FAIR PLAY
Olympics as catalyst for a socio-spatially inclusive city
The case of Rio de Janeiro 2016 Games

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Colophon

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1. Introduction

In UN-HABITAT's 2010 report entitled 'State of the World's cities 2010/2011 – Bridging the Urban Divide', the issue of socio-spatial segregation was identified as a main problem among different urban areas of the world currently. This problem, experienced by both developed and developing nations, relates mainly to the ever growing phenomenon of social polarization (rich/poor) which materializes itself in the physical organization of spaces. As the world becomes increasingly urbanized, the problem of socio-spatial segregation tends to be more concentrated and extreme in cities. There is where both rich and poor head to in search for the accumulation, in the case of the rich, or for the minimum production, in the case of the poor, of capital. The level of equity in opportunities these two groups and the rest of the population will find to support their development and fulfil their expectations will define how inclusive or exclusive their cities are.

In the city of Rio de Janeiro (Brazil), object of my graduation project, the problem of socio-spatial segregation is closely related to the lack of consistent governance models which guarantees the access of the poor to basic urban infrastructure and especially to affordable housing. In this context, the bad management of land, meaning its concentration (ownership) among few wealthy inhabitants and its use mostly for economic revenues, can be seen as the origin of the problem. Although Rio de Janeiro's Master Plan acknowledges some essential planning tools created to counteract socio-spatial segregation issues in the city, the results are yet unsatisfactory.

In the coming years, Rio de Janeiro will host two major sport-related mega events: the 2014 Football World Cup and the 2016 Olympic Games. For many cities in the world, the use of the so called 'Mega-event strategy' as part of a broader (strategic) spatial planning framework aims on helping tackling their economic, political, social and environmental issues. Besides that, in an every time more globalized world, using these events for positioning itself in the international agenda is another, but not less important goal of candidate cities. My graduation project will focus exclusively in the Olympics, and how it can act as a catalyst in transforming Rio de Janeiro into a more socio-spatially inclusive city. For that, I have chosen the district of Barra da Tijuca, one of the most socially exclusive neighbourhoods of Rio and where most Olympic-related (public and private) investments will be applied. How to make use of these investments for bridging or at least attenuating the problem of socio-spatial divide in the area is the main goal of my project. In this sense, the scope of my thesis includes the analysis and assessment of Rio de Janeiro's 2016 Olympics Urban Legacy Plan in what concerns its socio-spatial framework, and an alternative proposal of spatial interventions which could better address the issues related to the same topic.

Key words
Rio de Janeiro; Barra da Tijuca; Socio-spatial inclusion; Mega-event strategy; Olympic urban legacy.
Definition of 'Inclusive City'

From the beginning, it is important to define what an Inclusive City ought to be, since this will be the main concept to be explored during my graduation project. Although the notion of social inclusion can be rather abstract and mostly studied in the knowledge field of social sciences, when this concept is associated with the physical organization of spaces, it can also be incorporated in knowledge field of urban studies. In this last case, the term ‘socio-spatial’ inclusion is most commonly used and it will be the one I will always refer to throughout this text. In a broader context, I will consider the definition of UN-HABITAT (2010, p.28), that is:

An inclusive city can be defined and individually experienced in many different ways by its residents. Still, inclusive cities share a few basic features that can take different forms in various conditions: they provide the opportunities and supportive mechanisms that enable all residents to develop their full potential and gain their fair shares of the “urban advantage”. In an inclusive city, residents perceive themselves as important contributors to decision-making, ranging from political issues to the more mundane routines of daily life. Active participation guarantees all residents a stake in the benefits of urban development. The concepts of human relations, citizenship and civic rights are all inseparable from urban inclusiveness.

For a more objective approach, and to better measure the level of socio-spatial inclusiveness of my project in the end, I have defined four main elements which I believe an ‘Inclusive City’ should provide to (all) its citizens. These elements have close relation with the physical dimension of the urban environment. They are:

- good mobility/accessibility
- socially inclusive / attractive public space
- diverse job opportunities
- affordable land/housing

Figure 01 | Source: author's own
2. Problem definition

Socio-spatial related current urbanization trends

In UN-HABITAT’s report entitled ‘State of the World’s cities 2010/2011 – Bridging the Urban Divide’ (2010), two significant urbanization trends were identified in most cities of the world which could help reducing or enhancing the problem of socio-spatial segregation of their urban environment. One relates to the formation of mega-regions and the other to the process of urban decentralization.

The formation of mega-regions

More and more cities are growing in size and merging together into so-called mega-regions, urban corridors and city-regions. Within these new urban agglomerations, cities are bound territorially and functionally by economic, political, socio-cultural and ecological systems, representing a new organizational pattern of the global economy. Nevertheless, as the inter-connectivity and therefore inter-dependence among these cities are improved, there is a risk that the benefits of this new organization are concentrated solely in their economic centres, resulting in an unbalanced urban development and income inequalities within the different parts of the region.

Urban decentralization

For different reasons, and every time more, both rich and poor are moving from city centres to suburban neighbourhoods or even ‘satellite’cities. Some take advantage of cheaper land prices and low density patterns of occupation these areas usually provide with the hope of having a better quality of life (suburban sprawl). Others do not have any other option since living in central districts becomes less and less affordable nowadays (peripherization). In both cases, negative environmental, economic and social outcomes are expected to take place. This phenomenon is largely attributed not only to the improvement of information and people’s physical mobility, but also to a weak planning and control by authorities of the urban growth. As a result, further socio-spatial division of those urban spaces is generated.

Socio-spatial contradictions in Olympic Plans

Although each Olympic city chooses for a specific theme to work on as a main motto, in all cases, at least in the last few decades, the different Olympic Plans have touched upon a number of common objectives that are generally related to economic, political (governance), social and environmental issues. The reason for that is that as part of a bigger strategic urban planning framework, Olympic Plans have adopted the concept of ‘sustainable development’, a popular model of development explored worldwide nowadays that especially addresses these same issues. (Qu, Spaans 2009) Despite the fact that these objectives have, in most cases, a close relation with each other, my
graduation thesis will mainly focus on the aspects that have direct impact on social-spatial organization of the host cities.

In a spatial perspective, already for some time, the preparations for hosting the Olympic Games have exceeded its original and limited scope of sport-related facilities (mainly sports venues). Gradually, as the number of participants (athletes, media professionals, visitors, etc.) became larger, the necessary infrastructure for hosting the Olympics had also substantially increased. So did the impact on host cities. Today, the Olympic program have emerged as ‘large urban projects’ comprising not only the Olympic venues but also a number of other functions related to the improvement of mobility, social and cultural infrastructure (housing, museums, etc.) and the environment. (Qu & Spaans 2009; Rolnik 2009)

As the essence of strategic planning involves different scales of intervention (from global to local) and a wide range of stakeholders (governments, private sector, civil society, etc), in Olympic Plans this essence can be also verified. In more socially balanced societies, global and local forces tend to have more or less the same importance and therefore influence during decision making processes related to the transformation of its urban environment. Nevertheless, in cases where the existing models of governance fail in protecting the rights of the less well off citizens, the social legacy generated by the Olympic Games can be extremely negative, not only for this specific group but also for the host city as a whole.

Taking the example of an 'Olympic large urban project' some contradictions related to socio-spatial issues become apparent in almost every Olympic city. Starting with the topic of mobility, if the accessibility to the project area is upgraded allowing for new functions (housing, commerce and services, etc.) to take place, at the same time the land value, not only in this area but also in its vicinity, also increases. Depending on the city and its planning tradition, this fact can have a very negative impact in the promotion of social housing and related functions in the location. Furthermore, large urban projects are generally connected, directly or indirectly, to the eviction of low income inhabitants from the project area and its surroundings, in the first case, by relocating the people from the location where the project will be actually developed, and in the second case by processes of gentrification. Regarding other topics commonly adressed by Olypic Plans, such as environmental upgrading, similar outcomes can be also verified.

In a broader context (city/region), the inability and many times disinterest of governments and other involved stakeholders to keep low income residents in strategic areas of the city, newly developed to accommodate Olympic as well as other functions, has led many Olympic cities to a ever growing process of socio-spatial fragmentation, a problem that goes against the most basic principles of a sustainable urban development, in all its senses (social, economic, environmental, etc.).
3. Problem contextualization

3.1 Scope and limitations

For operational reasons, my graduation project will primarily focus in the city of Rio de Janeiro. Although socio-spatial problems exists in a diverse range of urban scales (mega-region/city-region/city) that constantly, and every time more, influence each other, the most comprehensive available data, able to provide a solid basis for my analysis and my further conclusions, is at a municipal level. Yet, whenever possible, links to the other urban scales will be explored.

3.2 Project location

Figure 02 | Source: author’s own

Source: IBGE 2010
Why Rio de Janeiro?

Apart from its natural beauty, its football and its carnival, the city of Rio de Janeiro is internationally known for its severe socio-spatial segregation problems. When talking about the city, many people directly associate it with the slums (favelas), a constant element in Rio’s urban landscape. As a ‘global city’, the urban trends previously described (mega-region formation and urban decentralization) are also recognizable there. The fact that in the coming years the city will host the two major sport events in the world, the 2014 Football World Cup and the 2016 Olympic Games, represents a unique opportunity for Rio de Janeiro to overcome, or at least, to reduce its socio-spatial problems.

Why Barra da Tijuca?

The Master Plan of Barra da Tijuca district, designed by the architect Lucio Costa in 1969, was formulated as an alternative to deal with Rio de Janeiro city’s enormous population growth during the second half of the 1960s. Based on modernist principles, the main goal of the plan was to create not only new housing and recreational facilities but also a new centrality for the city itself. Although the implementation of the plan did not completely follow Costa’s guidelines, especially in relation to the preservation of the district’s natural environment and to the stipulated land use profile, in the last decades Barra da Tijuca has in fact become a new but very peculiar centrality of Rio. The particular urbanization process that has taken place in the area has very different parameters from the rest of the city. The model, based on a low dense territorial occupation strongly supported by a car-owned transport system and directed to a specific group of the society (middle to upper class) has transformed the district in a socially hegemonic urban enclave. In that scenario, the role of the Real Estate market is extremely dominant and influential in the government’s planning decisions. When in Rio’s 2016 Olympic Master Plan the government had decided to concentrate most of the Olympic infrastructure and therefore public investments in the district of Barra da Tijuca, the original intention of transforming the area in a metropolitan centrality, was enhanced. Nevertheless, socio-spatial inclusion was not mentioned as a goal of the Olympic plan for the area.

3.3 Background

Socio-spatial segregation in Rio de Janeiro city

The city of Rio de Janeiro together with its metropolitan region forms the second largest and richest urban conurbation of Brazil today. Besides concentrating a considerable number of inhabitants, approximately 12 million in total, the region stands out among other Brazilian metropolises for the great amount of economic activities that are performed in its territory, in special, the ones related to highly advanced services. (Lago, 2009)

Despite its prominent position in the national economic scenario, Rio de Janeiro city
(and its metropolitan region) has yet serious socio-spatial problems to overcome. In 2010, it was calculated that 14.4% of the region's total population, around 1.700.000 people, were living in subnormal agglomerations. (IBGE, 2010)

A subnormal agglomeration, according to the Brazilian Institute of Geography and Statistics (IBGE), can be defined as a group of at least 51 housing unities lacking of essential general public services, presently or till recently located in other's property land (public or private) and physically arranged in a disordered and dense way.

Rio's socio-spatial exclusion problem was also reported by UN-HABITAT (2008, 2010). Besides indicating the high percentage of existing slums in Brazil (a clear evidence of the problem), UN-HABITAT’s GINI Coefficient (income) calculation shows that Rio de Janeiro is one of the most socially unequal cities in Latin America. (See Figures 03, 04, & 05)

The GINI coefficient is a useful metric for understanding the state of cities with regard to distribution of income or consumption. It is the most widely used measure to determine the extent to which the distribution of income or consumption among individuals or households deviates from a perfectly equal distribution. A GINI coefficient of 0 (zero) indicates perfect equality, whereas a GINI coefficient of 1 (one) indicates perfect inequality. Higher values, therefore, denote greater inequality (...) (UN-HABITAT 2008, p.51)
In Abreu’s (1987) extensive study about Rio de Janeiro’s spatial development he had concluded that the way the city has been developed and managed along history has created the essential conditions for its exclusionary spatial configuration. The fact that the always very limited public resources for urban infrastructure and services were mainly concentrated in central districts of the city had defined these areas as the most valuable ones, therefore occupied by mid- to high income residents. The rest of the population who could not afford living in the centre and its surroundings, were forced to move to the suburbs or to informal settlements (slums) within those central neighbourhoods. There they live in very precarious conditions and far from most job opportunities (in the case of the suburbs) that are still centrally located.

The following maps show this relation between infrastructure provision and socio development in Rio de Janeiro’s urban space.
Figure 07 | Proportion of households with all appropriate services (water and sewage system / garbage collection) - 2000
Source: Armazém de Dados

Figure 08 | Human Development Index (income) - 2000
Source: Armazém de Dados

Figure 09 | Existing informal settlements - 2010 / Source: IBGE
Zooming out to Rio de Janeiro’s Metropolitan Region, the same socio-spatial pattern is verified. In the report ‘Como anda Rio de Janeiro’ (How it goes Rio de Janeiro) (Lago, 2009) the visualization of the region’s socio-spatial structure was based on the type/kind of work people are engaged with. For Lago, people’s working position, and therefore their income, are central factors in the definition of their possibilities to access the urban goods and services that are unequally distributed through Rio’s territory. (See Figures 10 & 11)

Figure 10 | Rio de Janeiro’s Metropolitan Region socio-spatial typology / Classification by working occupation - 2000
Source: Lago, 2009

Figure 11 | Rio de Janeiro’s Metropolitan Region socio-spatial typology / Classification by income < ½ minimum wage³ (+/- 40,- US$) - 2000
Source: Lago, 2009

³ The minimum wage (salário mínimo) is the minimum amount of money stipulated by the Brazilian Law to be paid by employers to their employees for the time and effort spent in the production of goods and services. (Wikipedia, visited on 17-01-2012)

In 2000, the Brazilian minimum salary was 151,- BRL (Brazilian Reais) or 80,- US$ (currency conversion 1 January 2000)
Rio de Janeiro’s Metropolitan Structure

In Abreu’s work, he analyses Rio de Janeiro’s Metropolitan Region’s urban structure and suggests its division in four different parts, each of them with similar spatial characteristics. For this division, the author considered especially the existing city’s transport structural system which for him has always conditioned Rio’s urban expansion. (See Figure 12)

![Figure 12 | Rio de Janeiro’s Metropolitan Region structure (1978)](source)

In Abreu’s spatial classification, the Core/Nucleus concentrates the region’s economic, political and cultural functions. This part is also served with the best urban infrastructure, public equipments and services, though with the tendency to be overused because of their insufficient capacity. The Core also houses the inhabitants with the highest income and better jobs of the city. At that time, its GDP represented 54% of the total in the metropolitan region. Job opportunities are also concentrated in this area.

The Immediate Periphery is defined by Abreu as the area mainly dwelled by the low-middle class. It also has some old industrial activities and service centres with an immediate lower hierarchy than the ones in Core, but still with regional importance. Its urban infrastructure is adequate when compared with the other peripheral areas as well as it services. Most neighbourhoods that are part of the immediate periphery have their origin in the implementation of the suburban railway lines and are a result of the densification of the areas surrounding the train stations.

The Intermediate Periphery was identified as the area in which Rio’s Metropolitan’s region physically expands itself. The high numbers of its population’s growth rate are especially related to two different migration flows: one of people that are expelled from the city’s central areas because of Real Estate pressure or governmental decisions, and the other of people coming from the outside of the metropolitan region.
cannot afford living elsewhere. The centralities existing in this area, though dynamic and somehow expressive, have very low spatial qualities and are limited to the little economic possibilities of their users. Furthermore, the land occupation pattern is very irregular, and in many times, informally developed. Regarding the local urban infrastructure, public services and equipments, those are almost inexistent there. Although Abreu does not give further details about what he calls the Distant Periphery, from his representation of Rio’s Metropolitan Region (Figure 8), one can assume that this area had at that time mainly rural characteristics and not much influence in the urban dynamics of the region.

Comparing Abreu’s and Lago’s maps it is possible to conclude that the socio-spatial structure of Rio de Janeiro’s Metropolitan Region has not changed over the last decades. Apart from the difference in size and number of municipalities (some municipalities have excluded themselves from the region and others had some part of their territory transformed into new municipalities), its socio-spatial configuration is still the same: a rich and developed core surrounded by areas that are more or less developed depending on how distant they are from this core.

**Rio de Janeiro city’s current urbanization trends**

The city of Rio de Janeiro, like many other cities in the world, follows today two main urbanization trends identified by UN HABITAT (2010) as crucial for its socio-spatial development. Those are the formation of a mega-region (together with São Paulo) and the decentralization of its urban space.

**Rio de Janeiro-São Paulo Mega Region**

Together, the Metropolitan Region of Rio de Janeiro (RMRJ), the Metropolitan Region of São Paulo (RMSP) and the space between them are the first and only mega-region in Brazil and in Latin America today. (See Figure 13) According to the Brazilian Transport Ministry (2011), this area concentrates 33% of the total GDP and 22% of the total population in the country. Aiming on strengthening its position and image in the global scenario, a number of strategic projects are being developed in the region like, for example, the new high-speed train line, linking the main (air) ports of Rio de Janeiro and São Paulo. (See Figure 14)
Urban decentralization in Rio de Janeiro city

The process of urban decentralization of Rio de Janeiro city can be verified in the national census of 2010 (IBGE). While the average population growth rate of the city was of 7.9% in a decade, neighbourhoods far from the city centre (especially on the west) had grown 150% in average. This phenomenon has mainly to do with the management of land, meaning the role of the government in facilitating or not the access to it, especially for housing purposes. According to the UN-HABITAT report ‘Affordable land and housing in Latin America and the Caribbean’ (2011, p.44):

The manner in which land develops – whether formally or informally – determines the ways that cities develop and the way that the cities are inhabited by residents, stitching into the urban fabric trends of integration or segregation, harmony or chaos, an disenfranchisement
In Rio de Janeiro, like in other cities of the world, two kinds of migration flows are connected to the issue of spatial decentralization. Part of the population, the ones with more financial possibilities, find in less crowded neighbourhoods better opportunities (cheaper land/housing for example) for living. For those people, such areas have also the potential to provide a better quality of life since the already consolidated central districts of the city have achieved their full capacity in terms of population density and infrastructure provision.

Another part of the population, the ones with less or almost any financial possibilities, has in suburban neighbourhoods the only option for living. The land price speculation promoted by the private sector in central districts of the city together with governmental housing policies that stimulate it, are main drivers of this problem.

**Rio de Janeiro 2016 Olympic Games**

The current plans for Rio de Janeiro 2016 Olympic Games concerning the physical transformations to be carried out in the city in the coming years are directly influenced by the two urbanization trends mentioned above.

Bidding for hosting the Olympics, as well as the Football World Cup, can be seen already as part of a deliberated urban development strategy of the government (municipal, statal and federal) to strengthen the existing regional ties that are essential for the city and region’s positioning in the global scenario. After the successful experience of Barcelona’s 1992 Games, there is a common belief, shared with many other cities in the world, that the spatial transformations promoted by such events potentially increases the chances of host cities to attract further investments and therefore to upgrade their image and economic status internationally.

Since mid-1990s, the city of Rio de Janeiro has been trying to succeed in the Olympic bid. Though hosting the 2004 Games was an ambition of the city’s first Strategic Plan (1996), only in 2009 Rio was finally selected to host the Games in 2016.

Regarding the trend of urban decentralization, the Olympic Master Plan to be implemented in Rio de Janeiro in the coming years clearly expresses the government’s wish to invest in such kind of urban development model. By concentrating most Olympic infrastructure and devoting most public money in a area where the land use regulations incite a decentralized and sprawled model of territorial occupation, this assumption becomes evident.
To better understand Rio de Janeiro's Olympic Master Plan, and more specifically the government's intentions behind it, it is necessary to go back in time, to mid-1990s, when Rio had engaged itself in a new kind of urban governance ideology. Inspired and supported by international expertise, namely by Catalan professionals involved in the plans for Barcelona's 1992 Olympics, the development of the city from that moment on would mainly follow international market principles, with high levels of entrepreneurship and competitiveness (Amendola, 2002). Within this model, the economic and political decision making powers would be greatly influenced by businessmen and private investors. This fact can explain why most part of the Olympics-related infrastructure and investments were planned in one of the richest and fastest growing neighbourhoods of the city, the district of Barra da Tijuca. (See Figures 15, 16 & 17)
Figure 16 | Average income of household per neighbourhood - 2000
Source: Armazém de Dados

Figure 17 | Proportion of new Real Estate developments per neighbourhood between 2005 - 2008 / Source: ADEMI
As part of Rio 2016 Olympics' bid, the ‘Urban and Environmental Legacy Plan’ (UELP) is regarded as the key-planning tool developed by the government to guide the city’s Olympic-related transformations in the coming years. This plan is supposed to strengthen the city’s already existing general Master Plan, combining the last with the Olympics’ bidding Candidature Files. The following table was extracted from the UELP and features the intended overlap between both plans:

<table>
<thead>
<tr>
<th>Urban Legacy / Convergences</th>
<th>Games Candidature File</th>
<th>Rio de Janeiro Master Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accommodations/Housing</td>
<td>Olympic, Referee &amp; Media Villages, supporting hotels</td>
<td><strong>Housing deficit decrease</strong>, housing production stimulus, development of housing in central districts</td>
</tr>
<tr>
<td>Urban Transportation</td>
<td>Accessibility to the Olympic Venues</td>
<td><strong>Urban Transport Master Plan</strong>: Transport system rationalization &amp; investments in road infrastructure and public transport</td>
</tr>
<tr>
<td>Sanitation &amp; Environment</td>
<td>Environmental sustainability: minimum impact on natural environment</td>
<td><strong>Universal sanitation</strong>, pollution control, environmental heritage protection, forestation increase</td>
</tr>
<tr>
<td>City Appreciation</td>
<td>Focus on the environment and landscape appreciation, on environment protection and on social inclusion</td>
<td><strong>Focus on the natural and cultural heritage protection and in a more just and balanced distribution of urbanization benefits</strong></td>
</tr>
</tbody>
</table>

Source: www.rio2016.org / translation by author

In the Games Candidature Files, as well as in the UELP, social inclusion is constantly mentioned as one of the main legacies to be delivered by the 2016 Olympic Games. However, from the simplified scheme above, some contradictions regarding this statement are visible.

Starting with the goal of accommodation/housing, the fact that the post use of all Olympic accommodations (for athletes, referees and media professionals) are not planned for low income residents, it is not possible to relate them with the decrease of the city’s housing deficit. According to the official records, more than 24,000 rooms are planned for the ‘Olympic Family’ (COB, 2009). Rio de Janeiro had in 2009 a housing deficit of 136,345 dwellings (Lago, 2009) concentrated among the city’s most less well-off inhabitants (Rolnik, 2010). Another questionable affirmation, still related to housing issues, is that it is expected that the Olympics will stimulate housing production in the city, with a special focus in central districts. It is a fact that after changes in the original plan that transferred the Media and Referees Villages to Rio’s central harbour district, this area will now count with at least 10,600 new rooms (IAB, 2010), however those new dwellings will not be directed to low-income inhabitants. In addition, if in one hand this new development is seen as a great opportunity to regenerate the centre of Rio, on the other hand it can also accelerate and intensify the socio-spatial exclusionary
process in the city. With all investments in urban infrastructure to support the Olympic Games, the city is already experiencing a great increase in land/housing value, not only in the Olympic venues surroundings but also in central areas. Statistics show that in Centro district, the selling price of housing apartments per square meter has jumped from 2,200 USD in July 2010 to 3,400 USD in July 2011, a raise of 54.5% in one year (FIPE ZAP). The consequence of this phenomenon on social inclusion is that it becomes less feasible for the government to stimulate the production of social housing in those valued areas (Rolnik, 2010). This fact, added to the natural process of gentrification which is expected as a result of the rise of local living costs (De Rose, 2011), makes it even more difficult for the government to promote the desirable inclusive city. Lastly, the supposition that the Olympics will benefit the city as a whole, in a balanced and just way, does not match with the Olympic Master Plan itself. If we consider that in Rio de Janeiro’s Master Plan, the city is divided in so called ‘macro-zones’, to better direct public as well as private investments within the municipality, there is no logical reason to locate most of the Olympic infrastructure and public resources in one of its wealthiest neighbourhoods. In Rio’s Master Plan, this same area is part of the ‘Macro-zone of conditioned occupation’, which according to the government’s own definition, should be mainly developed by private capital. (See Figure 18)
4. Problem statement

‘Despite economic progresses, (...) the signs of an exclusionary and predatory urban development program are still visible in the process of urbanization in Brazil’ (Rolnik, Klink 2011)

The 2016 Olympic Master Plan is an example of today’s socio-spatial exclusionary planning logics of Rio de Janeiro city. By concentrating most public investments in an already rich part of the city without offering new possibilities for the less well off inhabitants in the area, the gap between poor and rich is expected to grow. From the analysis of Rio’s Olympic Legacy Plan it is also possible to say that the plan, as it is today, reinforces the two trends described previously: the mega-region formation and urban decentralization. By choosing such an area to develop, the government shows the ambition to officialise the position of the neighbourhood as a new centrality for the city and for the region. For Barra da Tijuca to become a consistent and sustainable regional centrality, able to positively respond to the city’s existing socio-spatial challenges, a revision in the Olympic Plan is urgently needed.

5. Aims of the project

General Aim

To create an urban development model able to transform areas with high levels of socio-spatial segregation into liveable and socially sustainable/inclusive urban spaces.

Specific Aim

To explore the spatial potentials of Barra da Tijuca in becoming a social inclusive centrality for Rio de Janeiro and the mega-region in which Rio takes part, using the 2016 Olympic Games as a catalyst of the district transformation.
6. Research Question

How can strategic spatial interventions supported by Rio de Janeiro's 2016 Olympic Master Plan transform the district of Barra da Tijuca into a socio-spatially inclusive regional centrality?

(a) Which planning framework (governance model/spatial planning tools) is required so that desirable result (socio-spatial inclusion) is achieved?

(b) What kind of spatial intervention(s) best reflects this planning framework?

Sub-research Questions

i. What are the main spatial characteristics of a socio-spatially inclusive urban space?

ii. Which planning tools can support socio-spatial inclusive urban developments in cities like Rio de Janeiro?

iii. Which government framework models can support socio-spatial urban developments in cities like Rio de Janeiro?

iv. To what extent the 2016 Olympic Master Plan can be used to promote socio-spatial inclusiveness in Rio de Janeiro and in Barra da Tijuca?

v. What spatial elements are missing in Barra da Tijuca so that the district becomes a socio-spatially inclusive regional centrality?
7. Methodology

The methodological framework of my graduation thesis combines a number of (theoretical and empirical) research methods that are going to be used in order to answer my research/sub-research questions. These questions reflect not only the problem statement that will be explored by my thesis but also my main objectives.

The theoretical methods involve a general literature study on the two main topics of my work: Socio-spatial inclusion and Mega-event strategy, and a Case Study on Barcelona’s 1992 Olympics. The decision to choose for Barcelona case relates to its positive reputation in solving socio-spatial problems under the Olympic Plan umbrella. Regarding first topic (socio-spatial inclusion), whenever possible, the focus will be directed to the Latin American context.

The empirical methods are strictly related to Rio de Janeiro and Barra da Tijuca context. The analysis of main official documents such as Rio’s 2016 Olympics Legacy Plan as well as some aspects of Rio de Janeiro and Barra’s Master Plan by maps and critical texts are the basis for my future planning and design proposal. The focus here will be mainly on the socio-spatial aspects of those plans. Also the socio-spatial content of Barra da Tijuca’s original Master Plan (from 1969) will be analysed with the same techniques. Besides that, a deeper ‘typomorphological’ analysis will be made for the district (also with analytical maps). For this, information collected from different sources (existing maps, pictures taken during the visit to the site, etc) will be the main basis. Finally, the result from my analyses combined with a number of interviews conducted with local stakeholders will direct my spatial interventions.

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## METHODOLOGY

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<tr>
<td>- Literature study on socio-spatial inclusion (general theory, planning tools and governance frameworks)</td>
<td>Patsy Healey; Sérgio Magalhães; Raquel Rolnik et al.; Hélia Nassif Xavier; Paulo Sandrioni</td>
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<td>- Analysis of official plans (Rio de Janeiro &amp; Barra da Tijuca Master Plan)</td>
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<td>- Literature study &amp; review paper on ‘Mega-event strategy (socio-spatial dimension)</td>
<td>Greg Andranovich et al; Brian Chalkley &amp; Stephen Essex; Raquel Rolnik; Lei Qu &amp; Marjolein Spaans</td>
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<td>- Case Study on 1992 Barcelona’s Olympics</td>
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<td>- Analysis of official plans (Rio 2016 Olympic Urban Legacy Plan)</td>
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<td>- Analysis of Barra da Tijuca original Master Plan</td>
<td>Lucio Costa; Gerônimo Leitão; Annie Goldberg Eppinghaus; Leo van de Burg</td>
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<td>- Typomorphological analysis of Barra da Tijuca</td>
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<td>- Interview with local stakeholders</td>
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8. Theoretical Framework

The Mega-event strategy

It is widely acknowledged that hosting mega-events, such as Olympic Games, has become a unique opportunity for cities to develop themselves (IOC, 2010; CELU, 2008; Rolnik, 2009). In the case of the Olympics, as its potential has exceeded its first goal (the promotion of sports as a spectacle for testing humans’ physical limits), and because the impact on host cities has significantly increased, more and more attention is being directed to the actual legacies delivered by this event.

In an ideal scenario, it is expected that cities and their citizens benefit from economic investments and political efforts engaged in the occasion, not only for the period of the games, but specially afterwards. In this sense, integrating the Olympics into their spatial planning process has lately become a deliberated urban strategy for host cities, working as a tool of area development and urban governance. Qu and Spaans (2009, p.334), define the mega-event strategy as follows:

Looking beyond the event itself, the mega event strategy is basically one using the mega-event as an engine for urban development. Therefore it can be considered as a tool of urban governance. Usually host cities of such mega-event have to accommodate a large urban programme. For example, Olympic Games host cities have to provide sports facilities, an Olympic Village, a Media Park, hotel accommodation and supporting infrastructure. The scale of these projects is very large and they have a huge social, economical and environmental impact on the host cities or even entire regions. Recognizing this, cities started to make enormous efforts on trying to fit event-related projects within long-term perspective of strategic spatial planning, including the post-Olympic use of projects.

The Mega-event strategy as we know it today was first developed and implemented in Barcelona’s 1992 Olympics, however, examples of using the Olympic Games for upgrading the urban landscape and local economy date back from much time before. In Los Angeles’ 1932 Olympics, for the first time, an Olympic Village was built with characteristics of permanent housing. Later on, after the Second World War, under a new and strong social framework, the Olympic Movement, supported by local governments, stimulated a number of interventions to promote sport activities, namely the construction of sport facilities in the host cities. The next step was to concentrate those facilities in central areas and to integrate them into larger urban renewal projects, fact that made the connection between mega-event and urban transformation more evident. (Rolnik, 2009) Nevertheless, it was only from 1980s onwards that this connection would be intensively explored by host cities. Changes in the world’s political and economic scenario brought by the beginning of the globalization era were especially responsible for that. To cope with the ever growing competition among global cities, a new kind of spatial planning strategy was developed, firstly in a European context. The concept called ‘strategic spatial planning’ though not completely new, was described by Healey (Qu & Spaans 2009, p.336) as ‘self-conscious collective efforts to re-imagine a city, an urban region or a wider territory and translate the result into priorities for area investment, conservation measures, strategic infrastructure investments and principles of land use regulation’. Also crucial was the introduction of
private capital associated with public investments in new urban developments, fact that
provided urban management with an entrepreneurial character.
After this change of planning paradigm in the last decades of the 20th century, the city
of Barcelona was the first to successfully introduce the Mega-event strategy into its
strategic urban planning framework.
In this sense, the 1992 Olympics were used as a tool to implement two different but
correlated agendas: the provision of urban infrastructure for the city development and
the upgrade of its image within the global scenario, with an ultimate goal of attracting
further investments and ventures. (Rolnik, 2009)

**Socio-spatial inclusion**

(to be developed)
9. Expected products

(1) Strategic Plan for Barra da Tijuca neighbourhood

- Spatial plan (structural plan) in the scale of the neighbourhood
- Strategies to implement the spatial plan
- Plan's implementation process definition (step-by-step)
- Anticipation of possible bottleneck(s) during the plan's implementation process
- Possible adaptations of the original plan regarding its bottleneck(s)

(2) Spatial intervention for a part of the neighbourhood

- Alternative spatial design
- Strategies to implement the spatial design
- Design's implementation process definition (step-by-step)
- Anticipation of possible bottleneck(s) during the design's implementation process
- Possible adaptations of the original design regarding its bottleneck(s)

10. Scientific & Societal Relevance

Scientific relevance

Contribution to the current international academic research on:
- Urban planning strategies aiming on social-spatial inclusion
- Impact of mega events (Olympic Games) in the socio-spatial structure of the Olympic host cities.

Societal relevance

In face of the negative social impact that Olympic Games sometimes generates in less well-off citizens in Olympic host cities, my project aims on developing a socio-spatial sustainable strategy that enables those people to also benefit from the financial investments and political efforts engaged in the organization of the Games. Because of the focus on socio-spatial integration, my project aims on reaching a broader scope then the Olympic social legacy only. It can be also a reference for other cities in the world with similar social constrains of Rio de Janeiro.
11. Time schedule

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<td>Final adjustments in the design intervention &amp; thesis report, conclusions &amp; recommendations</td>
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P1 Preliminary Thesis Plan (report) *

P2 Thesis Plan (report) *

P3 Preliminary Thesis (report) *

P4 Final Thesis (report) *

P5 Actual position
12. References


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14. Appendix

The following paper was presented during the 54th IFHP World Congress in Porto Alegre, Brazil, in November 2010.
From Utopia to Real World
Analysis of Barra da Tijuca Master Plan

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Abstract: The Master Plan of Barra da Tijuca, designed by the architect Lucio Costa in 1969, was formulated as an alternative to deal with Rio de Janeiro city’s enormous population growth during the second half of the 1960s. Based on the modernist principles promoted by the CIAM manifest in the late 1920s, the main goal of the plan was to create not only new housing and recreational facilities but also a new centrality for the city itself. Major concern of the planner was to find a balance between the inevitable and rapid urbanization process initiated by improvements on the accessibility to the area, and the existing local natural features, too valued to be disregarded.

Forty years after its planning, not so many of Costa’s ideas have been, in fact, accomplished. The new centrality was never implemented and the environmental concern was mostly forgotten. Instead, a particular spatial structure has taken place in the area, becoming the physical materialization and a strong stereotype of a specific segment of Rio’s society. The initial idea that Barra da Tijuca would consolidate and unify the city urban structure did not, up to this moment, succeed. On the contrary, a fragmented urban configuration, disarticulated with the rest of Rio de Janeiro has prevailed.

Keywords: Barra da Tijuca; Lucio Costa; Rio de Janeiro extension plan; Social enclave.

1. INTRODUCTION
The urban development of the district of Barra da Tijuca, Rio de Janeiro, has its origin in the 1960s with the government’s decision to build new connections between this area – up to that moment isolated and scarcely occupied – and the rest of the city. Anticipating the considerable urban growth that was about to happen, as a result of the migratory process that followed the industrialization development experienced in the country at this same time, the authorities invited Lucio Costa to plan the new neighbourhood. His previous experience with planning and building Brasília a few years before, would definitely have great influence in this choice[1].

The selected area, already considered in previous official extension plans for the city, consisted of 160km² of lowlands surrounded by a range of mountains and the sea. The preservation of its particular natural elements, comprising a number of hills, lagoons, canals, dunes and approximately 20km of sea front, was since the beginning a major concern of the planner. From Costa’s (1974) personal record some years later, it is possible to identify his constant internal conflict about this issue:
‘... What attracts in the region is the washed and wild air, the size – the beaches and dunes seem endless - , and that odd sensation of being in an untouched world, primeval. Thus, the first impulse, instinctive, is to prevent anything to be done there... But, on the other hand, it seems to be evident that a space with such proportions and so accessible would not definitely remain immune, it would have, sooner or later, to be urbanized. Its intense occupation is, already, irreversible...’ (Translated by author)

Based on the same modernist principles applied in Brasília, Barra da Tijuca was planned as an alternative for the already intensively occupied neighbourhoods along Rio de Janeiro cost line, mainly inhabited by high income residents. In this sense, and considering the basis in which the Brazilian politics and economy have been built, it was already expected that other values then the ones established by Costa master plan, would prevail and promote the urban development of Barra da Tijuca.

This paper aims to point out some of the factors that have influenced Barra da Tijuca master plan implementation and further mischaracterization, from its origin up to the present time. In addition, it describes how some of the concepts proposed by Costa have been translated into a spatial configuration, which has accommodated the needs and expectations of the promoters of Rio de Janeiro urban space.

[1] The city of Brasilia was inaugurated in 1960 as the new capital of Brazil. The plan was a result of a competition realized in 1957. According to its author, Brasilia was conceived as the culmination of a collective effort towards the national development in terms of economic, political and cultural autonomy.
For a better understanding, it is crucial to first underline the general political and economic backgrounds in which Barra da Tijuca was developed, as well as the plans previously designed for the city that had some influence in some of Costa’s design decisions. After that, a description of the main spatial elements proposed in Costa’s master plan is presented, as well as the modification of those concepts along the plan implementation process and its actual results on the district urban configuration. To conclude, the paper argues that, by contextualizing the development of Barra da Tijuca in relation to the economic and political transformation that Brazil as a whole and Rio de Janeiro specifically passed through along the last four decades, it is possible to understand why Costa’s plan did not succeed in its essential physical aspects.

2. POLITICAL AND ECONOMIC BACKGROUNDS

In the late sixties, the economic crisis\(^2\) experienced by some developed countries – especially the U.S. – in regard to the Fordism model of production, had direct and significant effects on many developing countries. In order to meet their need for new markets, raw material and cheaper low skilled labour force, the central economies went beyond their national borders. The provision of credits and some expertise did benefit therefore the peripheral countries which heavily invested in their infrastructure and industry (Gomes, Silva & Silva, 2003).

In Brazil, after a period of economic recession due to the unsuccessful policy of import substitution\(^3\), and to some extents, to the expenses in building the new capital Brasília, an enormous economic growth known as ‘the Brazilian economic miracle’ took place between 1969 and 1973. Strongly supported by international credits and multinational companies newly settled in the country, this growth had a great impact on the configuration of urbanized areas. Accompanying the industrial expansion\(^4\), already in course since middle 1960s, the migration of people to the cities increased the demand for new housing. To handle this issue, the Housing National Bank (BNH) and the Housing Financing System (SFH) were created in 1964 by the national government. Besides coordinating the public housing policy, those new institutions had also other functions such as orientating the private initiatives, stimulating the construction of social housing, providing credits for housing acquisition, eliminating the existing slums\(^5\) and stimulating the construction industry and the private savings bank. But BNH did not limit itself in trying to solve the Brazilian housing deficit problem only. It also financed many infrastructure works such as the upgrade of roads, energy, transport and communication systems as well as encouraged education and culture. Hence BNH is considered one of, if not the most expressive financial promoter of the urban development in Brazil during that time (Gomes, Silva & Silva, 2003).

However, this economical success cannot be seen apart from its political context. The establishment in 1964 of a military dictatorship\(^6\) in the country certainly created the necessary conditions for this economical growth. Immerged in the capitalist system dynamics, the government prioritized the capital and its representatives – the traditional right wing sectors of the society – which in return supported the centralized authoritarian regime.

Within this framework it was already predictable that this ‘economical miracle’ would not benefit everybody. In Brazil, it implied the increase of capital concentration for few and of poverty for many.

\(^2\) Unlike what happened in 1930, the economical crisis in the end of the 60’s was not related to an industrial overproduction of goods but to a general reduction of productivity gains.

\(^3\) The policy of import substitution adopted in many Latin American countries has its origin on the 1930 global economic crisis. Extremely dependent on the import of industrialized products and on the export of raw material they reorganized their economical structure by investing on the production of their own manufactured goods supported, in the case of Brasil, by state-induced industrialization. After a relative initial success, this policy went through difficulties in the 60’s because of its limitations on adapting to the original model imported from the central countries in terms of work process, internal market and international competitiveness.

\(^4\) The investment on the heavy industry was one of the main resolutions settled by the national government in 1964, year that the political dictatorship started in Brazil.

\(^5\) After 1964 the government broadened and strengthened the slums removal policy initiated in the beginning of the 60’s. As an alternative, many social housing projects were built in the cities’ outskirts.

\(^6\) The Brazilian military cope of 1964 was a reaction of the dominant sectors of the society and the army on the reforms promoted that time by the national government which were, in their vision, aligned with the communist ideals. The military dictatorship in Brazil lasted from 1964 till 1985.
Besides, considering that in the capitalist system the land has always been a high valued product, most of the urban developments realized in that period were directed to those who had a better economic position in the society. This is the case of Barra da Tijuca.

3. BARRA DA TIJUCA IN THE URBAN CONTEXT OF RIO DE JANEIRO

Isolated in the north, east and west by mountains and in the south by the sea, the area known as *Baixada de Jacarepaguá – Jacarepaguá Lowlands* – was till 1960s a remote and scarcely occupied region in the western part of Rio de Janeiro city[7]. (See Figure 1 and 2)

![FIGURE 1 (left) - Barra da Tijuca in the context of Rio de Janeiro city. Source: Author’s own.](image1)

![FIGURE 2 (right) - Picture of Barra da Tijuca around the 1950s. Source: skyscrapercity.com](image2)

By mid-1960s, the authorities started working on extension plans for the city and its surrounding metropolitan region, with the perspective of a considerable population growth as a consequence of the migratory process in course. As a starting point, taking advantage of the favourable economical situation in terms of capital availability, the government heavily invested on infrastructure works – especially road networks for the automobile. Apart from the influence of the modernist concepts successfully implemented in Brasília some years before, this choice is partly explained by the economic power the automobile industry had at that time. The government’s initiative to create new connections in the direction of Jacarepaguá Lowlands was therefore a combination of different economic interests. Besides de automobile industry, the real estate and construction companies, having not so many possibilities to operate in the already consolidated and intensively occupied residential areas of Rio de Janeiro anymore, saw that location as a great opportunity for future extremely rentable investments[8].

Its dimensions – 160km², of which 122,5km² were suitable for urbanization – corresponded to approximately 25% of the entire usable city surface (Resende, 2005). As an extension of the neighbourhoods situated along the coast of the city – mostly occupied by high income residents – the new district of Barra da Tijuca was therefore intended, since its beginning, exclusively for this segment of society which had benefited from the ‘economic miracle’ experienced in the country at that moment.  

[7] The region comprising Jacarepaguá Lowlands, where Barra da Tijuca is located, had its urban development initiated in the 30’s with a very low density and disorientated pattern. Only after 1969’s Master Plan it was intensively occupied.

[8] According to Eppinghaus, Poppe & Tângari (2003), the densification of Rio, in terms of its population, occurred first in the centre – between 1900 and 1940 – then along the cost – in the 40’s, 50’s and 60’s. ( )
4. PREVIOUS PLANS FOR RIO DE JANEIRO

To better understand some decisions taken by Costa in his Master Plan for Barra da Tijuca, it is important to mention some previous plans drawn for Rio de Janeiro, which already considered the extension of the city to the same western direction.

The Agache Plan\(^9\) of 1926, designed by the French architect Alfred Agache, was the first plan that considered the city as a whole, addressing issues related to infra-structure, fluxes, urban services and zoning and the linking between different neighbourhoods (Andreatta & Herce, 2006). Though very schematic, a rapid transport system would already anticipate the city’s east-west connection through the Lowlands of Jacarepaguá (Costa, 1969). Despite the fact that it was never implemented, some elements of the Agache Plan, especially the road scheme, had a considerable influence on the Master Plan\(^{10}\) made for Rio de Janeiro by the government between 1938 and 1948. Noticeably in line with the CIAM movement ideas, regarding the automobile promotion, this last plan would initiate a long-term urban extension process through the construction of tunnels, viaducts and roads, setting off, as a consequence, an uncontrolled urban sprawl followed by spatial and social segregation (Andreatta & Herce, 2006).

Between 1964 and 1966, a second master plan\(^{11}\) was formulated by the Greek office Doxiadis Associate – in cooperation with local experts – providing guidelines for the city future urban development – as well as the metropolitan region – up to the year 2000. (See Figure 3)


In accordance with the urban planning that was being developed in most occidental cities at that time, the main focus was directed to the development of road networks in order to stimulate and to organize pragmatically the city’s natural growth.

The plan drawn by Constantinos A. Doxiadis and his team for Rio de Janeiro followed the same model applied by his office in the plans for Accra, Athens, Nairobi, among others: an hierarchical grid of high speed roads covering the entire city surface – and its metropolitan region – as a way to create the basic conditions for a potential and ‘infinite’ growth in every direction and further connections with similar systems on its surroundings (Andreatta & Herce, 2006).

Also in this plan, the necessity of an east-west connection was highlighted and, in order to support this idea, a large industrial complex and a port were proposed at the western edge of the city, at Sepetiba bay (Doxiadis, 1966). In addition, a new Central Business District (CBD) would be created close by, to


\(^{10}\) Plano Piloto do Rio de Janeiro, Comissão do Plano da Cidade, 1938-1948.

\(^{11}\) Plano Doxiadis (Guanabara: um plano para o desenvolvimento urbano), Doxiadis Associates, 1965.
support these new activities and to counterbalance the existing CBD in the city centre which was, in Doxiadis opinion, under great pressure due to the existing concentric configuration of the city (Doxiadis, 1965). Also not implemented, the main contribution of Doxiadis Plan for Rio de Janeiro urban development was the formulation of a structural model of urban development based on a – automobile – transport network system represented specially by a wide range of highways coded by colours (like the Red Line, Yellow Line, etc.), partly built in the 1990s (Brandão, 2006).

5. FROM UTOPIA TO REAL WORD

5.1 Lucio Costa Master Plan – as it was planned

In 1969, invited by the local authorities, Lucio Costa presented his plan for the Barra da Tijuca. (See Figure 4)


Source: Espaços da Arte Brasileira/Lucio Costa (2001), modified by the author.

It is said that the reason behind the government’s choice for the architect had to do with the necessity to convince the local private land owners[12] of the relevance and feasibility of the plan, which was in the government’s vision extremely important for the city’s urban extension process. Thus, nobody but Lucio Costa – with a good reputation and a high popularity acquired with just inaugurated Brasília – would better fit for the assignment (Maia, 2008).

[12] According to Silva (2006), the region of Barra da Tijuca had originally four landowners only.
From the beginning, it was a major concern of Costa to conciliate, in a harmonious way, the existing local natural features and his urbanization plan, an attempt to prevent the area from the same negative results found in other parts of the city, where an intense and predatory occupation disregarded the pre-existing landscape. In this respect, Costa (1969) said:

‘...The problem consists then in finding a formula that allows conciliating the urbanization in the given scale, with the safeguard, though partial, of the peculiarities that are important to preserve...’ (Translated by author)

To achieve this goal, some decisions in terms of design concepts were therefore applied by the planner. The first one relates to the proposal of a low density model of occupation, expressing the desired contrast in relation to the other neighbourhoods of the city. Another resolution was to concentrate and to ‘verticalize’ some buildings, to liberate the ground level and give space to the nature. In this sense, some agglomerations of skyscrapers where placed in some locations of specific interest. According to Costa (1969), those skyscrapers would have the extra function of giving some direction and rhythm to the composition and offering the residents a privileged view of the surroundings. In addition, the proposed constriction of some of the buildings over stilts and other minor compositional elements, such as roofs coloured in green or white, and natural fences instead of walls dividing the housing estates plots, had also the same objective of highlighting the green structure.

A great preoccupation of Costa, expressed many times in his master plan, has to do with the effort of keeping the neighbourhood coastal area as much untouched as possible, a way to preserve the original ‘wild’ environment, very much praised by the planner. Unless extremely needed for recreational reasons (Costa, 1969) the addition of functions would be allowed there.

What concerns the high scale spatial structuring of Barra da Tijuca, like in Brasilia, Costa adopted a pragmatic approach by defining two main axes - north-south/east-west – of development. (See Figure 5 and 6)

Figure 5 (left) – Sketch of main structural axes in Barra da Tijuca master plan. Source: Costa (1969)
Figure 6 (right) – Sketch of main structural axes in Brasilia master plan. Source: Espaços da Arte Brasileira/Lucio Costa (2001)

Those axes, which in fact were inherited from previous plans designed for the region[13], oriented the whole urban design scheme. To somehow counterbalance the linear pattern of spatial organization, a number of building nuclei were arranged along the main axes. These nuclei, different in size and function, will be later described.

Regarding the transport network system, although originally some types of public transport structures were mentioned[14], the plan is noticeably structured by roads and highways, designed especially for the automobile, a global trend at that moment, strongly supported by the government and the automotive industry.

[13] The main roads planned previously by the municipality authority on road planning, the DRE, were kept in Costa’s plan.
[14] According to Costa plan, a metro line would connect Barra da Tijuca with the Rio de Janeiro city centre and a light rail line would link the area to the international airport and the university campus.
Also rational was the selection and location of the different functions proposed by Costa for the area. Organized under a hierarchical order, basically three levels of spatial influence can be verified. The lower one consisted of a number of autonomous urbanized nuclei located along the main east-west axis, one km distant from each other. Noticeably based on Clarence Perry’s (1929) concept of neighbourhood units, these nuclei were limited to provide housing and other basic facilities on local level, aiming on a prosperous and healthy community life. The next – medium – level of urbanity established by Costa can be found on the two planned centralities of Barra and Sernambetiba. Positioned at both ends of the main east-west axis, these centralities comprised, besides residential unities and other basic functions, also office buildings, commercial, cultural and entertainment facilities (Costa, 1969). In this case, the area of influence of these mixed use nuclei would encompass the whole district. The last and most prominent level in the functional structure of Barra da Tijuca was represented by a new Centre Business District to be situated on the north-south main axis of the plan. Although already mentioned on previous plans for the area, the change of its location to a more strategic point, was an imperative issue for Costa. Close to the intersection between the two main axis of the plan, this new CBD was intended to represent the core of the neighbourhood as well as the whole metropolitan region of Rio de Janeiro. Added to the functions already mentioned in the other centralities, other elements were especially highlighted in the plan for the new CBD, as a way to emphasize the future central position of the area. A Universal Exposition planned for 1972 would provide the necessary infrastructure for a future science and technical university[15]. A Permanent Fair for regional products from all over the country, would stimulate the touristic activities, and a Civic Centre would consolidate the expected significance of the place.

Of great importance is the position of Costa (1969) to assume that this new metropolitan centre would only possibly succeed if it would be implemented much later, after the consolidation of the other areas, together with the necessary infrastructure:

‘... It is clear that its occupation will not happen so soon... And only when the remaining urbanization from Barra till Sernambetiba gets dense; when the infrastructure, organized in a civilized and generous basis exists, imposed by the live strength of expansion, then, there will come the moment to implement the new centre which, though in parcels, should be born in its definitive scale...’ (Translated by author)

5.2 Lucio Costa Master Plan – as it was realized

In 1969, right after its public announcement, the Master Plan of Barra da Tijuca was transformed into a law and a special committee was appointed for working out its detailing and implementation. However, the first parameters for the area occupation were only established in 1976 (Resende & Leitão, 2006). Apart from small changes, mostly discussed by a selected committee – in which Costa took part as a special consultant – the content of the plan was significantly altered only in 1981.

Having the global economic crisis of 1973 and its following recession years as a justification, the capital representatives, supported by the local government and planning technicians, proposed to adjust the plan to the latest national socio economic circumstances (Leitão, 1999). After long discussions among all different involved parties[16] – including Costa – a new set of regulations was established. As expected, the capital prevailed after all, disregarding the parameters and restrictions set up in Barra da Tijuca’s original plan, particularly in relation to the buildings’ morphology and to the use of the soil. From this moment on, the real estate sector, supported by other parties with similar economic and political interests, orientated the directions of the neighbourhood urban development, mostly based on the latest international capitalist trends of that time.

Starting from the densification parameters proposed by Costa, the idea of a low density model occupation was immediately refused by the real estate sector. The high profitability that was implied in the land value

[15] To celebrate the 150 years of Brazilian independence, an Expo was planned to be held in Barra da Tijuca in 1972. The groundwork, which started in August 1969, was shortly after interrupted. By December 1969 the government announced that the budget reserved for the event would be used to build the campus of the Federal University of Rio de Janeiro.

[16] A working group composed by professionals, technicians, representatives of the local communities and others, was instituted by the government especially for the occasion.
was an obvious reason for that\[17\]. Thus, the result of this structural change in the spatial configuration of Barra da Tijuca was the indiscriminate emergence of a great number of skyscrapers and other kinds of building typologies everywhere in the neighbourhood. (See Figure 7) Curiously, the success of the high rise typology had much more to do with the image of modernity and economic prosperity that this kind of building promote than with the expected environmental awareness claimed by Costa’s master plan. In relation to the initially established zoning delimitations, also the original rules were not followed, especially along the coast, area where Costa strongly insisted on keeping as much untouched as possible. There, for the same free market oriented reason, many functions were arbitrarily added\[18\], which together with the broadening of the existing costal road, did mischaracterize Costa’s plan the most. (See Figure 8)

Figure 7: Barra da Tijuca skyscrapers. Source: www.travel-earth.com
Figure 8: Sernambetiba Avenue, Barra da Tijuca. Source: www.flickr.com

In relation to the rational organization of the space, the only thing that was actually accomplished as proposed in the original plan, was the definition of the two main – north-south/east-west – axes as elements of the spatial structuring. However, if in one hand these elements were responsible for organizing the different functions newly settled in the neighbourhood in a systematic way, on the other hand, due to their unrealistic dimensions, they also contributed to the processes of uncontrolled urban sprawl and spatial fragmentation. Furthermore, the initiative of promoting a transport system based exclusively on the automobile at the expense of the other planned possibilities\[19\] enhanced substantially the problems mentioned above.

Regarding the hierarchical centralities proposed by Costa, due to some facts occurred in the national political and economic context, the configuration of these elements would drastically change. As a result of the economic crisis experienced in the country during the 1970s and the incapability of the local government to further coordinate the development of the area, other actors took over the task. Also date from this time the growth of criminality and violence within the city borders, another consequence of the 1970s crisis\[20\]. Because of these circumstances, a new phenomenon – also verified in other western countries – distorted completely the character of some urban relations: by reason of security and

\[17\] According to Vetter & Massena (1982), between 1972 and 1975 the land in Barra da Tijuca valued 1903%, a record if compared with the city centre (451%) and the suburbs (134%) of Rio de Janeiro.

\[18\] The most current function added to the area along the cost of Barra da Tijuca was the Apartment-hotel, which had special and more profitable regulations, for example in relation to the restricted size of the living unities and the number of car parking plots.

\[19\] The plans for the metro and light rail lines were, up to this moment, never accomplished.

\[20\] In Brazil, the increase of violence and criminality rates is also justified by the public security system collapse, partly because of the corruption among public authorities and police forces.
economic profits, many spaces that formerly belonged to the public domain were transformed into private enterprises. In this sense, following the 80’s international capitalist tendency, most of the services and commerce, combined with entertainment facilities, were dispersed through the neighbourhood in a new typological structure: the shopping malls. (See Figure 9) However, more controversial and criticized are the results of the implementation of the residential autonomous nuclei imagined by Costa, indeed, a modern version of the neighbourhood unity concept presented in his original plan. Composed by a cluster of housing unities – mostly housing estates – and several facilities, the so called ‘gated communities’ dominated the urban landscape of Barra da Tijuca and became the most popular living typology among its residents. Isolated by walls and fences and exclusive in its social composition, these structures are appointed as main responsible for the existing local social and spatial segregation, but yet a model exported to other parts of the city, as label of a certain desired lifestyle. (See Figure 10)

Figure 9 (left): Barra Shopping, Barra da Tijuca and Rio’s largest shopping centre. Source: rionoticiasagora.blogspot.com

Figure 10 (right): Gated Community, Barra da Tijuca. Source: cidaderiodejaneiro.olx.com.br

At last, in relation to the proposed Central Business District, the new ‘Metropolitan Centre’ of Rio de Janeiro in Costa’s vision, due to the lack of political effort in acquiring the land from its private owners in the beginning of the urbanization process and to constant real estate speculation in the area (Eppinghaus, 2004), the new centre – and key project of Costa’s master plan – remains up to the present moment somehow and ironically untouched.

6. CONCLUSIONS

It is impossible to disassociate Barra da Tijuca’s present urban configuration from the political and economic forces that were always behind the neighbourhood development process and mostly against Costa’s original design. First, on the international level, without the great amount of available external credits and expertise, the Brazilian economy would possibly never take off. In this respect, it is also important to mention that by this ‘economic aid’, political intensions of strengthening the capitalist system were indirectly promoted. Second, on the national and local level, if the government would not join all efforts to catalyze those consider’ international investments on the development of its national industry and on the upgrade of major infrastructural works, plans like the one for Barra da Tijuca would also be economical unfeasible. Regarding the district of Barra da Tijuca itself, maybe no place in Rio de Janeiro might better represent the changes in the political and economic Brazilian scene and the translation to its built environment in the four last decades. Concerning the mischaracterization of Costa’s original design, the main subject of
this paper, it is possible to conclude that much of the changes in the plan must be attributed to the reflexions of the 1970s global economic crisis in the Brazilian economy, fact that Costa unfortunately could not predict. In this context, the government no longer being able to invest, build and manage the urban space, was replaced by some other forces which would further develop the area in accordance with their own interest. Changes in the density, use of the soil, typological configurations and accessibility parameters proposed by Costa did result in what we see in Barra da Tijuca today: a fragmented neighbourhood exclusive in its social composition and disarticulated in its physical configuration, not only within itself but with the rest of the city as well.
7. BIBLIOGRAPHIC REFERENCES:


