J. ARMAS QUINTÁ, F.X. & MACÍA ARCE, X.C. (2014). "El consumo de servicios avanzados de Internet en el proceso de configuración de las Smart Cities. Estudios de caso en Galicia y Madrid". Cuadernos Geográficos, 53(2), pp. 103-134.

PUYOL, R.; ESTÉBANEZ, J.; MÉNDEZ, R. (1988). *Geografía Humana*. Cátedra: Madrid..

SASSEN, S. (2003). *Los espectros de la globalización*. Fondo de Cultura Económica: Buenos Aires.

SHORT, R. & KIM, Y. H. (1999). *Globalization and the City.* Longman: Harlow, Essex.

SOUTO GONZÁLEZ, X. M. (1998). *Didáctica de la Geografía. Problemas sociales y conocimiento del medio.* Ediciones del Serbal: Barcelona.

WASHBURN, D., SINDHU, U., BALAOURAS, S., DINES, R. A., HAYES, N. M., & NELSON, L. E. (2010). Helping CIOs Understand "Smart City" Initiatives: Defining the Smart City, Its Drivers, and the Role of the CIO. Forrester Research: Cambridge. [Available in http://public.dhe.ibm.com/partnerworld/pub/smb/smarterplanet/forr_help_cios_und_smart_city_initiatives.pdf].

VV.AA. (2011). *Smart Cities: un primer paso hacia la internet de las cosas.* Fundación Telefónica-Ariel: Madrid.

VELTZ, P (1999). *Mundialización, Ciudades y Territorios.* Ariel: Bacelona.

ZÁRATE MARTÍN, A. (1991). *El espacio interior de la ciudad.* Síntesis: Madrid..

# Square use dynamics and characterization of users in Ponta Grossa- PR

Silvia Méri Carvalho

*Universidade Estadual de Ponta Grossa.*

Thaís Samanta de Lima

*Universidade Estadual de Ponta Grossa.*

Angela Stasievski Rochinski

*Universidade Estadual de Ponta Grossa.*

## Abstract

*This study analyzes and portraits how public spaces, more specifically the squares, have been used, mainly during the day, seeking to understand the reasons that lead users to visit these spaces. The research aims at differentiating daily practices in the public space of squares in the urban area of Ponta Grossa (Paraná-Brazil), through the identification of the users' profile, how the use occurs, its frequency as well as positive and negative aspects pointed out by the users in relation to the structure of squares and the feelings provided by these spaces. To reach such aims, a quali-quantitative methodology was employed through a semi-structured interview in 22 squares located in the urban area. The profile of interviewees revealed that both men and women use squares, most of the users are adults (58%), they usually visit these spaces on weekdays (41%) and that they might go in the summer as well as in the winter. The time to reach a square is up to 10 minutes, mainly walking. Regarding evaluation, 46% of the squares were considered to have good structure, but some issues were recurrent throughout the study in relation to the maintenance, infrastructure and cleanness which affect the use of these spaces.*

## 1. Theoretical Background

For a better understanding of the functionality and use of squares, it is first necessary to understand that squares, as well as parks and superficial waters are part of the system of the building-open spaces (Buccheri Filho & Nucci, 2006) as opposed to the built spaces (households, industries, commercial buildings, hospitals, schools, etc.).

Open spaces can be classified according to their type into private, potentially collective and public and green areas, provided that the fundamental element of their composition is the vegetation, and they must satisfy three main objectives: ecological-environmental, aesthetic and leisure. The vegetation and permeable soil must occupy at least 70% of their area; they must be available to the population, providing use and conditions for entertainment (Buccheri Filho & Nucci, 2006). Robba and Macedo (2002) emphasize some of the values ascribed to squares, which can be summarized as:

*a) Environmental values: the open space in the squares enable improvement to the urban ventilation and aeration; squares provide the improvement of sun exposure to denser areas; the trees planted in squares provide shade to the streets and the flower beds do not release as much heat as asphalt or concrete grounds, providing temperature control; the vegetable cover in squares enables the improvement of drainage of rainwater and protects the soil from erosion.*

*b) Functional values: many squares are the main, if not only, option of urban leisure.*

*c) Aesthetic and symbolic values: squares represent referential and scenic objects of the urban landscape, in addition to playing an important role in the neighborhood or the street identity. (Robba & Macedo, 2002, p.44)*

According to Santos Eurich (2014), based on De Angelis (2005), squares have social and environmental functions as detailed in Table 1.

According to Yokoo and Chies (2009, p. 10-11) when "badly managed and kept, these public spaces have become a potential danger in the open air, since they are used as prostitution areas as well as for the dealing and consumption of all types of drugs". In such situations, these spaces lose their essential value, and a certain aversion to using these spaces is created which affects negatively the squares use and functionality.

**Table 1. Functionality and structure of squares.**

| Functionality | | Structure or characteristic |
|---|---|---|
| Social | Passive leisure or contemplation | Benches; paths; stage or bandstand; monument; fountain and similar. |
| | Active leisure | Sports court; popular gym; gym for the elderly; playground and similar. |
| | Commercial | Food stands; newsstands; open markets; street vendors; shops and similar. |
| | Service | Bus stop; taxi rank; payphone and similar. |
| Environmental | Aesthetic/Environmental | Squares with over 70% vegetable cover. |

*Source: Santos Eurich, 2014.*

## 2. Research questions

Squares are present in every town and with the increase in population and modernization of cities, it was necessary to recreate these public spaces in order to assimilate the new urbanistic standards and meet the population needs. This research analyzes and portraits how public spaces, more specifically squares, have been used, mainly during the day, seeking to understand the reasons that lead users to use this public space. Therefore, this study's problematic is focused on the fact that the population of Ponta Grossa has few public spaces to use and the squares become spaces of mobility and leisure that differ according to their appropriation and use as a result of the conditions offered by each of them. The research is based on the following main question: "How do the people living in Ponta Grossa use squares in the urban space of the town nowadays?"

The interest in this issue originated from the studies carried out in squares downtown and in certain neighborhoods of the city by authors such as Biscaia

(2010) and Santos (2011), within the project "Diagnosis of urban forestation of streets and squares in the city of Ponta Grossa".

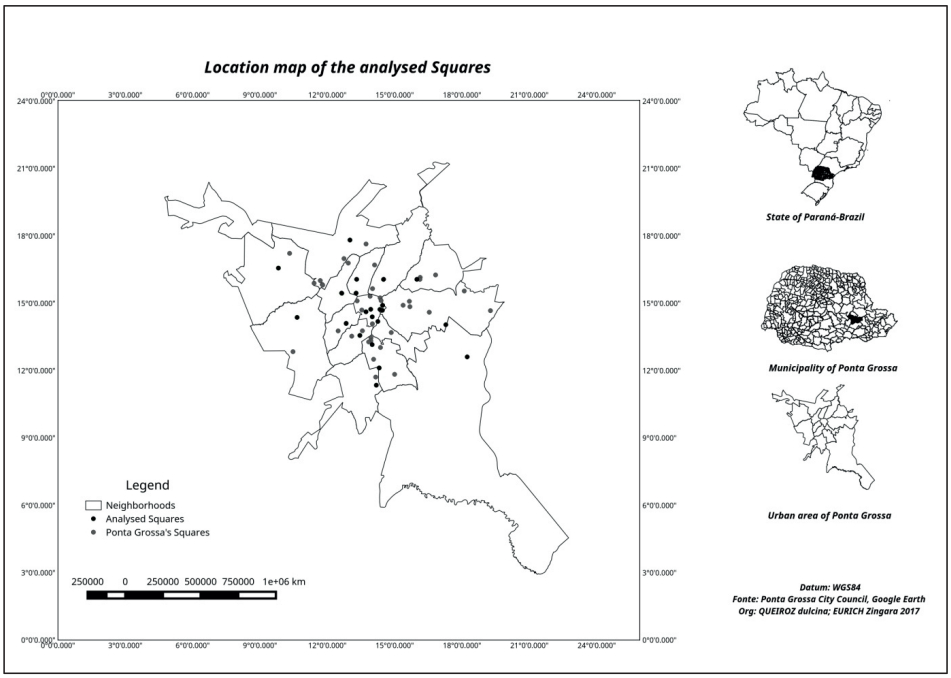
Therefore, it is interesting to understand the spatial organization of sociability taking the squares of Ponta Grossa as a reference, since they represent public spaces of mobility. The main objective was to differentiate daily practices in the public space of squares in the urban area of Ponta Grossa and the specific objectives were: to identify the profile of users and frequency patterns in the public squares; to identify the positive and negative aspects in the process of appropriation of the squares; and, to identify the population's opinion in relation to the conditions of squares in Ponta Grossa.

## 3. Methodology

The research object are the squares in the urban area of Ponta Grossa – PR, with 15 neighborhoods and the central area, that occupy approximately 172km2. This town has an urban population of 311,611 inhabitants, according to the demographic census 2010 (IBGE, 2010) and is located in the Center-eastern portion of the State of Paraná. To achieve the objective, it was necessary to research the reasons that lead people to use public squares in Ponta Grossa, since Santos Eurich (2014) identified 83 squares distributed in 15 neighborhoods and the central area. Also, according to that author "it is possible to verify that regarding spatial distribution, the further the neighbourhood is from the central area, the lower the number of squares it has" (SANTOS EURICH, 2014, p.50). For this reason, it seems relevant to try to understand which reasons lead people to use squares, how, when and how satisfied they are with this public space.

Figure 1 presents the spatial distribution of squares in the urban area of Ponta Grossa. It is possible to see that most squares are located in the central area and that this concentration tends to reduce when one gets closer to the neighborhoods.

**Figure 1- Distribution of squares in the urban area of Ponta Grossa**




According to Santos Eurich et al. (2014) several of these squares do not have a single function, therefore, it was necessary to create a system of classification that had more than one type to preserve the complexity of the functions and diversity of the social roles played by these squares. The types presented followed the criterion of classification, according to the functionality of squares as proposed by De Angelis et al. (2004), as presented below:

- Church square: associated to a religious building or temple.
- Relaxation and/or entertainment square: recognized by the development of entertainment, tour or meeting activities.
- Circulation square: due to its location, it is converted into a mandatory way for

vehicles and/or pedestrians.

- Symbolic meaning square: an urban mark, which is easily remembered, almost always with a monumental design and which is related to some event of national significance.

- Visual Meaning Square: this is not only remembered for its own existence, but for the monument or building, usually a public building, which defines it and to which it is subordinate.

For the study, 22 squares were selected, represented by 5 squares in the central area and 17 squares in the neighborhoods (Table 2). From this total, 14 were entertainment squares, which is the most representative class in the urban area of Ponta Grossa, with practically one in each neighborhood; 01 square that was at the same time circulation, church, entertainment and visual meaning square; 03 squares classified as church and entertainment; 02 circulation and entertainment squares and 02 circulation, entertainment and visual meaning squares. No squares were selected as circulation or visual signification only, since there are no squares of this type.

To collect the data in the squares, a semi-structured interview was used that considered four main aspects: users' profile, frequency of use, type of use and evaluation of the squares.

**Table 2. Type of squares found in the data collection**

| Neighbor-hood | Squares | R-ES | CS/ChS/ R-ES/ VMS | ChS/R-ES | CS/ R-ES | CS/ R-ES/ VMS |
|---|---|---|---|---|---|---|
| Boa Vista | Pe.Antônio F. Caballero | x | | | | |
| Cará-Cará | BortoloBor-sato | x | | | | |
| | João Pessoa | x | | | | |
| | Mal.Floriano Peixoto | | x | | | |
| Centro | Barão de Guaraúna | | | x | | |
| | Duque de Caxias | | | | x | |
| | Com.Amb. G.Manoel Ribas | | | | | x |
| | Barão do Rio Branco | | | | | x |
| Chapada | Augustinho Mathias Pinheiro | x | | | | |
| Côlonia Dona Luiza | Dep. Ary Kffuri | x | | | | |
| Contorno | Tancredo de Almeida Neves | x | | | | |
| Estrela | Margarida Malucelli Moro | x | | | | |
| Jardim Carvalho | Bispo Antô-nio Maz-zarotto | x | | | | |
| Neves | Alberto Ansbach | x | | | | |
| Nova Rússia | Getúlio Vargas | x | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Oficinas | Simão Bolívar | x | | | | |
| | Santa Terezinha | | | x | | |
| Olarias | Usina do Conhecimento | | | | x | |
| Orfãs | Ana Batista Miró Guimarães | x | | | | |
| | São José | | | x | | |
| Ronda | HuldaRoedel | x | | | | |
| Uvaranas | Simão Nasseh | x | | | | |
| Total | | 14 | 1 | 3 | 2 | 2 |

R-ES = Relaxation⁄Entertainment Square.
CS/ChS/R-ES/VMS = Simultaneously characterized as circulation, church, entertainment and visual meaning squares.
ChS/R-ES = Simultaneously characterized as church and entertainment squares.
CS/R-ES = Simultaneously characterized as circulation and entertainment squares.
CS/R-ES/VMS = Simultaneously characterized as circulation, entertainment and visual meaning squares.

*Source: The athors*

This work was developed based on the quantitative and qualitative analyses of squares, describing each of the places selected. For the calculation of number of interviews, a sample with a 5% error margin was used based on the total urban population of 311,611 inhabitants, with a 95% confidence level resulting in a total of 374 interviews. The sample size calculation was carried out using the online calculator as proposed by Santos (2015). To calculate the number of interviews for each square, the number of interviews was divided by the number of squares, resulting in 17 interviews per square. The interviews were applied in two periods of the day: morning and afternoon on weekdays, weekends and⁄or holidays. The time spent in each place was one hour (1 hour) between July and October 2015.

The number of interviews applied per period of the day were: four in the morning

and five in the afternoon on weekdays, and four in the morning and four in the afternoon on weekends and/or holidays. The times were between 10:00 and 12:00 and 13:00 and 17:00. The research was carried out during the day for safety reasons and in the evening only indirect observation was done.

## 4. Results

In relation to the interviewees' profile, 99% live in Ponta Grossa, most in the same neighborhood where the square is, but the number of users from different neighborhoods (44%) is significant. Half of the interviewees was female and the other half was male, most of them were adults (58%) and married (51%). This users' profile is justified by the activities offered in the squares, mainly the playground for the children, since adults take their children to have some physical activity and also because they need to go through that place (Table 3). The squares also attract other profiles such as: young people who go there to meet their friends, play ball games or even date, and the elderly who meet their friends and spend the afternoon playing cards, mainly at the Getúlio Vargas Square.

Regarding their profession, 52% of the interviewees have another occupation or a not well-defined occupation, which comprise housewives, unemployed, students, retired people, among others. The other areas of professional activity were not as expressive as shown in Table 1. The predominance of monthly wage of the square users was between 2 and 6 minimum wages, which is considered middle class.

All interviewees go regularly to the squares, preferably on week days (41%) due to their time availability, and they prefer to go all over the year, regardless of the season, since this does not interfere in their activities. Interviews were carried out between the winter and spring seasons and both in cold and warmer days, the squares were visited, mainly the ones in the central area, but some of the squares in the neighborhoods presented fewer visitors. Most of the users prefer to go to the

square in the afternoon, since the weather is "milder" at this time of the day and more convenient for their activities.

Most of the interviewees go to squares on foot, and take from 6 to 10 minutes to get there. They prefer having squares closer to their houses because it is easier to get to them and due to safety reasons. The most used squares by these interviewees are: first, Complexo Ambiental G. Manoel Ribas (Environmental Park), located in the city center and Getúlio Vargas Square, in the neighborhood Nova Rússia; second, Barão de Guaraúna Square, and third, Barão do Rio Branco Square, both downtown.

The squares in the city center are more visited by the interviewees for their location, structure and good conditions of use, since they offer a variety of equipment and activities to the users. De Angelis et al. (2005 p.11) reported that the squares "located downtown are usually better kept, while those in the periphery do not receive the same treatment or are even abandoned and are in poor state". This difference between the squares downtown and those in the neighborhoods is observed in Ponta Grossa. This harms the use of squares, since few users go to these places, these are usually people who live very close to these spaces and lack other entertainment options.

**Table 3. General analysis of squares in the urban area of Ponta Grossa.**

| | | |
|---|---|---|
| Profile | Housing | 56% live in the same neighborhood<br>44% come from other neighborhoods |
| | Gender | 50% female<br>50% male |
| | Profession | 52% other occupation or not well-defined occupation.<br>14% services area<br>9% Technical, scientific, artistic or similar area<br>8%% commercial area<br>6% Transportation area<br>6% Industrial area<br>5% administrative area |
| | Age group | 58 % adults<br>24% Young people<br>18% elderly |
| | Marital status | 51% married<br>38% single<br>7% widow⁄er<br>4% divorced |
| | Family income (minimum wage) | 53% between 2 and 6 minimum wages<br>41% up to 2 minimum wages<br>16% 6 to 15 minimum wages |
| Frequency | Use the square | 100% users |
| | Frequency of visit to this space | 41% on weekdays<br>34% at weekends<br>21% not often<br>4% monthly |
| | Preferred time of the year: | 55% prefer both summer and winter times<br>40% prefer summer time<br>5% prefer winter time |

| | | |
|---|---|---|
| Use | Main activity | 1° others/ physical activity/ meet friends<br>2° relaxation/leisure<br>3° work |
| | Most visited squares | 1° Com.Amb.G.Manoel Ribas/ Getúlio Vargas<br>2° Barão de Guaraúna<br>3° Barão do Rio Branco<br>4° Mal. Floriano Peixoto/ Simão Bolívar |
| | Time spent from home to the square | 43% from 6 to 10 minutes<br>26% from 1 to 5 minutes<br>14% from 11 to 15 minutes<br>9% from 16 to 20 minutes<br>4% from 26 to 30 minutes<br>2% from 21 to 25 minutes<br>2% over 30 minutes |
| | Means of transportation used: | 56% on foot<br>28% car or similar<br>12% bus<br>4% bicycle |
| | Preferred time of day: | 53% afternoon<br>45% morning<br>2% evening |
| | Safety | 83% feel safe<br>17% feel unsafe |
| | Uses the square with: | 36% alone<br>31% family<br>28% friends<br>4% spouse/date<br>1% others (nanny) |
| | Distance between the house and the square | 57% from 1 to 5 minutes from home<br>25% from 6 to 10 minutes from home<br>11% over 20 minutes from home<br>6% from 11 to 15 minutes from home<br>1% from 16 to 20 minutes from home |

| | | |
|---|---|---|
| Evaluation | Square structure | 46% good<br>27% regular<br>21% excellent<br>6% very bad |
| | Users' satisfaction | 91% satisfied<br>9% not satisfied |
| | Need for improvements | 53% No<br>47% Yes |
| | Aspects | POSITIVE ASPECTS<br>Safety, large space and leisure area, trees, good infrastructure in some squares.<br>NEGATIVE ASPECTS<br>Lack of infrastructure and maintenance, no trees, dirty and in need of improvement |
| | Feelings | Peace of mind, calmness, relaxation, unstressed, cheerful<br>fun, entertainment, good feelings<br>Fear and abandonment |

*Source: the authors*

Most of the interviewees feel safe in the squares at the times they visit them, very few go at night, since they do not think it is safe. In addition, they usually visit squares alone, but sometimes go with family or friends.

Over half of the interviewees (57%) would like to spend from 1 to 5 minutes to reach a square. Regarding the structure of squares, most think they are in good conditions, but these places require frequent maintenance and cleaning. They are places of easy access, however, some users classified the squares as regular. If the square has a structure classified from regular to very bad due to broken equipment, badly conserved parks or lack of security, this affects the frequency of use, the space loses its essence and the population develops some aversion towards the place. For this reason, it is the responsibility of both public agencies to maintain

and guarantee the security of the space and the population to contribute so that the space can be used by everybody and kept in good conditions. Almost all the squares satisfy the interviewees' needs, even with the problems found in relation to maintenance, structure and cleanness, however, they think improvement is needed, so that they feel like using them more, to have some entertainment and leisure moments and a place with activities for all ages.

The positive aspects that interviewees most mentioned were: security, good infrastructure and trees. These attributes were mostly associated to squares in the central area or close to it. The negative aspects were: lack of maintenance, lack of good infrastructure, dirt, need to improve these spaces, and these aspects were reported in relation to the squares in the periphery of the town.

The feelings reported by the interviewees in relation to the squares are tranquillity, peace of mind, calmness, fun, fear and abandonment. This shows that the feelings that the squares provoke in the users are mostly positive. The squares represent a place of leisure for everybody, they might improve people's quality of life either for being used by them or just for the opportunity of enjoying the beauty around them, since they have good maintenance and structure that provide a more pleasant sensation to the user and attract more people to use this space.

## 5. Conclusions

From the 22 squares selected, those located in the central area are more frequently visited than those in distant neighborhoods, since they have better infrastructure and good conditions of use, with the desired safety; there is regular maintenance as reported by the users; there is constant circulation of users in these places, who seek to enjoy active leisure, carry out physical activities and contemplation.

The structure of squares in the neighborhoods of the periphery was considered in good conditions, but in need of maintenance. For being further from the central area,

these squares are sometimes abandoned by the public agencies and do not receive frequent maintenance, as a consequence the users start to feel some aversion for the place, which starts to be used by other groups, such as drug users, prostitutes and homeless people, losing their real essence and function that is socialization.

In such cases the users start to be afraid to use the square due to lack of safety, since they feel at risk. This shows that the users seek private spaces such as clubs, private parks and shopping centers among others, for safety reasons, since they do not feel safe in the squares. This lack of security was mostly cited in the periphery, mainly at night.

Therefore, the squares analyzed need to be improved by the relevant public agency, the town hall, which should invest in new infrastructure or keep the existing one, so that the squares do not lose their essence, since they help to improve the quality of life of the population who seek these locals as a refugee from the hectic pace of the urban life.

## 6.References

BISCAIA, E. O. (2010). "Funcionalidade das áreas verdes urbanas em Ponta Grossa- PR: o caso das Praças Marechal Floriano Peixoto e Barão do Rio Branco". 2abalho de Conclusão de Curso (Graduação em Geografia). Universidade Estadual de Ponta Grossa: Ponta Grossa.

BUCCHERI F., A.T. &NUCCI, J.C. (2006). "Espaços livres, áreas verdes e cobertura vegetal no Bairro Alto da XV". *Rev. Departamento de Geografia, Curitiba/PR,* nº 18, 48-59.

YOKOO, S.C. & CHIES, C. (2009). "Papel das praças públicas: estudo de caso da Praça Raposo Tavares na cidade de Maringá". In *Encontro de Produção Cientifica, Campo Mourão.* Campo Mourão. [Available in hwww.fecilcam.br/nupem/anais_

iv_epct/PDF/ciencias_exatas/12_YOKOO_CHIES.pdf: 31 de out.2015].

DE ANGELIS, B. L. D., DE ANGELIS NETO, G., BARROS, G. de A. & BARROS, R. de A. (2005). *Praças: História, Usos e Funções*. Editora da Universidade de Maringá-Fundamentum: Maringá.

IBGE. Instituto Brasileiro de Geografia e Estatística (2010). Available in: <http://cidades.ibge.gov.br/xtras/perfil.php?lang=&codmun=411990>Acesso em: 10. nov. de 2015.

IBGE- Instituto Brasileiro de Geografia e Estatística (2015). Available in: <http://www.ibge.gov.br/home/estatistica/populacao/trabalhoerendimento/pnad99/metodologia99.shtm>Acesso em 11.dez. de 2015.

ROBBA, F. & MACEDO, S. S. (2002). *Praças Brasileiras*. EDUSP: São Paulo.

SANTOS, G. E. de O. (2016). *Cálculo amostral: calculadora on-line*. [Available in www.calculoamostral.vai.la].

SANTOS, Z. R. (2011). *Análise qualiquantitativa da arborização de praças da cidade de Ponta Grossa-PR*. rabalho de Conclusão de Curso. Universidade Estadual de Ponta Grossa: Ponta Grossa.

SANTOS EURICH, Z.R. (2014). *As praças da cidade de Ponta Grossa-PR: arborização urbana, infraestrutura e distribuição espacial*. Dissertação (Mestrado em Gestão do Território). Universidade Estadual de Ponta Grossa: Ponta Grossa.

SANTOS EURICH, Z. R.; CARVALHO, B. F.; CARVALHO, S. M. (2014). "As Praças na Cidade de Ponta Grossa-PR: Espacialização, Morfologia, Tipologia e Funcionalidade". In *VII Simpósio Paranaense de Pós-graduação e Pesquisa em Geografia*. Maringá.

# Ecological engineering and urban projects, methods to develop the habitability of publics spaces. A case study of a metropolitan vision of Great Lyon

Muriel Delabarre

*University of Lausanne*

## Abstract

*This paper launches a discussion about the implementation of a tool to support urban projects whose nature is an integral part. The development of this tool contains both elements of specific interventions in urban areas based on valuable choices from urban ecology and plural expertise (ecology, botany, hydrology, landscape, etc.) as well as normative thoughts extended to civil and decision-making spheres. A reference table has been developed to operationalize urban ecology and to objectify the minimum criteria to register a project in a transversal vision of habitability of urban spaces. The tool applied to the aquatic garden project of Lyon Confluence suggests a new technical and scientific capacity for recreation, manipulation of nature leading to the development of a real techno-nature.*

## 1. Introduction

The major degradation affecting communities (loss of biodiversity, pollution, etc.) or the scarcity of resources distributed unevenly in space, involve an amplification of environmental concerns. Facing this issue, it is needed to elaborate interventions on specific urban-based value choices, as well as normative reflections in urban project. The field of the "sustainable city" is an opportunity to bring out new urban compositions reflecting these urban environmental sensitivities and experiments with methods of work and urban project design in line with urban ecology. Actually, it's not surprising that various interdisciplinary exchanges are implemented to help rethink this urban link. Landscapers, ecologists, planners, sociologists (...), by their bright knowledge to legitimize their ability to seize these challenges, are trying to answer together and develop new designs of ecological engineering to create conditions of habitability of the cities. What ecological engineering techniques are

developed in their new forms of urban project? What type of nature is created?

## 2. Ecological engineering, a new cognitive framework: towards a contemporary habitability?

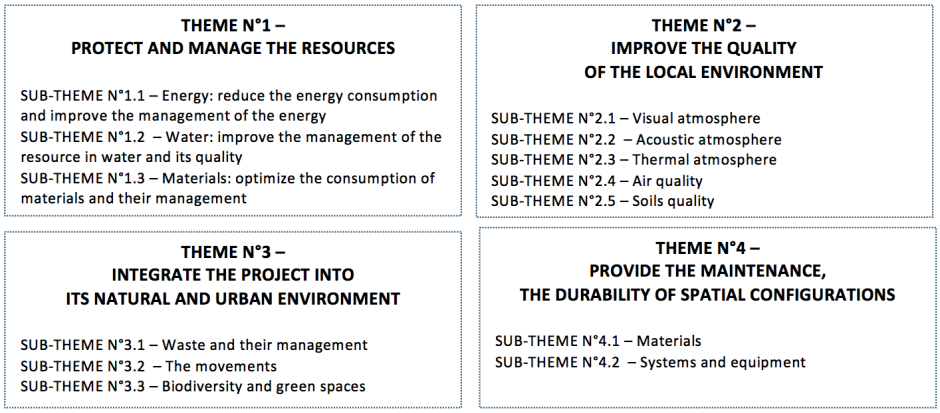
The concept of ecological engineering was developed in the 1960s - 1970s by Howard T. Odum in the United States from an ecological systems approach centered on the management of nature (Odum, 1962). It is an environmental manipulation made by humans using a small amount of extra energy to control systems in which the main energy forces still come from natural sources (Mitsch et Jørgensen, 1989 ; Mitsch, 1996). The examination of European urban projects shows that the technical devices include a new ecological engineering contributing to the habitability of the contemporary city (Delabarre, 2013). This engineering represents a further step in this relationship between man and nature, based on a knowledge – remaining of course partial – which nevertheless has the merit of creating and managing spaces for nature, developing it in a "favorable" way to the habitability of the contemporary city (Blanc, 2010). Paradoxically, technology becomes the agent through which the city can express the sensitive forms of nature such as the song of birds or the sound of water, the rustle of leaves. Kalaora (2001) considers that technology exposes nature to city dwellers as revealed by ecological science.

## 3. Evaluation: field of investigation to grasp the ecological engineering devices

In order to consider the plural expressions of nature in urban project and to examine the choices of the chosen devices in the field of ecological engineering, we have set ourselves the method to develop a tool the basis of indicators systems in this research. These indicators reflect a set of data on the ecological components of urban projects. Each urban project - as a physical device - can thus be the subject

of such an evaluation: the spatial configurations are analyzed on the natural, functional and technical processes (materiality) as much as the sensitive dimensions and the mental representations of the space: colors, atmospheres, sounds, physical apprehensions, etc. The proposed tool is adapted to the contexts of the operations and their own constraints, nevertheless systematically relying on a performance component divided into 4 themes and 14 sub-themes (Fig. 1).

**Figure 1. Architecture of the tool**




*Source : Muriel Delabarre, 2013*

Choosing meaningful targets and indicators of urban ecology is a very delicate exercise. The complexity of the subject leads us to proceed in a deconstruction of the components from nature and its physical environment in the conception of public space of urban project (Table1).

The tool is applied here to an original spatial configuration in Lyon produced as part of a global program of urban recapture: the aquatic gardens of the urban project of La Confluence. All these gardens designed by the agency Michel Desvigne in 2010, compose a vast landscape leaned against the Saône whose qualities evoke the richness of an aquatic environment. This territory is treated as a landscape

watercourse where natural diversity is established in the submerged parts. The agency has made three basins.

**Table 1. Example of a declination for the sub-theme 1.2 in order to manage water resources**

| Objective n°4 | TARGETS | INDICATORS |
|---|---|---|
| MANAGEMENT OF THE SOURCE RAINWATERS | -To limit the volume of the collected rainwaters by proceeding to the retention of waters ;<br>-To favor the infiltration most upstream possible of rainwaters through permeable surfaces ;<br>-To conceive zones of storage-buffers of retention of rainwaters (by means of roofs terraces, of roads integrating a reservoir, well, side trenches, ditches, of set or of ponds ;<br>-To strength the implementation of surfaces waterproofed in the bare minimum, as far as they answer the qualities of use required in terms of influences (maintenance) (car park, accessibility, collection of waste, etc.). | -Infiltrated volume of rainwater ( m3 ) towards pits of trees<br>-Debit (flow) of flight(leak) Volume of storable rainwater for re-use ( m3 ) |

*Source: Oriana Araujo (2015)*

## 4. Aquatic gardens of "La Confluence project" to the test of experimentation

A major concern of the management of water gardens is related to the definition of the volumes of water necessary to ensure not only the maintenance of a fixed water level taking into account the lack of rain during certain periods (compensation evaporation and evapotranspiration), but also to ensure the smooth functioning of biological basins (Fig. 2).

**Figure 2. - Southern basin water gardens**

*Source : Muriel Delabarre, 2014*

It is indeed necessary to minimize the development of undesirable algae by creating a possible more balanced biological environment. This biological balance would involve the optimization of several independent parameters, represented by:

- The depth of water;
- The nature of bottom substrates basins;
- Control of vegetation belts of development suited to the / terrestrial interface;
- The water renewal rights.

Although the analysis of the spatial configuration refers to several sub-themes of the ecological engineering tool (energy, materials, water, visual and acoustic environments, biodiversity etc.), we have chosen to present here evaluations conducted from three themes for this space.

### 4.1. Thematic water in its relation to the ground

The Desvigne agency wished to maintain a fixed level in every seasons of the year. Only a physical constraint is imposed on them: gardens occupy a position "perched" above the Saône. Having a reflection about the tightness of the basins

was therefore essential. The courses near water basins could be opportunities for variations in water level and indirectly from the neighboring groundwater. Work mastery teams proceed at the definition of basin depth allowing maximum water depth of 1 meter. Also, they opted for a complete renewal of the volume of water every two days. Related to these concerns, various factors were taken into account in the design of the space such as soil treatment and preservation of groundwater from pollution (Table 2).

**Table 2. - Example of a declination of the evaluation grid**

| **Objective n°4** | **TARGETS** |
|---|---|
| Water : To improve the management of the water resource and its quality | Development of basins<br>-Earthworks<br>The earthworks are carried out before the work on the gardens, 10 cm below the coast of the drainage complex, and are adjusted with a 0.2% east-west transverse slope.<br>- Sealing complex<br>On the bottom of the basin, a 10 cm setting layer of filler material has been applied.<br>A draining complex develops on the control layer (including a coarse layer of gravel into which the drainage pipes, the transverse East-West and North-South terrains) have been placed. The purpose of this complex is to avoid the pressures which can lift the sealing membrane. Subsequently, an anti-contaminant geo-textile, an elastomeric sealing membrane of 1.02 mm thickness, a root geotextile, an anti-punching geotextile with a density of at least 200 g / m², A layer of GNT 0 / 31.5 mm, and then the fertile substrate allowing the development of the plants. The minimum thickness of these two layers is 40 cm. |

*Source : Muriel Delabarre, 2014*

### 4.2. The principle of establishment of vegetation on water gardens has been studied in order to stick to the best in various natural situa tions

The proposed species are native (not exotic) able to grow in Lyon conditions. This list was built exclusively for the context of the operation of Lyon Confluence. Indeed, there would be a notable risk by introducing non-existent spaces on other websites that may cause uncontrollable and irreversible ecological imbalances. Implementing wetland plants triggers causes the colonization of the site by different species. Thus, the dynamics of colonization is beyond the control of the designer and react to biotic and abiotic factors. Monitoring and special maintenance are conducted to "maintain" the desired vegetation and implemented initially. From the center of the water (the deepest point) to reach the highest point above water, there are sixteen different vegetation belts corresponding to associations (phyto-associations).

### 4.3. The treatment of the landscape dimension

The project of the aquatic gardens suggests a new technical and scientific capacity for recreation, manipulation of nature leading to the development of a real techno-nature in the situation of environmental crisis: A nature that combines both technical processes and living and animated objects. By carefully examining these combinations, components are identified (depth of water, nature of substrates at the bottom of basins), but also management tools (control of the development of vegetation belts adapted to the Interface to / terrestrial environment, depth and possibilities for water renewal). These elements characterize the technical contributions and a new systemic organization in this new environment.

Ecological engineering extends our possibilities of intervention with and through nature. It brings forth a new desire of nature, which is a built desire. In this sense, engineering corresponds to a new stage in modernity that foreshadows a more

complex and finer approach to processes that are themselves diversified.

Through these new planning implementation, one measures the somewhat paradoxical character in our relation to nature: it is a nature - which we are looking for in an artificialized environment - that comes closest to the original image we have of it: it is more akin to the practical experience of the complexity of interactions, to an ecosystem approach to nature. This contemporary practice broadened our possibilities for interventions for nature in urban areas. Indeed, the more the tools supposed to increase our control have multiplied and refined, the more nature has escaped us. Thus, the famous Cartesian formula "to make us masters and possessors of nature" is reversed by means of a permanent learning. In this sense, ecological engineering corresponds to a new stage of project management that is more complex and more refined, opening a wide range of modes of interaction of nature with cities.

## 5. Towards a techno-nature?

The project of the aquatic gardens suggests a new technical and scientific capacity for recreation, manipulation of nature leading to the development of a real techno-nature in the situation of environmental crisis: A nature that combines both technical processes and living and animated objects. By carefully examining these combinations, components are identified (depth of water, nature of substrates at the bottom of basins), but also management tools (control of the development of vegetation belts adapted to the Interface to / terrestrial environment, depth and possibilities for water renewal). These elements characterize the technical contributions and a new systemic organization in this new environment.

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## 6. References

BLANC, N. (2010). "De l'habitabilité urbaine". In COUTARD, O. & LÉVY, J.-P. (Eds), *Écologies urbaines, Economica Anthropos,*169-183.

COUTARD, O., LÉVY, J.-P. (Eds) (2010). *Écologies urbaines,* Economica.[illegible]: París.

DELABARRE, M. (2013). *Natures plurielles, pour une contribution à l'habitabilité de l'espace public contemporain.* Thèse de doctorat en Urbanisme et Aménagement de l'espace. Université de Grenoble.

KALAORA, B. (2001). "A la conquête de la pleine nature". *Ethnologie française*, Vol 4, 591-597.

MITSCH, W-J. (1996). "Ecological Engeneering : a new paradigm for engineers and ecologists". In SCHULZE P. (dir.). *Engenieering within Ecological Constraints.*

National Academy of Engineering. Pp. 111-128.

MITSCH, W-J. & JORGENSEN, S-E. (1989). "Introduction to ecological enginnering". In MITSCH, W-J. JORGENSEN, S-E. (dir.). *Ecological Engeneering: An introduction to Ecotechnology.* Wiley: New York. Pp. 3-12.

ODUM, H.T. (1962). "Ecological tools and their use : man and the ecosystem". In *Proceedings of the Lockwood conference on the Suburban Forest and Ecology, The Connecticut Agricultural Experiment Station*, 57-75.

# The Photograph as an instrument of analysis of the urban landscape

Leticia Jácomo

*Universidad Autónoma de Madrid*

## Abstract

*The photograph, a register of different times, has been from its beginnings a witness of urban transformations. It has been used as an exceptional resource in the labour of documenting and visually representing the city and urban transformations that have taken place as well as the construction of memories of these transformations. Faced with its most usual treatment as a documentary reference for the recognition of changes or their use as an illustrative appendix or annex, the essential objective of this contribution is to claim its usefulness as a fundamental instrument in contemporary urban landscape's analysis. It is intended to provide a method of landscape photographic analysis that contributes effectively to the knowledge and interpretation of urban landscapes, thus contributing to the generation of basic knowledge for the improvement of quality of life in cities.*

## 1. Introduction

The photograph, a register of different times, is a witness to urban transformations. Its value as a tool and source of research is undeniable. For Coelho (2009), when we consider photography as a research source, we are lead to a field of knowledge that deals with human creations and productions. When we value the registers left by humans as a global sensitive experience, they are understood as the basis for the reading of facts and places, allowing, through them, the apprehension of their meanings.

In the last few years there has been an expressive increase in the use of visual materials in research works methodologies. An increase that may be related to the growing importance of visual images in contemporary social and cultural practice, with photography being the most used instrument in these works. (Rose, 2008)

This is due largely to the fact that, in the search for the understanding of photography as a differentiated source of textual language, we perceive certain details and fragments that, in general, escape from textual analysis and enrich with new interpretations the time and space analyzed (Tavares da Silva, 2001). Therefore, its use should not be limited to an illustrative appendix or annex but should be part of the methodology analysis, mainly in urban landscape studies.

Thus, photography as an instrument of urban landscape analysis claims to be used more by geographers, architects or historians because the plurality of its language that its use as a methodological resource with wide application in interdisciplinary subjects.

Most contributions related to urban landscape analysis from the photograph are centered in the patrimonialisation processes and their validity as a reference for the understanding of cities. Pousin (2007), for example, works on the relevance of photography in the urban landscape diffusion and Coelho (2009b) presents its role as a record of landscapes sensitive experience.

Other contributions focus on the symbolism of photographs and the emotional meanings they bring. From another perspective, other works related to the protection of a city's views, use it as an especially suitable tool for evaluation, protection and urban management.

However, there is a shortage of projects about identification systems and urban landscape analysis using photography. Thus, the main objective of this contribution is to claim the photograph's utility as a fundamental instrument in the analysis of the contemporary urban landscape, through the contribution of a method of photographic analysis that contributes effectively to the urban landscapes knowledge and interpretation.

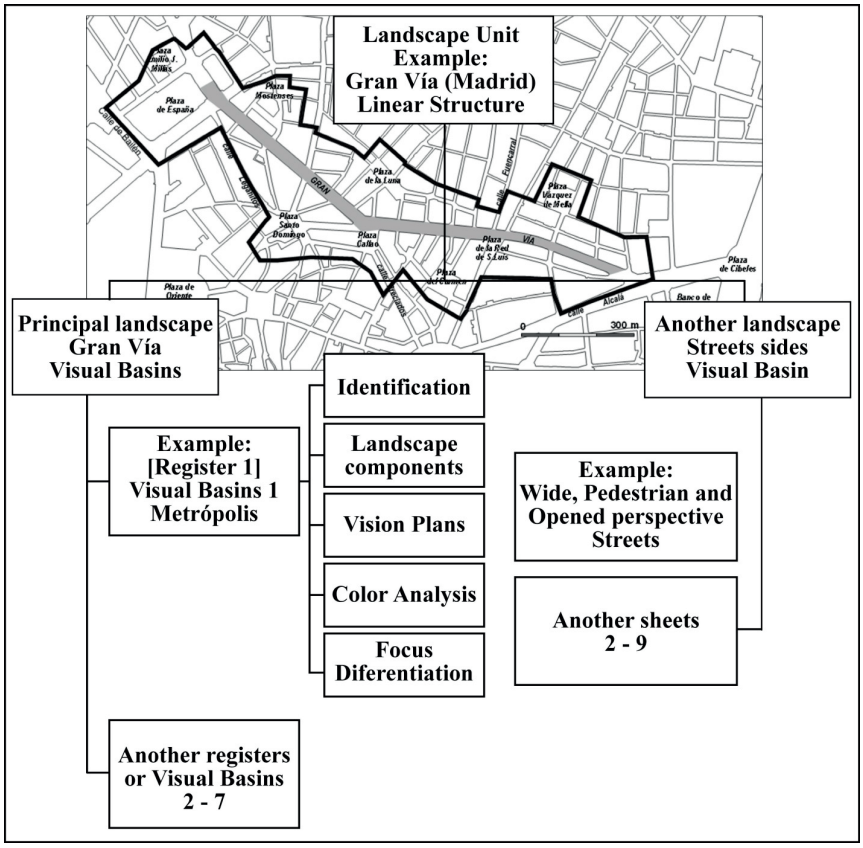
## 2. Methodological procedure

The methodology has been developed from what Rose (2014) calls "Visual Research Method" (VRM), which uses visual materials as part of the process for the generation of evidence to explore the issues being investigated. In this case, the graphic documents are photographs. For its development, we focused on different works that use photography, both methodological and practical, such as Chopin (2006) and Periés et al (2013), the most complete and closest to this research.

We will contemplate both landscape visual characteristics and their components, static or mobile, their chromatism and their visual plan. The key will be the visual basins. The analysis is applied on an already delimited landscape unit whose axis is one of the main arteries of Madrid's city center; hence the visual basins are established following a linear model, while the images corresponding to the lateral streets become subordinate complements to it. It is necessary to emphasize that to determine this reference unit a complex methodology was applied combining different variables (morphological and socioeconomic), as well as previous studies on the considered field and urban sections established for different purposes by the public administrations or created by specialists in different monographs. Photographs, as well as films or paintings, were already part of the references used to identify and delineate each landscape unit that will form the basis of further research through photographs.

For the determination of the principles and constituent elements of the records used in the landscape analysis was necessary, as well as bibliographic review, to contrast the components initially proposed on the field. The rounds were used to verify the sections' viability and corroborate their selection. The elaborated files, linked together, made it possible to characterize the landscape unit in an effective and suggestive way (Figure 1).

**Figure 1. Photographic analysis structure: registers and files**




*Source: The author*

The photographic technique for the optimal observation of the landscape elements to be analyzed is the panoramic format, made with a 120˚aperture. This aperture is the maximum visual range that the human being has when looking with both eyes towards the horizon, allowing an integrated landscape visualization. The photographic capture is made in total correspondence with the observation points, at the facades' street level and singular intersections.

Each landscape unit, exemplified here in the Gran Vía, has different registers that correspond to each visual basin indicated on it; each one is formed by five files.

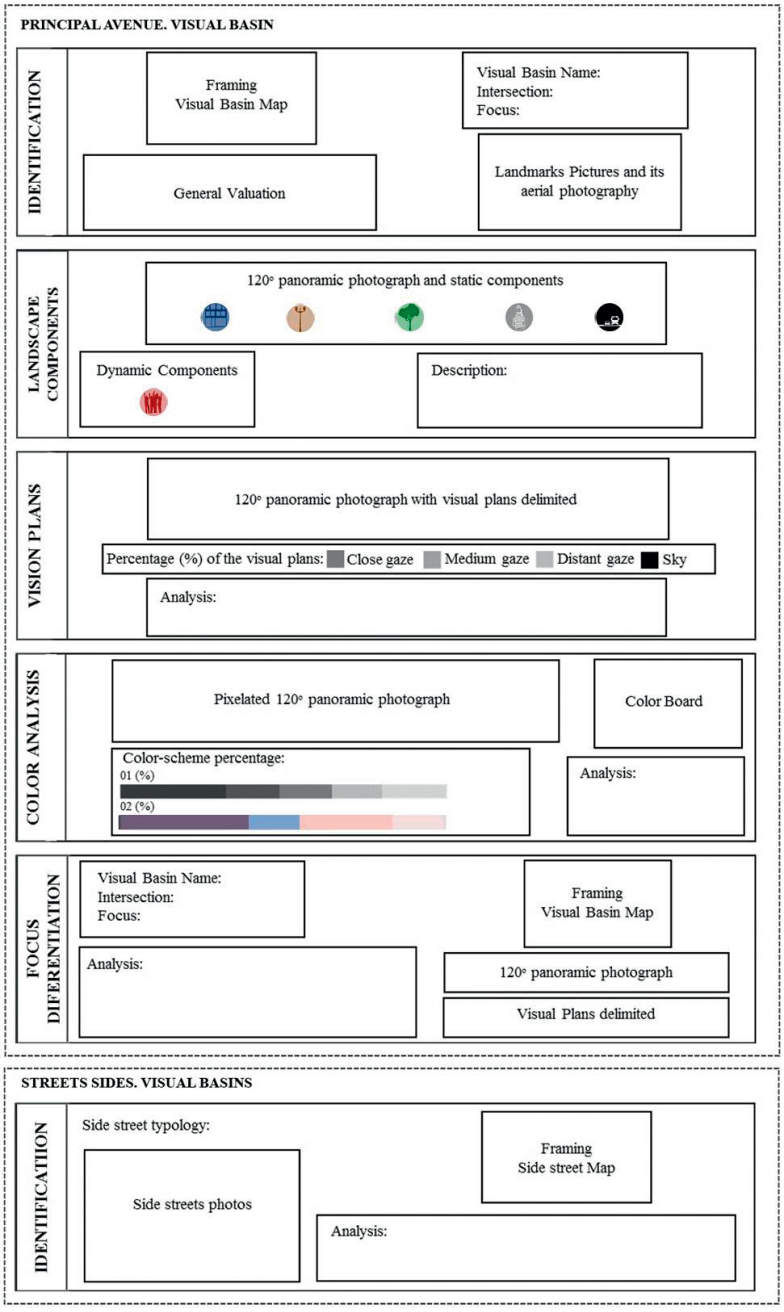
A sixth file has also been added, collecting the panoramas corresponding to the lateral streets that are part of the landscape unit. Its characterization is made from the visual properties of each one and its connection with the main street.

Each register, that is, each determined visual basin (Fig. 2), has a first file where the identification and location of the observation point and the delimitation of the visual basin are carried out. The second one is assigned to the landscape components' classification and valuation. The third corresponds to the visual plans register and the fourth to the analysis of the colors that compose the landscape. The fifth and last is assigned to the opposite visual perspective. That is, the analysis of the image obtained in the opposite direction for which the main analysis is being done, with the intention of obtaining an integrated understanding of the visual basin. For example, if the main basin is in the east-west direction, we will opt for the west-east perspective.

As noted, the analytical content of each visual basins or landscape subunits (registers) has been organized into five files (Fig. 2). In summary a visual basin is the truly observed space observed from a particular point. Through the field work in the analyzed area, the sequential points of the maximum visual field have been determined, separated by the greater distance that nevertheless allows the connection between them.

The first file corresponds to the basin identification, indicating its location in a plan and on an aerial photography, in which perspective direction is also marked. It also incorporates the relation of the urban landmarks present, which can be buildings, artistic elements, urban furniture, etc., illustrated by photographs. Each basin is identified by a proper name, corresponding to a significant landmark, and commented valuing its characteristics.

**Figure 2. Synthesis of the applied methodology**



## 3. Content of each visual basin register. Landscape files

Secondly, the landscape components summary file is made through panoramic photography. Its members are those elements that can be identified in the photograph, whether they are anthropic, natural or cultural.

For its classification, we have focused on the much-quoted pioneering work by Periés et al (2013), which registers each one of the components through cataloged symbols according to their condition: natural or anthropic, dynamic or static . Dynamic elements, mobile and/or temporary, can be cars, people, a construction, etc. The static ones correspond to the material objects, constructed and fixed, systematized in 5 subgroups: buildings, urban furniture, road network, uses in ground floor and vegetation. In addition to identifying the landscape components located in the photograph itself, a description evaluating the observed urban scene character is made.

The third file corresponds to the vision plan's delimitation. Its determination allows the clarification of what is observed by the human eye. They are interpretative schemes that divide the landscape into different depths, delimited according to the scope of the view from the observation point, with the sky being the last frontier of perception. Generally three planes are established and their distance is defined according to the observed panorama. The three planes are: close gaze, medium gaze and distant gaze. The analysis of each of them is made from panoramic photography using the photo editing tool Photoshop, allowing not only the portrayal of the planes but also the percentage calculation of each gaze (Ibid., 2013). Each "gaze" is identified with a shade of gray and the sky is represented by the black color, marking a contrast between them and allowing their perfect visualization. The result is the percentage quantification of the visibility in each look, which allows the identification of the visible components and the visual barriers existing in the landscape.

In the fourth place, a file is made for the landscape colorimetric analysis. Color is the visual sensation defined by the interaction of light, the surface qualities and the distance of the observer (Gómez Álzate, 2010). Its definition is fundamental to establish the city identity and structure, since each one has its own range, determined both by its history as and by the surrounding nature.

The color recognition was the most difficult procedure to establish since in no bibliography have we been able to find an explanation about the method of colorimetric analysis to attain the presented results. Therefore, we have chosen to detail in this communication the technique proposed for the determination of the range of colors. We have used the image processing tool included in the Photoshop program. From the pixelization of the image, it is possible to save it for the web format and from there it is possible to obtain a table with the 250 existing colors in the photograph. With this information, it is already possible to calculate the percentage of color in CMYK composition (acronym of the basic colors cyan or blue, magenta, yellow and black) of each tonality, thus determining the existing ones and which is predominant in the urban landscape analyzed. In the tab, in addition to the table color, they indicate those that dominate the urban scene, their percentage and its representation in the landscape.

Finally, the analysis file of the visual basin of the opposite perspective and the identification and classification file of the lateral visual basins of the landscape unit set are made.

The opposite perspective interpretation is made from a panoramic photograph of the opposite side of the main perspective. In order to avoid ambiguities and duplicating perspectives, since the visual basins are interconnected, on the opposite side only the analysis of the vision planes and a brief comparison on the contrasts will be necessary, taking into account the visible elements and the visual barriers that exists in both perspectives.

The lateral streets' visual basins analysis is carried out from the street's classification, considering the following characteristics: width (wide or narrow), type of traffic (vehicular or pedestrian) and vision opening (closed or open). From the typology created (nine options), the streets are cataloged according to their characteristics. Given the diversity in the avenue studied, it was decided to make one file for each type. Each of them has the identification and location of the streets that are part of each group, their photographs and a commentary about their incidence in the landscape.

## 4. Results

Despite the difficulties found, such as the need for specific softwares and the lack of a complete methodological basis for the development of some proposed points, the results have been very satisfactory. The files designed provide detailed information about each visual basin, which together allow a complete and very useful view of the analyzed landscape.

The possibility of identifying each landscape component is particularly relevant, thus establishing the predominant or absent elements, which is a novel alternative to be used as a basis for considering future intervention measures. The contents of landscape ordinances in many cities, focus on advertising, urban stands, signs or pennants, as well as colors and materials according to areas of the city. Having detailed information about the present and defining landscape elements in the city can be a fundamental support for adjusting and improving the content of these regulations in addition to allowing more foundational and specific actions. In this sense, the vision plan's delimitation helps to visualize what is predominant in the landscape, the visual barriers and what is hidden by them. It is therefore an essential complement to give greater clarity to the specifications proposed.

On the other hand, having a color evaluation tool, as an extra element of evaluating

urban landscape, will serve to understand better the experience and perception of the place and therefore, to understand the construction of its meanings. The applied aspect is also evident: color, an essential element of the landscape, has great potential in the revitalization of constructed spaces as well as in the allocation of feelings in new ones. Finally, the landscape components' identification, the visual plans and the colors of each visual basin allows for the relation of the results of each of these aspects, in all areas, facilitating a unified quantitative and qualitative evaluation. From this, it is possible to elaborate measures to improve the landscape's recognition and evaluation as well as to propose measures of protection and proposals for their better use and management.

## 5. Conclusions

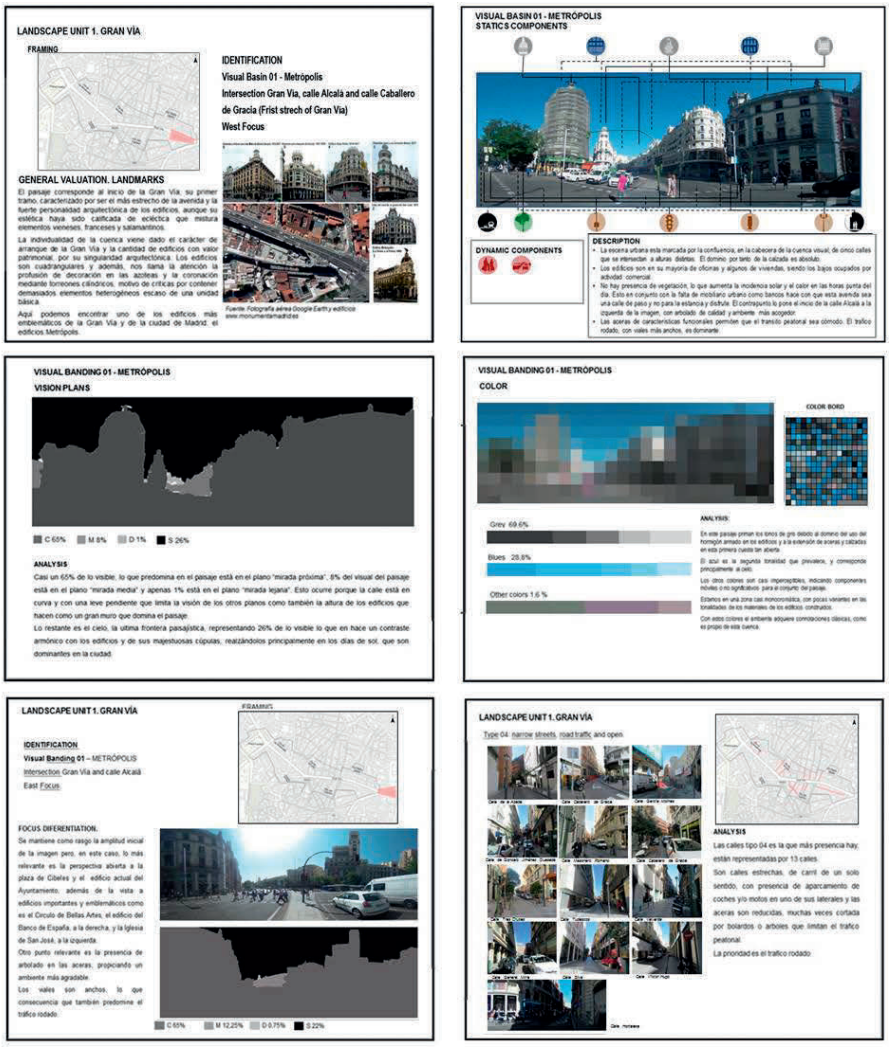
The methodology developed has been applied to a singular area existing in European and American historical center: the big avenues designe in the early twentieth century, conceived in order to break its narrow and tortuous appearance and to provide hygiene and ornamentation to the city. In this case, the Gran Vía de Madrid, Spain (Fig. 3) was used as an example.

The most relevant conclusions are focused on three aspects. In the first place, we were able to verify the adequacy of the methodology proposed for the urban landscape analysis. One of the essential problems in their analysis and understanding is the difficulty of their observation. Changes in different directions and above all the buildings act as screens that make it difficult to observe the urban landscape.

As Nel·lo pointed out emphatically, using the famous metaphor of trees that prevent us from seeing the forest, "the height of the buildings does not allow us to see the city" (2007: 188). The landscape, except from the high roofs or the viewpoints, remains hidden from view. However, the frozen panoramic view in the photograph makes it possible for us to get closer to its appropriation. The urban

scene components' identification and delimitation, as well as the incorporation of the perceptions and sensibilities added by both the photographer and the observer, allow a meticulous and comprehensive approach, difficult to achieve through other formulas.

**Figure 3. Example of registration (6 files) of a visual basin prepared for the landscape unit of Gran Via in Madrid**



The detailed analysis files will significantly improve the evaluation of each urban landscape and will also facilitate the comparative study between different or similar areas in the city itself or in different cities. This methodology is also intended to be an essential contribution to establishing sound policies for defense and patrimonial safeguard. Finally, the work has demonstrated the efficacy of photography as an instrument of analysis of the urban landscape, when checking its multiple possibilities that far exceed the simple documentary contribution.

## 6. References

CHOPIN, P. (2006). *Analyse d´un espace public.* [Available at: http://chopin.p.free.fr/fichiers_pub/Analyse_espace_urbain.pdf].

COELHO, L. (2009). "A paisagem na fotografia, os rastros da memória nas imagens". *Encontro da Associação Nacional de Pós-Graduação e Pesquisa em Planejamento Urbano e Regional.* Florianópolis. Pp.1-21.

GÓMEZ ÁLZATE, A. (2010). *Propuesta conceptual y metodológica para el análisis, diseño y planificación de la sostenibilidad urbana del paisaje en ciudades de media montaña andina: experimentación en Manizales (Colombia).* Universitat Politécnica de Catalunya: Barcelona.

GÓMEZ, I. (2013). *Análisis Cromático ambiental Nivel - Paisajístico, Arquitectónico y Táctil.* [Available in https://aplicacionescromaticasdv.wordpress.com].

NEL·LO, O. (2007): `La ciudad, paisaje invisible. In NOGUÉ, J. (ed.). *La construcción social del paisaje.* Biblioteca Nueva: Barcelona. Pp. 181-196.

PERÍES, L., OJEDA, B., KESMAN, C. AND BARRAUD, S. (2013). *Procedimientos para un Catálogo del Paisaje Urbano.* I+P Editorial: Córdoba (Argentina).

POUSIN, F. (2007). "Du townscape au paysage urbain , circulation d'un modèle rhétorique mobilisateur". *Strates*, 1-54. [Available at: http://strates.revues.org/5003].

ROSE, G. (2008). "Using Photographs as Illustrations in Human Geography". *Journal of Geography in Higher Education,* 32 (1), 151-160. [Available at: http://dx.doi.org/10.1080/03098260601082230].

ROSE, G. (2014). "On the Relation between 'Visual Research Methods' and Contemporary Visual Culture." *The Sociological Review*, 62 (1), 24-46.

TAVARES DA SILVA, L. (2001). "Fotografia e Paisagem Urbana. Saeculum". *Revista de História*, 6/7, 171-182.

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