



HISTORICAL WATERFRONT OF RIO DE JANEIRO: cartography of landfills and new rehabilitation perspectives of the port area

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This article seeks to analyse recent urban transformations and the conceptual bases that have been in force in the Urban Rehabilitation Project of Rio de Janeiro's waterfront. An attempt is made at establishing a connection between the development of the area, the evolution of the city's history, the activities carried out at the port, and its conversion to new uses. An analysis of the spatial transformations is done, especially in the 7-year (2009-16) span of the initial implementation of the ongoing 'Porto Maravilha' [Marvel Port] urban project, with the mapping of new and old urban fabric and infrastructure; bibliographical research on historiographical studies, city administration players, and technicians to unveil processes that concern urban projects as contemporary tools for land valuation. As a conclusion, we point that despite the major work recently carried out as a product of the Urban Operation Consortium Law guidelines, only 9% of the urban land stock has been negotiated, contradicting even the pessimistic forecasts of 50%. The area lacks an Integrated Urban Plan with a public policy approach, especially to foster housing as a key element for liveable neighbourhoods and a stronger connection with the green infrastructure of the Guanabara Bay ecosystem.

Keywords: waterfront; landfills; cartography; urban rehabilitation; Rio de Janeiro.

Introduction

The main central area of Rio de Janeiro has seen countless changes in its 450+ years of age, and remains as an important element of centrality of the city in the 21st century. The renewed waterfront of the city, a place where several urbanistic interventions have been made, as part of the urban rehabilitation programme that was in force from 2009 to 2016, when the city hosted the 2016 Olympic and Paralympic Games is now a space fraught with a high degree of uncertainty as regards its capacity to transform the economy of the city and contribute towards the reorganisation of the inner city region, with its 12 million inhabitants. However, as a space of contact between the water and the urban domains, as discussed by Alemany and Andreatta¹, the Rio de Janeiro waterfront has its own peculiar features with many urbanistic possibilities, for its touching the historical centre of the city, and its potential to create new spaces for culture, trade, services and residences, along with its special aspects as regards the environment and the landscape.

This paper seeks to ask about the reach of the recent transformations and the bases on which the main instruments for a new development sit on, a development effort that has been operating on Rio's waterfront. We seek to establish points of intersection between the development of the area, and the evolution of the city's history as a whole, along the activities of the port and its conversion into new uses. We will undertake a discussion on the spatial transformations, considering the original implementation of port activities in that place, in 1910, in relation to the present day, especially the works done in the 7 years of the initial implementation of the ongoing 'Porto Maravilha' (PM) urban project (2009-2016). In order to carry out our analyses we rely on studies of the history of the urban evolution of the city developed by Abreu, Lamarão, Sisson, and Pereira & Izaga² along with those that deal with the aspects of cartography and the plans for the city of Rio de Janeiro documented by Andreatta and Czajkowski³. To discuss the proposals contained in the PM project we resort to an in-depth analysis of articles produced by governments, chiefly those from technicians and players related to the City administration such as Arraes & Silva and Dias⁴, relating them to research work that seeks to identify processes related to urban planning as an instrument for land valuation as argued by Sarue and Belisário⁵. Our research aims to reflect on the relationships between the new and old urban fabric and the new visions for urban development, their new methods and approaches. As a conclusion, we point that despite the major work recently



carried out as a product of the Urban Operation Consortium Law guidelines, only 9% of the urban land stock has been negotiated, contradicting even the pessimistic forecasts of 50%. The area lacks an Integrated Urban Plan with a public policy approach, especially to foster housing as a key element for liveable neighbourhoods and a stronger connection with the green infrastructure of the Guanabara Bay ecosystem. This would provide a more sustainable urban vision to the waterfront itself and also of it as an important element of a complex metropolis such as Rio de Janeiro.

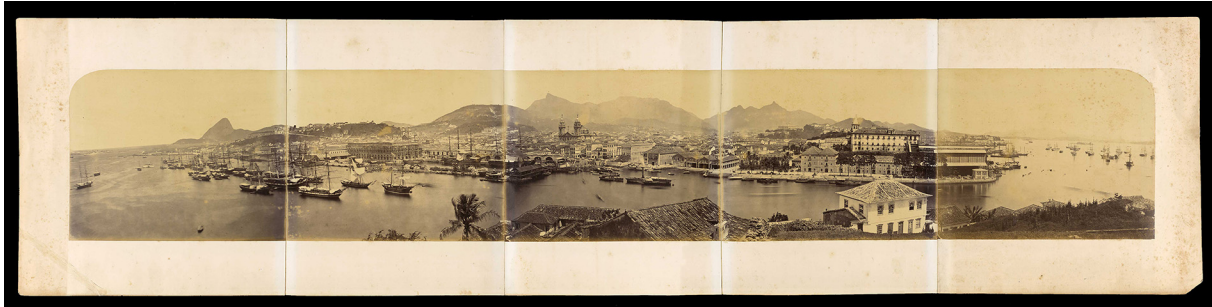


Figure 1: Historical panorama of Rio's waterfront central area. Source: National Library of Rio de Janeiro, RJ, ca. 1865.

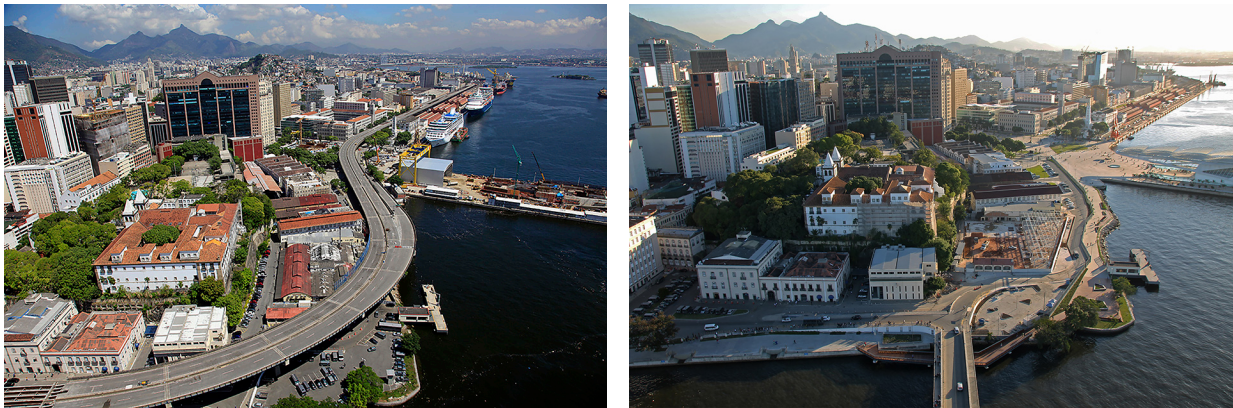


Figure 2: Actual panorama of Rio's waterfront central area from Orla Conde (Conde Waterfront), in 2014 and in 2016. Source: 'Porto Maravilha' webpage, 2018.

Rio de Janeiro, the central area and its historical waterfront

Rio de Janeiro is a metropolis with 11,945,532 people, consisting of 21 municipalities, with 6,520,000 of them living in the main city. Its central, historical area, where the CBD - Central Business District - is located, and which contains important equipments such as the headquarters of large State-owned corporations (National Oil and Gas Company - Petrobrás; National Bank for Economic and Social Development - BNDES), still holds its relevance in the 21st century as the area that attracts the majority of urban flows, where 75% of all the jobs are found and one with the highest real estate prices. To the North from it, on the borders of the 'Baía de Guanabara' [Bay] and at the old port area, and stretching east, along its border, a new Urban Rehabilitation Project [Projeto de Reabilitação Urbana] was set up in Rio's waterfront.

An extensive list of transformations was carried out in the central area during the 20th century. New ways were opened on top of colonial urban fabric (Figs. 3 & 4) (Avenida Rio Branco [1905]; Avenida Presidente Vargas, [1944]), hills were levelled [Morro do Castelo (Hill) in 1922 leading to the appearance of the borough of Castelo], and the construction of a modern port on its North face. According to Lamarão⁶, from 1904 to 1911 the place that once had docking bays and boarding decks is transformed into a specialised port area, of exclusive use, at a time when this function reached a higher technical level in the capitalist moves towards modernisation. With the aim of attending to the requirements needed for international trade in a port operation 1.2mi square metres are added with landfills into the sea. The port area works led to the redefinition of the entire urban domain in the central part of the city, where it was seen as the basis from which an ample restructuring of the central area and of the city would take place. In a process aimed at establishing hierarchies and impose segregation, Lamarão and



Abreu⁷ argue that the city sought to overcome its colonial, slavery-dependent condition to enter a new cycle of modernisation of a markedly capitalist nature.

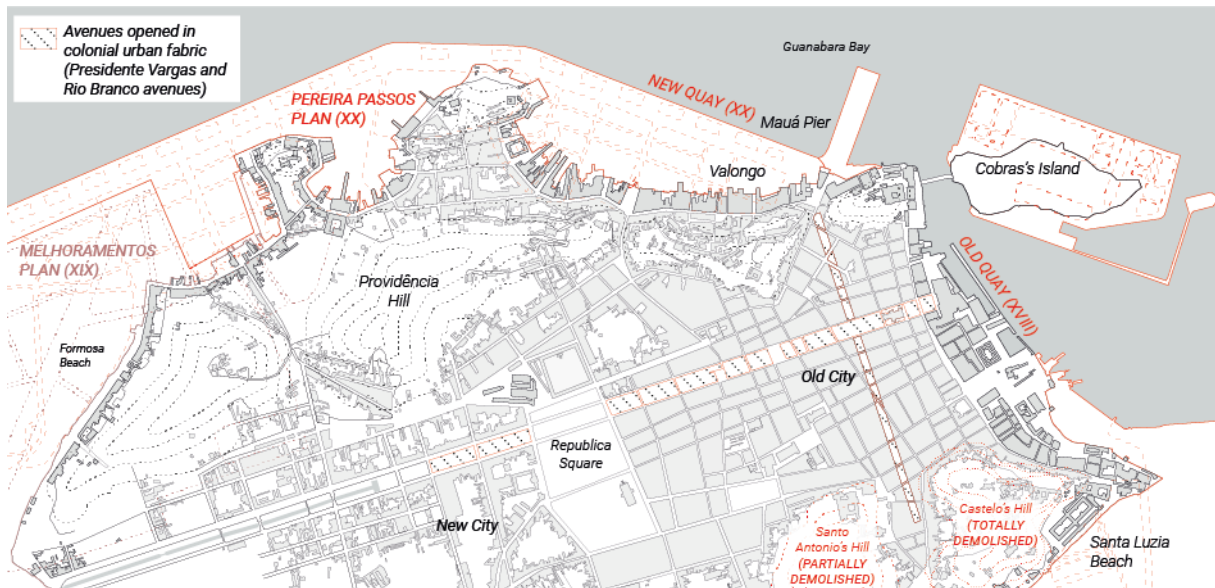


Figure 3: Urban fabric in 1866 and main urban transformations ('Melhoramentos' Plan and Pereira Passos Plan) of the Central and Port Area of Rio de Janeiro in the late 19th and early 20th centuries. Source: authors, 2018

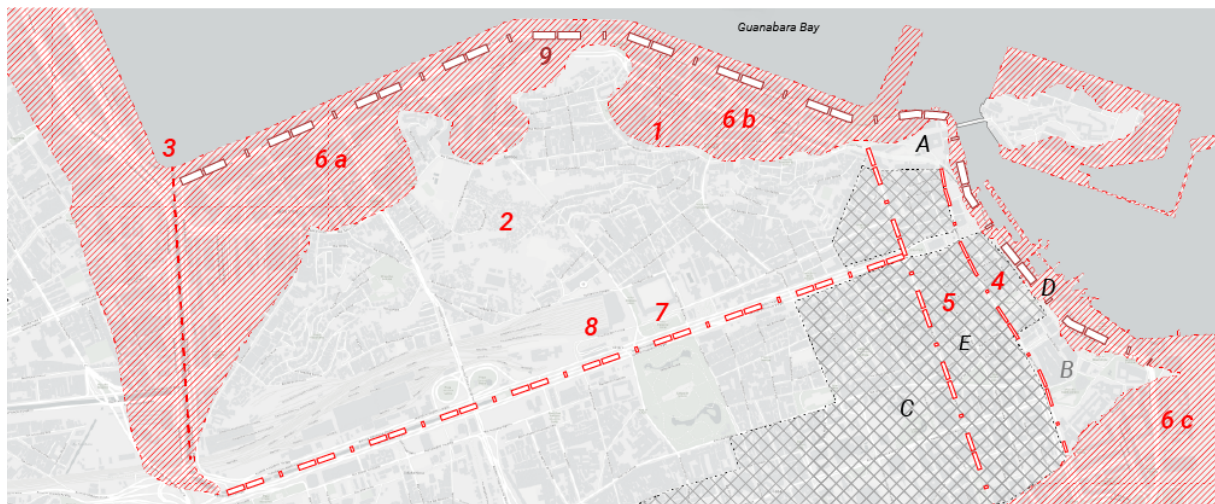


Figure 4: Main elements of the Central and Port Area in Rio de Janeiro in the late 19th and 20th centuries. Source: authors, 2018.

Key: 1 – Original coastline; 2 - Providência Hill – Where the first favela in Rio is located; 3 – “Mangue” Channel (1906) - Drainage works of marshland areas; 4 – Rua Primeiro de Março, or “Right St” [Rua Direita] – Rio's first main street (1600's); 5 - Av. Rio Branco, or Av. Central (1904-1905) opened in the colonial urban fabric (1600's); 6 – Successive Landfills. a: drainage (1904), b: port improvements(1910), c: area originated from the demolition of Morro do Castelo [Hill] (1922); 7 - Av. Presidente Vargas (1944), opened in the colonial urban fabric (1600's); 8 - Grand Central Station - Train Terminal (mid 1800's); 9 – Perimetral Flyover Viaduct. A -Saint Benedict Monastery(1590) - Benedictines; B - College of the Jesuits and Saint Sebastian Church (1567) - Jesuits, demolished along with Castelo Hill (1922); C - Saint Anthony Monastery (1608) - Franciscans; D - Old Quay (1779) - Rio's first dock; E - Rio's CBD (2018).

From the second half of the 20th century, the central area would see two cycles of redefinition of its functionalities. The one marked by the emptying of the residential areas that were re-located to the shores at the city's South End. The second one took place in the 1980s, marked by a resistance to the movements imposed by the previous cycle, which sought through heritage preservation initiatives to discontinue the processes of



deterioration that emptied the area. The reorganisation of the port logistics, with the construction of the new port of Itaguaí in 1982 would lead to a fall in the rates of use of a number of warehouses and an abandonment of a sizeable part of the old retro-port area. Still, between years 1957 and 1978 a flyover viaduct is built, named Perimeter Way [Perimetral] which aimed to clear traffic flows into and out of the Central area, but that actually further disfigures an area that already was going through a process of decay, as discussed by Izaga⁸.

The port area scenario, in the early 20th century at the time that preceded the rehabilitation works, was one where its isolation and abandonment were greatly intensified and, although it lied next to the CBD, its land was 75% owned by the Federal [Central] Government, something that hampered and slowed the possibilities of renovation. To this picture, a larger context of dispute in the network of centralities in the city of Rio de Janeiro was in effect, where the borough of Barra da Tijuca, a new settlement west of the city - planned by Brazilian architect Lucio Costa on the 1970's pushes to be a more affluent residential area, along with a network of services.

It is then that, from 2009 when the city is chosen to host the 2016 Olympic and Paralympic Games that new political movements and alignments become possible, and real opportunities for investments are seen by economic agents related to real estate and financial market, in a movement to reorganise the old port area.

The port area and the 'Porto Maravilha' (Marvel Port) Project

The debate on port areas' rehabilitation in modern cities has been presented by Hall and Castells & Borja⁹ as a typology of large urban projects that appear as instruments to face changes to the means of production of society in the late 20th century. In the old port areas, usually located in the central parts of the cities, the model used for urban renewal became attractive for new investment, to generate income, and see improvements to the infrastructure, apart from leveraging the tourist potential. Examples of waterfront rehabilitation in cities such as Baltimore (US), Barcelona (Catalunya), Rotterdam (The Netherlands), Cape Town (South Africa), Hong Kong (P.R.C.) and, in Latin America, in Buenos Aires (Argentina) have become accepted as reference cases of success by Andreatta¹⁰, albeit in different urban realities and inserted in cities of all sizes.

In Rio de Janeiro, despite the fact that an ample debate took place from the 1980s onwards, it saw proposals with little realism that disregarded players such as, for example, the 'Companhia Docas' do Rio de Janeiro [Company] to which the Brazilian Central Government had transferred in 1987 the responsibility for all cargo handling, in a concession agreement. In year 2000, the City Administration made some sporadic interventions in land that had been left free after railway infrastructure work, building there 'Cidade do Samba' [City] (space destined for Carnival artefacts and equipment construction) and a space for sports practices, named Vila Olímpica [Olympic Village], as well as some informal areas urbanisation in neighbouring boroughs, through the Favela-Bairro Programme [Slum Upgrading Programme]. And indeed, it is only when the alignment of the Central, State and City governments finally happens as they join forces to concentrate on the preparation of the city to host large international events that an effective effort to prepare a project takes place.

The city of Rio de Janeiro then launched a rehabilitation programme in the shape of a complex public and private partnership named 'Porto Maravilha' [Marvel Port], and embarked on the largest pool-based intervention of the country of a port area. In order to define the area for rehabilitation, or the AEIS - Special Urbanistic Interest Area - to the original port area is added the neighbouring boroughs, taking the total to 5mi square metres. The OUC - Urban Operation Consortium - Law that governs the 'Porto Maravilha' (pursuant to Supplementary Law no. 101/2009, from the City of Rio de Janeiro), was passed in 2009 and is the main instrument that triggered the intense transformations that would take place along the following 7 years: two new museums designed by renowned architects, the re-qualification of the public spaces along the nearly 3 kilometres of docks and surrounding areas, 2 LRT light rail tram lines totalling 28 kilometres, and the excavation work to build 3.5km of tunnels that, in connection with the infrastructure work done, that included the imploding and demolition of the 7 km-long flyover structure that ran peripheral to the docks and shoreline (Perimeter Line).

Supplementary Law No. 101/2009 altered the City's Director Plan [Plano Diretor] with the creation of specific urban policy instruments for the AEIS - Special Urbanistic Interest Area - land that changed the parameters of land use and for the granting of extra rights for construction, amongst others. From the issuing of CEPACs - Certificates for Potential Construction - which represent 'virtual land' and that correspond to approximately 4mi square metres added for construction, the operation proposes a density increase with verticalisation. The construction heights allowed in some sections (50 floors) are completely unusual and lie outside the economic scenario and Rio de Janeiro landscape. The Law also created the Port of Rio Area Development Company [Companhia de Desenvolvimento Urbano da Região do Porto do Rio (CDURP)], responsible for the management of the OUC and for the articulation between the remaining public and private bodies, along with the



New Port Utility Company (the consortium awarded the contract after a public tender procedure, consisting of construction companies), in charge of carrying out the construction work and providing the infrastructure services from 2011 to 2026.

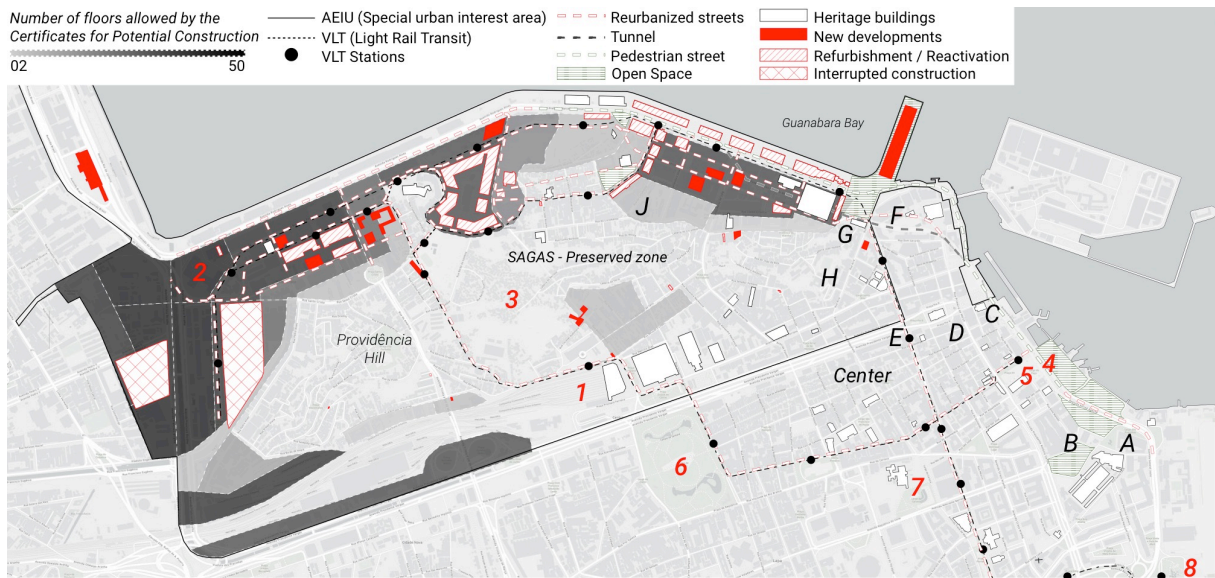


Figure 5: Part of the Central Area of Rio de Janeiro and 'Porto Maravilha (Marvel Port) Rehabilitation Project and the New Public Space Project, heritage protected buildings and new developments. Source: authors, 2018.

Key - 1 – Grand Central Station - Train Terminal (mid 1800's); 2 – Central Bus Station "NovoRio"; 3 – Providência Hill – Where the first favela in Rio is located; 4 – Water Transport Terminal: Ferry to Niteroi; 5 – 15 th of November Square: Old Largo do Paço; 6 – República Square; 7 – Carioca Square; 8 – Santos Dumont Airport; A - National Historic Museum; B – Image and Sound Museum; C – France Brasil Cultural Centre; D - Banco do Brasil Cultural Centre; E – Candelária Church; F - Saint Benedict Monastery(1590) – Benedictines; G – Mauá Square/ Rio's Art Museum/ 'A Noite' building; H – Conceição Hill; I – Mauá Pier/ Amanhã Museum; J – Fluminense Old Mill.

The CEPACs were offered in a tender procedure in one single lot on June 13, 2011 and bought by public company CAIXA – 'Caixa Econômica Federal' - the Brazilian Savings Bank for R\$3.5bi, via a fund workers contribute, namely the FGTS - Labour Guarantee Fund - which made the banking institution the biggest investor in the project. For the first time in history the FGTS funds were invested in an urban consortium-based operation. The CAIXA savings bank, which is a public bank, also undertook to covering the costs associated with the recuperation of the infrastructure and the maintenance costs of the public services for the 15 years of the contract's effectiveness and, in return, started to manage the issuing of the CEPACs and to have priority in the acquisition of the land in the region that formerly belonged to the Brazilian Federal [Central] Government.

To summarize, the structure of Supplementary Law no. 101/2009, on which the 'Porto Maravilha' OUC project is based, defines major urban and infrastructure principles, urban general guidelines, perimeters on which it has applicability, overall construction parameters and a management structure to have independency from the planning structure of the City of Rio. A list of bold objectives was later announced, grouped in four main items: infrastructure; housing; environment and culture and tourism. Where outstands the recuperation of urban infrastructure and transportation, the improvement of current housing conditions and attraction of new residents, preservation and improvement of the environment, new sidewalks squares and parks, and the creation of a new Tourist Pole for the city, with the recovery of the existing historical and cultural heritage and the new cultural, entertainment and education equipments. However, these objectives were never a part of an Integrated Urban Plan, remaining more as an umbrella to coordinate independent initiatives, not having a method to regulate their connection and fulfilment, which left them greatly unattended.

'Porto Maravilha' (Marvel Port) Project, a public policy?

The 'Porto Maravilha' OUC, as it focused on the policies for urban entrepreneurship, acted in a complex and diffuse manner as regards the initiatives aimed at a process of rehabilitation of urban spaces. The land, acquired in Stock Exchange operations, was done with taxpayers' money drawn from the FGTS fund, ending up by paying the very capital of the companies involved. The process that led to the acquisition of the property, along with the



modelling of the parameters for their use, produced a real estate valuation, which predominantly channelled the acquisition of that space to corporate use, to tourism and to entertainment industries.

Cities' construction process is riddled with recurring conflicts and tensions between public and private interests, environment and heritage, which brings the debate on the right to the city to the spot, especially when the main intervening party and agent is the public authority, which leads to the questioning of what is done, and of whom it is aimed at. In the case of the OUC it is possible to see that the official discourse overlaps that of the urban marketing, evident in the discourse of City Office for Urbanism Director Sergio Dias¹¹, which on one hand emphasizes a concern with the historical and cultural heritage of the region whilst defends a series of construction principles with another set of priorities.

In 2017 the City Office for Urbanism, Infrastructure and Housing conditioned the heritage listing of any building in the 'Porto Maravilha' area to the approval of the consortium of companies (New Port Utility Company) then granted right to carry out the renovation work of the infrastructure of the area. With the valuation of the property, as a result of the infrastructure investment done, this resolution gives even more power to the real-estate interests entertained by the pool of companies attracted to it, which then get to have the final say on what is listed and what is not.

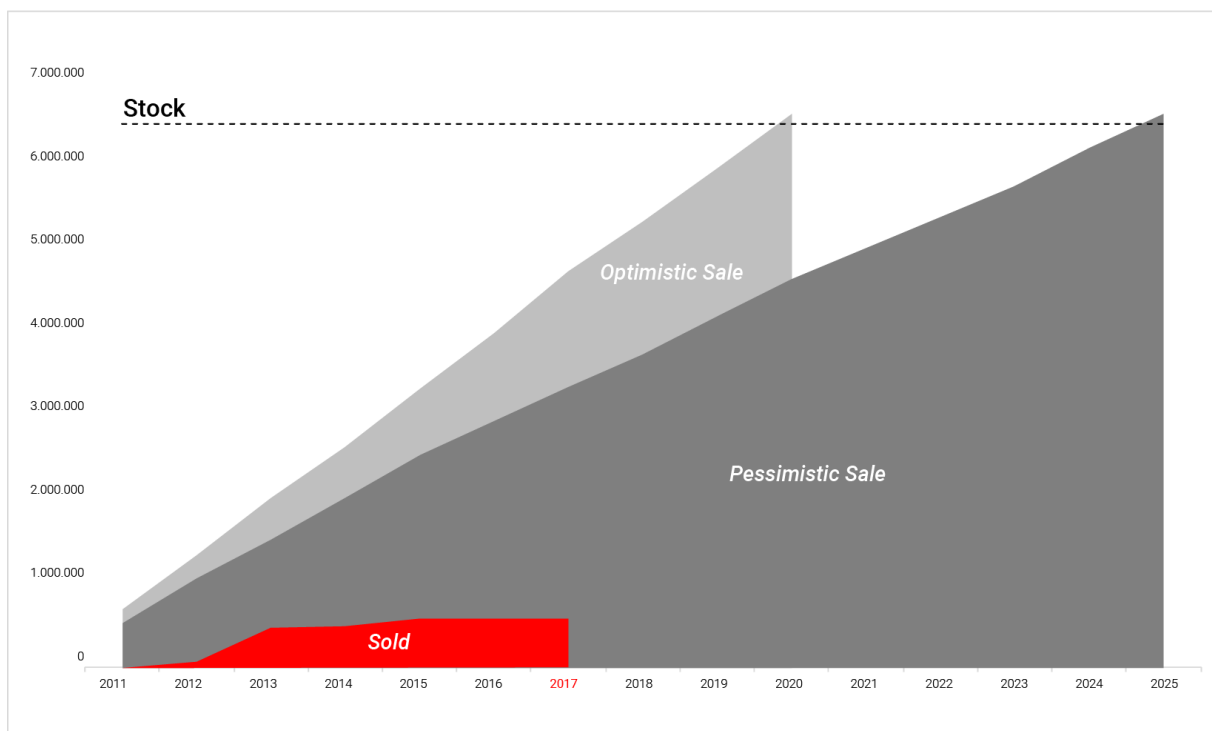


Figure 6: Sale of certificates of additional construction potential (CEPACs).

If the OUC had the real goal of increasing the resident population in the area, based on mechanisms of tax and urban incentives, the reality would be quite different when we compare the huge number of commercial projects with the very few of a residential kind. The financial leverage that guarantees profitability to the agreements executed with the private companies comes from the use of public funds, drawn from the money paid by the taxpayer. But the land was stripped of any relevance in public policies as it is offered to private enterprises of the real-estate kind, which operate to set what the urban space will be like, as they impose their abstract order on the use of the land and prioritise the profitability of their own assets.

As regards the financial operation as a priority, the issues related to the unequal distribution of the territory are placed under the spot, particularly the themes of density and verticalisation. The benefits of dense areas such as space vitality, urban infrastructure optimisation, active mobility, linked to a reduction of the dependency on cars are not acquired in an immediate way with the verticalisation model being proposed. Moreover, it fits like a glove to corporate spaces occupation and much less to mid-sized residential units, which have most demand. Therefore, it would be the governments' role to establish measures that would better regulate processes, better shaping the occupation of the territory to allow mix of uses, and catering to the demands of the populations that live in the vicinity.



The crisis that gripped the country in 2014 had a significant effect on the real estate market that, until then, was experiencing a sizeable growth. With it, the OUC started to face hardship in the sale of its CEPACs and with it opened a breach to other operations such as, for example, the exchanging of property in its negotiations to burdened granting. Our research mapped through the now available OUC documents that whilst an optimistic forecast of the feasibility studies made by the CDURP considered that in 2017 more than 70% of its stock would have been sold, a pessimistic outlook put it at 50%. However, based on the quarterly results of CDURP¹², our research identified a figure of only 9% of the stock negotiated until 2017 (Fig. 6). In the absence of an Integrated Urban Plan and a clear set of goals engendered in public interest to be accomplished in a determined time lapse, these figures reveal a performance indicator. They evidence a distorted optimism of a real estate private project, but that used public money as the main leverage, thus making the State to bear its financial investment risks and losses. For the city, the worse loss certainly is having a void overpriced land in a central area. The empty areas acquired at low prices from the Federal Government became abstract financial assets, where the profit is reserved for the investors that have no commitment whatsoever with the construction of the place

Final Considerations on the possibilities for the future of Rio de Janeiro's Waterfront

It is quite likely that the greatest benefits had from the recent urbanisation work on the waterfront of Rio de Janeiro and from the 'Porto Maravilha' OUC, lies in the re-qualification of the public spaces and in the new continuity that was implemented between the old central area, the sea and the 'Baia de Guanabara' [Bay]. Of the public spaces contained within the OUC, we can point the Cais do Valongo [Quay] (1811-1831), old place of disembarkation and trading of African slaves, discovered during recent infrastructure work and preserved as a place of memory for Black African culture. It is however located in an inner space and its original relation of proximity with the water was lost. To the warehouses in the dock area common public cannot access. This means that there is no open public space within the OUC area on the shoreline.

To conclude, and regarding the rehabilitation of Rio de Janeiro's waterfront in the last 7 years, from its installation to the present days, it is possible to say that the urbanistic instrument of the 'Porto Maravilha' OUC, as proposed, through its guidelines, has been unable to steer the elaboration of an Integrated Urban Plan for the area and to promote the full rehabilitation of the old port area of Rio de Janeiro. With residential occupation that could attract commerce, services, and leisure, something that has not happened. Although an important section of the city's history came to attention, cultural values of the existing neighbouring boroughs have not yet been properly valued. Finally, with only 9% of the CEPAC's stock being sold we fear that the 'Porto Maravilha' OUC could become a new barrier, placed between the sea and the city. Re-directing the instruments of the OUC would provide a more sustainable urban vision not only to the waterfront itself, but also of its features, as an important element that could favour the re-organisation of a fragmented and complex metropolis such as Rio de Janeiro.

Disclosure Statement

No potential conflict of interest was reported by the authors.

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Image sources

Figure 1: Historical panorama of Rio's waterfront central area. [PANORAMA da cidade do Rio de Janeiro]. Rio de Janeiro, RJ: [s.n.], ca. 1865. 1 grav, litogr., col, 36,7 x 95,1. Source: National Library of Rio de Janeiro. <http://acervo.bndigital.bn.br/sophia/index.asp?codigo_sophia=7928> Accessed: January 2018.

Figure 2: Actual panorama of Rio's waterfront central area from Orla Conde, in 2014 and in 2016. Photo: Bruno Bartholini. Source: Porto Maravilha webpage. <http://portomaravilha.com.br/fotos_videos/g/22>. Accessed: January 2018.

Figure 3: Urban fabric in 1866 and main urban transformations ('Melhoramentos' Plan and Pereira Passos Plan) of the Central and Port Area of Rio de Janeiro in the late 19th and early 20th centuries. Scheme based on the original collection of Edward Botto, Plan of the City of Rio de Janeiro. <http://objdigital.bn.br/acervo_digital/div_cartografia/cart326448/cart326448.pdf>. Authors, 2018.

Source: authors, 2018.

Figure 4: Main elements of the Central and Port Area in Rio de Janeiro in the late 19th and 20th centuries. Source: authors, 2018.

Figure 5: Scheme based on maps of the Porto Maravilha's official website. Source: authors, 2018.

Figure 6: Chart based on the quarterly reports and the economic feasibility study of the Urban Development Company of the Region of Rio de Janeiro's Port (CDURP). Source: authors, 2018.

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