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EXPO - 98 AND TRICKLING DOWN EFFECTS IN LISBON

1. INTRODUCTION

Expo-98 took place at a 18ha site bordering the Tagus River at a derilicted harbour area previously full of gas and petrol containers. The overall project (Expo-98 and all urban renovation) amounted to two million euros obtained as such: 65% from bank loans, 25% from the Portuguese Government and 10% from European Union.

Increases in the amount of foreign visitors in Portugal were estimated at 10% in 1998 and 13% of budget increase (approximately 0,5 million euros). Expo-98 Management Board argues that these net gains associated with taxes due and paid exceeded the amount of money the State donated to this urban project.

At a time when big bang events are having a more and more important role in urban dynamics of several towns, the identification and quantification of adverse and beneficial impacts remains to be done.

This paper addresses this issue in a qualitative approach for the case-study of the 1998 World Exposition in Lisbon. The question that remains to be answered is the following: is this event-planning for specific targets the only way to have a global high-quality planned public space in Portugal?

The site opened two weeks after the closing of Expo-98 at the end of September 1998, renamed as Parque das Nações (Nations' Park) with some areas closed for refurbishment by blocks and not as a whole construction site. It comprises now an enlarged area of 330ha. This idea of keeping the public space open to wide access, the fact that some urban anchors remained in function such as the Oceanarium by Peter Chermayeff, the Pavilion of Portugal by Siza, the new Railway Station by Santiago Calatrava, the Shopping Centre Vasco da Gama lately finished, the Pavilions of the International Fair of Lisbon, later relocated here and the Atlantic Pavilion where major cultural and sports events take place, attract more than a million visitors each month to this area where 4000 people are already living and over 6000 people are permanently working. Expectations are 25 000 inhabitants and 20 000 workers in 2009.

But, as usual, there is also a downside: land speculation, increasing densities and reduced public space as well as oversupply of some infrastructure, namely marina places still very much underused.

Nevertheless, the six gardens and one urban park are remaining there and occupying $\frac{1}{3}$ (110ha) of the total area. The phasing of the construction as well as the sale of the plots obeyed to a careful strategy of making the area liveable all over the time. A fact remarkable in a country where carefully global planned urban areas are very much the exception. A successful after process when so many past (as Seville) and post (as Hannover) Expo Sites have failed. The following sections of this paper address primarily the Expo-98 event in the context of the Lisbon Plan-Process, the major innovations brought to urban image and quality of life, environment and management as well as the draw-backs, before setting up the conclusions.

2. EXPO 98 AND THE LISBON PLAN -PROCESS

Nations' Park site was previously home to large industrial factories, established there since the forties, namely a Petrogal refinery and storage facility. Gas, petrol and other companies facilities occupied nearly 50 hectares. Also present were the Lisbon Industrial Slaughterhouse, the National Depository for Decommissioned Munitions, a waste water treatment plant, a sanitary landfill and the Beirolas solid waste treatment plant (see Figures 1-3).

In sum, an area of heavy polluting industries whereby vacant land was also used to illegally dump waste. No environment or urban planning considerations had been enforced up to the nineties in the Expo'98 area.



Source: Parque Expo'98, S.A.

Figures 1, 2, 3 - Views of the area before 1993

North to this area stood a planned neighbourhood of the sixties without access to the river and to downtown Lisbon. At the eastern side, the much polluted Trancão river established the border with another Municipality.

West to this area up to Terreiro do Paço where the Portuguese Government main headquarters stand, small and medium industrial firms have been locating over the last forty years without any urban planning. Conflict interests were said to be occurring between the growing city and the heavily industrialized harbour area. As such, planning ideas were on the air to renovate and upgrade this area when Expo-98 is decided to be located here. The idea for the holding an international exposition in Lisbon was originally voiced by the National Committee for the Commemoration of the Portuguese Discoveries, a body which studied a number of activities to highlight the importance of the Portuguese discoveries of the 15th century. Still, the thematic dimension of EXPO'98 wasn't limited to historic commemoration but to preserve the oceans.

The global project was indeed comprehensive, for it was in fact two projects tightly coordinated into one: The first was to prepare the Lisbon World Exposition, while the second was designed to renew an urban area covering around 340 hectares of eastern-Lisbon.

Expo-98 occupied 60ha if the area of the old Olivais Dock - a 1940's airport for hydroplanes is accounted for along 2Kms of river front. The following aims were set at the time: 1) re-establish the link between City and River; 2) restore environment and landscape and rediscover usefulness; 3) to weave the development into the city's fabric and to contribute to define the city as a whole; 4) to become a new pole of attraction in its own right within the greater Lisbon area. First of all, it is important to notice that Expo-98 used the existing urban planning legal framework to control land and development. A land policy measure issued in 1975 about priority

areas for urban development allowed Expo'98 Management Board to take over the area and start working on it. An irony of destiny at a time when so many urbanists were against Expo'98 development. Usual charges were the costs, the centralization and the urban expansion of the capital of an already macro-cephalous country. An Urban Development Plan supervised by a Portuguese urbanist with a long career (30 years) and complemented by six detailed plans that were commissioned to six different teams: five to architects, one to landscape architects, were drawn, discussed and approved (see Figure 4).



Source: Parque Expo'98, S.A.

Figure 4 - An example of a Detailed Local Plan (PP6)

One of these detailed plans (PP2) was coordinated by an architect with 20 years of deep involvement in urban plans and specialized in matching their connection with economic development. He was responsible for defining the permanent and the ephemeral buildings/locations at Expo-98, after a first plan by a Japanese architect. A team of distinguished portuguese and a few foreigner experts were assigned the task to evaluate and monitor the plans and projects proposed. Lisbon Municipality also drew up an urban plan for the area adjoining Expo-98 site.

Apart from these plans, specific studies were carried out such as the ones for detection of peaks of hydrocarbon pollution in excess of allowable levels. This was especially important for the residential zoning assigned in the approved Development Plan. These studies confirmed that the area's geology featured a layer of impermeable clay, serving as a natural buffer limiting the leaching of contamination deeper into the sub-soil. In fact, oil pollution was rarely detected deeper than 2 meters, with a total volume of soil requiring processing estimated at some 250 000m³. There were also soil problems concerning Beirolas landfill, which was the primary recipient of Lisbon's solid waste from 1985 until 1990. Its working life was longer than originally planned, resulting in overuse and deficiencies in the leachates drainage and biogas removal systems, as well a degree of instability in landfill slopes detected during site evaluation studies (see Coelho, 1995).

3. INNOVATIONS BROUGHT BY EXPO-98

3.1 Urban image

Expo-98 presented a global unified image comprised of 224 modular units, covering a total of 72.500 m², not including the special cases of the Portuguese and European Union Pavilions. EXPO'98's central area was designed to be two things. First, it was to host the most ephemeral of happenings, the exposition itself. Second, it was also to serve as the cornerstone of urban

renewal efforts. EXPO was designed to have an easily understood and well-orientated urban layout for visitors as well as to have landmarks both for the time of the Expo and the period after (see Figure 5-8).



Source: Parque Expo'98, S.A.

Figures 5, 6, 7, 8 - Area at the time of Expo-98 (May-September 1998)

As such, architects and designers were invited to put forward ideas and, later on, projects for the entrances of Expo-98. The same competitions took place for water games, fountains and lakes that were placed all along the area.

All these sculptures and existing buildings as the "Petrogal Tower", a gate particularly popular with visitors arriving in tourist buses parking in the southern lots, are still in place nowadays. The river is showcased beside the tree-lined promenades. Dozens of species of trees have been planted, namely oaks, lime trees, banana and other palms, pines and nettle trees, including rare species. A panoramic view stretches before numerous restaurants, bars and coffee shops. The Vasco da Gama Centre and the Oriente Station also have a varied assortment of services, restaurants and shops.



Source: Parque Expo'98, S.A.

Figures 9, 10, 11, 12 - Residential blocks

Nowadays, there exists five kilometres of river-front property but no privatising of the river public domain meaning that long strolls can be taken by anyone by the Tagus. Extensive pathways, green spaces and numerous services are still a unique experience in Lisbon (see Figures 9-12). In fact, the first river-front area to be developed for leisure near Belém, in the forties, does not provide the same atmosphere as it is more zoned (green areas segregated from coffee shops areas) and less extensive. The Business Centre of the Nations' Park was located near the Railway Station. All office buildings feature split-level architecture (see Figures 13, 14), with parking below ground level. Examples of innovative design include the Pavilion of Portugal, the Camões Theatre, the Vasco Da Gama Tower and the Oriente Station.



Source: Parque Expo'98, S.A.

Figures 13, 14 - Office and Shopping centre architecture



Source: Parque Expo'98, S.A.

Figures 15, 16, 17 - Urban landmarks

Land marks, such as the Petrogal Tower (see Figure 15) were preserved and kept. Innovations such as the Water Vulcan and the Oceanarium (see Figures 16, 17) are innovative sculpture and architecture imported from the USA.

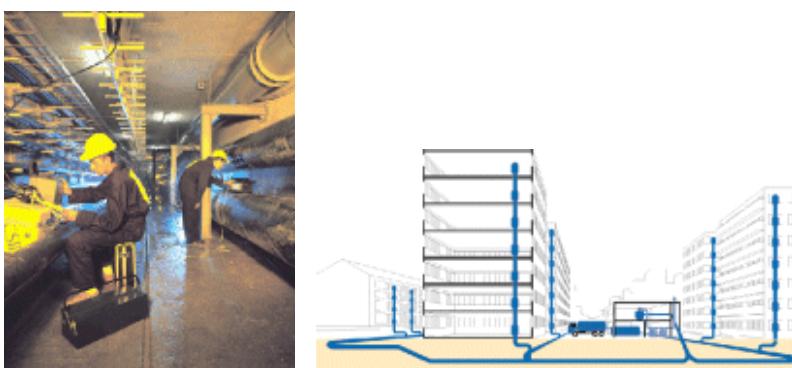
3.2 Urban quality of life

Lisbon emerged as best quality of living within the major eighteen Portuguese cities (see Mendes, 1999 and Lourenço et al., 2000) following the operational approach used at University of Minho and derived from Findlay et al., 1988, Rogerson et al., 1989). This classification associated with the model and weightings adopted was contested by other studies but there are also others (Deelstra, 2000) that give Lisbon as an example of good practice.

At the time of Expo-98 a number services were offered to visitors, namely: drinking fountains, toilet facilities, shaded resting areas (see Figure 15) as well as baby carriage and electric cart rentals, that are still kept nowadays.

Expo-98 was more than just a chance for improving the environment and urban renewal. It was an opportunity to both modernize and internationalize Lisbon. Municipalities worked together for reconversion and renewal, ensuring accessibility and transport, when planning shopping centres, services and infrastructure, and for urban planning and in sponsoring ambitious events. The adopted strategy called for building high-quality urban spaces, integrating services like shops and restaurants, schools, leisure & sporting facilities, a hospital and similar services.

The Nations' Park incorporates new urban technology such as the Technical Gallery Service Tunnel (see Figures 18, 19), housing fiber-optic telecommunications, a central heating and cooling system, and centralized solid-waste collection, in addition to the more traditional public service networks (water and electricity).



Source: Parque Expo'98, S.A.

Figures 18, 19 - The Technical Gallery Service Tunnel

In sum, this area brought a contribution of unique, high quality buildings to the creation and consolidation of a new urban skyline, re-marking the city's relationship with the eastern river front.

From the initial planning phase, better living in a urban setting was one of the aims. This, for the moment, seems to have been achieved as the estimated quantitative indicators double the minimum Portuguese requirements for equipment and green areas as well as for parking places. This is particularly evident in Figure 20 where the plantation of trees along parks, avenues, streets is shown. Notice that the Portuguese standards are higher than the Spanish but lower than the English.



Source: Parque Expo'98, S.A.

Legend: Gardens Trees •

Figure 20 - Green Areas Location

3.3 Environment quality

Demolition debris deemed non-polluting were recycled in the Nations' Park. Nearly 812.000 tons of concrete, 190.000 tons of stonework, roofing tiles and brick, as well as 60.000 tons of concrete and asphalt sidewalk were processed. Around 5.000 tons of steel, recovered from reinforced concrete were sent for remelting and new uses.

An environmental strategy was drawn. The first objective was to ensure future users of the Nations' Park an environmentally-friendly urban landscape where nature could be "rediscovered", most notably by showcasing the five full kilometers of river front.

For landscaping and urban layout, the environmentally sensitive areas were given special attention, to ensure high-quality urban living. Green spaces flourished, with unimpeded access to the river front (see Figures 21-24). Pedestrian pathways were built, with ample parking as well as incentives to promote the use of public transport.

The choice of such environmentally-friendly infrastructures, while ground-breaking in Portugal, reflected their successful use in other European cities. They were directly incorporated into the urban planning process. The central heating and cooling system running on natural gas at considerable energy savings when compared to traditional systems, was one of the innovative solutions implemented.



Source: Parque Expo'98, S.A.

Figures 21, 22, 23, 24 - Environmental quality areas

A Monitoring Plan has been drawn which covers the whole of the Nations' Park and environmental concerns such as soil quality, ground water, runoff and sediment, air pollution, noise, geology, meteorology and a number of quality-of-life criteria.

The increasing scope of the Parque EXPO Environmental Monitoring Plan warranted the setting up of an Environmental Monitoring Centre (see Figure 22).

A full third of the 330-hectares Nations' Park is reserved for green spaces. At present, over 6,500 trees have been permanently planted, with nearly 1,700 on the EXPO '98 site. Plantings continue, with holes being dug and watering and drainage systems installed.

Nearly 600 trees were transplanted, 100 from Lisbon and 500 from Expo area. Using respectively, traditional methods as well as state-of-the-art German technology, they were first transplanted from their original location to a temporary site while awaiting final planting. Although their number is small when compared to the total of 10.000 trees called for in development plans, the 500 trees are symbols of the integrated solutions during construction. Also, nearly 150.000 m³ of humus originated from the waste water and solid waste treatment plants, located in the area, were spread in the various green areas created.

The environmental renewal undertaken at the Nations' Park is relevant because of its innovation, great diversity, quality of its environmental recovery efforts and pedagogic spreading of outcomes.

3.4 Hub for Multi-Modal Transport

The Nations' Park is located at a crossroads of major traffic ways, namely the Lisbon Inner Ring Road (CRIL), the National Highway N10, the Vasco da Gama Bridge, the North/South Axis, Oriente Station and a ferry terminal.

Oriente Station, with a neo-gothic architecture (see Figure 25), is the hub for the various networks of public transportation serving the eastern area of Lisbon, with a metro station, trains, buses, taxis and airport links.

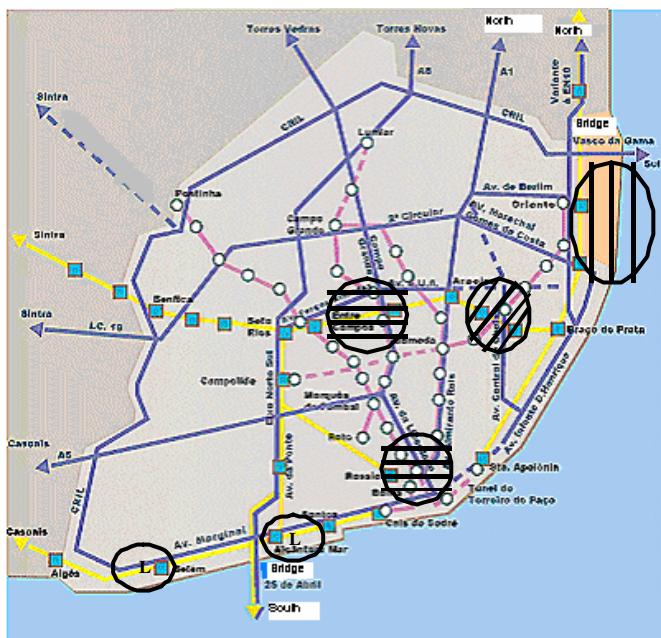


Source: Parque Expo'98, S.A.

Figure 25 - View of Oriente Railway Station

Source: Parque Expo'98, S.A.

The construction of the sub-way line and the connections established, namely with the railway system, allowed Lisbon to have, for the first time in its history, a connected mass transportation system. Chelas, a planned neighbourhood from the sixties had, in 1998, and for the first time subway and urban highway connections to the centre of Lisbon and to the river font (see Figures 26-28).



Source: Parque Expo'98, S.A.

Legend:

- (A) Main Shopping & Business Areas
- (B) River Leisure Areas
- (C) Chelas
- (D) Expo – 98 Site
- Urban Main Ways
- Subway Lines
- Railway Station

Figure 26 - Expo-98 location in surroundings and Lisbon transportation network



Figure 27 - Subway lines in Lisbon

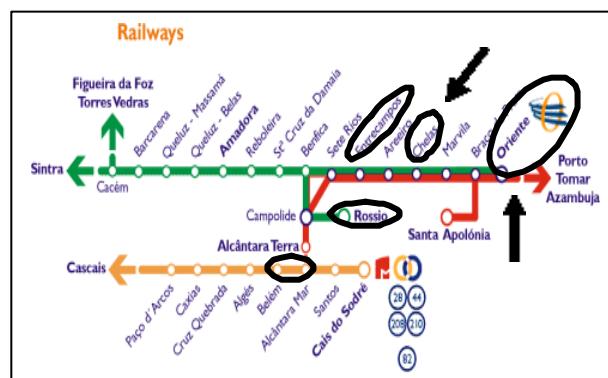
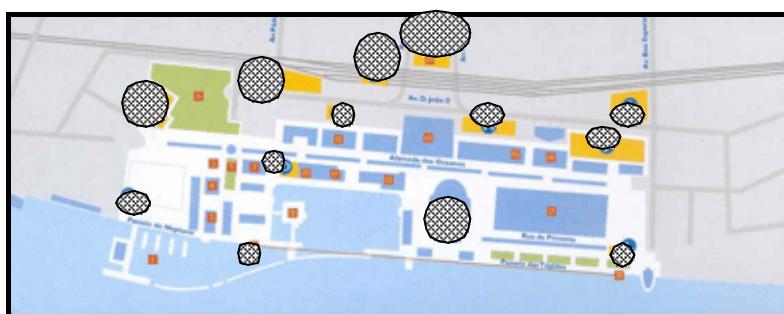


Figure 28 - Railway connections in North Metropolitan Area of Lisbon



Source: Parque Expo'98, S.A.

Figure 29 - Parking Places Location

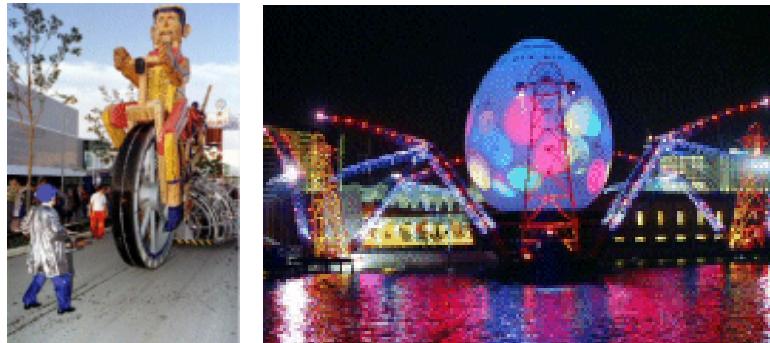
Legend:

- 1500 places
- [450,700] places
- [370,400] places
- [90,200] places

The eleven parkings have 5.163 places, exceeding the minimum requirements and making it still easy for visitors to park their cars, at the moment. They are rightly located near Oriente Station and the borders of Expo-98 site (see Figure 29).

3.5 Global management approach

There was an extensive program of special events at Expo-98, a lot of them taking place outdoors (see Figures 30, 31).



Source: Parque Expo'98, S.A.

Figures 30, 31 - Animation at Expo-98

One of the most famous happened daily, just before midnight, at the Olivais Docks – "Acqua Matrix", a multi-media extravaganza of sights and sounds, in an island stage, with towers and other moving parts, namely a huge inflatable balloon onto which images were projected. At the moment, some events still take place at Sony Plaza with one of the biggest screens existing at open air public arenas in any city. All equipment areas are jointly run and advertised by Park Expo, S.A.

As for public investments, several Pavilions have found new life, namely as a Centre of Live Science (former Knowledge of the Seas Pavilion), the Portuguese Presidency of the Council of Ministers (former Pavilion of Portugal). The Camões Theater houses the National Dance Company and the Lisbon Symphony Orchestra.

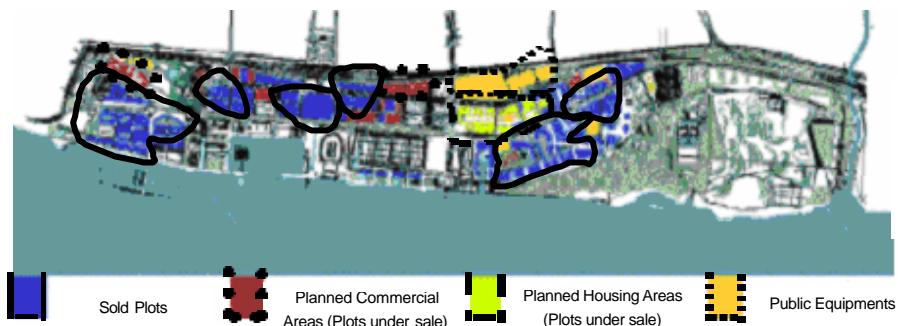
Student housing (1.100 beds) for two Lisbon universities has been built among health and education equipments.

The joint global management is especially relevant for the sale of plots (see Figure 32), namely to Cooperatives (Housing Associations) and national and foreign real estate developers, Portuguese/Spanish, Portuguese/Dutch, Portuguese/French consortiums. Other investors include Japanese and German firms as well as the big Portuguese private groups.

Some of the public car parks, due to their global management are sometimes used for testing ground and car shows for automobile manufactures, or for films of advertising spots.

Also, instead of amalgams of fast-food strips, traditional coffee shops, bars and restaurants from various towns in Portugal (just to name, Peter's from Azores, Infantes from Alentejo) were invited to come to Expo-98 site and now they have stayed in the area.

As such, it is no wonder that Nations' Park has become a premier address in the city of Lisbon, featuring an array of multi-functional venue possibilities, for conventions, business meetings, parties, shows, etc. Nations' Park team of professionals assist during all phases of one's project and some events that were happening in Northern Portugal around the town of Oporto have relocated here.



Source: Parque Expo'98, S.A.

Figure 32 - Planning and Land Policies Zonnings

Phase I – sales finished September 1996 and by the time EXPO'98 opened, nearly 1800 apartments had been built.
Properties were developed primarily in:

- Oriente Station (offices/shops/hotels)
 - Marina (housing units/leisure)
 - Tagus Park (housing/facilities)
- Phase II** - Started October 1996 and in 1999, as EXPO

'98 non-permanent buildings had to be dismantled first.

Phase III - Started January 1999

Focus on commercial and office space near Oriente Station.

Property sales have reached until 2002, 1.113.000 m² of gross floor space, with sales to both Portuguese and overseas investors. Or, 55% of total possible construction, worth over 350 million Euros. Residential sales account for 707,000 m² of the total, with the remaining 406.000 m² for commercial purposes.

4. DRAWBACKS: A FIRST IMPRESSION

The need to find timely ways compatible with EXPO'98 development may have meant faster solutions and more expenditure in several tasks. Sidewalk pavements already portray this problem. The walled Expo-98 site has given birth to a somewhat "walled" Nations' Park area surrounded by highways and a railway line (see Figure 33).



Source: Parque Expo'98, S.A.

Figures 33 - View of the "Walled" Expo-98 site

As can be easily noticed and felt in the adopted model, the highways surrounding Expo-98 exclude pedestrians.

Effectively, the Chelas area transformed in a *ghetto* for decades, will need much positive promotion before attracting middle-class population and not just the most poor among Lisbon inhabitants.

The densification of the built environment seems to be happening not only at the former Expo-98 site but in the surroundings areas (see Figures 34, 35).



Source: Parque Expo'98, S.A.

Figures 34, 35 - The densification of the site

In some cases, the dominance of beauty over function (see Oriente Station) can be clearly felt at present, especially at winter time when this very long open-sided railway station can be particularly uncomfortable for passengers.

This analysis also applies to the glass architecture that although supplemented by cooling devices (such as running water roofs and shading elements) may be more energy-waster than previously expected.

5. CONCLUSIONS

EXPO'98 took its place as part of a rich tradition of international expositions, the first generally recognized as being the London Exposition of 1851. It opened in Lisbon on May 22nd and ran until September 30th, 1998. 11 million visits occurred in the Lisbon World Exposition during its 132-day run of which 20% from abroad.

The number of visitors prove its success and nowadays Nations' Park stands as a legacy for the future.

The quality of the urban image and of the environmental upgrading, the improvements of accessibility in Lisbon mass transportation systems are facts that remain visible while memory of the past is still available in present generations.

Moreover, this success is also proved by the attempts to disseminate the outcomes of Expo-98 with the Portuguese Government contracting the services of Parque Expo, S.A. enterprise to assist urban renewal in several other Portuguese towns. Of course, the clocks in these urban renewal POLIS operations have all been stopped by now while works are still being carried out or have not started yet.

But a very significant fact is to be stated: physical planning has been a very important tool in these operations either Expo-98/Nations' Park or POLIS programmes all over Portugal. For the first time, detailed local urban plans must be approved before the proposed actions are to be implemented.

Thus, the existent Portuguese physical planning system has not become an outsider in these programmes but rather a tool that has been fostering a more adequate spatial development with its long history of successes and failures incorporated in the process. And this opportunity to

upgrade the physical planning system as well as upgrade the territory that did not occur in Docklands, for example, is a fact to be appraised by urban and regional planners.

Nevertheless, the Expo-98 location was a must for Lisbon development but the same conclusion cannot be made if the border is the one of the Metropolitan Area of Lisbon. There, the planners' alternatives were for the upgrading of the existing suburban peripheries, namely in the South Bank of Lisbon. But that had been a planners' lost fight in the late eighties that even led to the abortion of the Regional Plan of the Metropolitan Area of Lisbon and the Government's decision for the present location of Vasco da Gama bridge.

Therefore, Expo-98 provided the last opportunity for planners to play their game in Lisbon. And they entered the arena and, hopefully, will keep there when rumours of densification and occupation of public space, namely Sony Plaza, are getting more consistent.

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