

International Conference

February 17–19, 2021
Lisboa

Urban legacies of the late 20th century

CONFERENCE PROCEEDINGS

GRAND
PROJECTS

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Publisher
DINÂMIA'CET

Editors
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Online publication: 2021
ISBN 978-989-781-551-5

dinamia'cet iscte
Centro de Estudos sobre a Mudança
Socioeconómica e o Território

iscte INSTITUTO
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	WEDNESDAY, 17	THURSDAY, 18	FRIDAY, 19
		Parallel session Slot 1	Parallel session Slot 3
9:30		T2 S1 T3 S1 T4 S1 T7 S1	T1 S2 T2 S2 T3 S3 T7 S2
11:00		BREAK	BREAK
11:15	SIDE EVENT Lisbon Waterfront Buildings and Public Spaces	CLAIRE COLOMB <i>Keynote Speaker</i>	CHRISTIAN SCHIMDT <i>Keynote Speaker</i>
12:45		LUNCH-BREAK	LUNCH-BREAK
		Parallel session Slot 2	Parallel session Slot 4 T1 s3 T3 s4 T6 s1 T7 s3 T8 s1 T9 s1
14:15		T1 S1 T3 S2 T4 S2 T5 S1 T10 S1	
15:45		BREAK	
16:00		SPECIAL SESSION	
16:30	OPENING SESSION Tribute Vitor Matias Ferreira	Ana Brandão, Jorge Bassani, Stefano Di Vita	BREAK
16:45		<i>Roundtable</i>	
17:00			JEAN-LOUIS COHEN <i>Keynote Speaker</i>
17:30	BREAK	BREAK	
17:45	JOÃO PEDRO MATOS FERNANDES, GONÇALO BYRNE and RICARDO PAES MAMEDE <i>Roundtable</i>	MANUEL SALGADO and JOSEP ACEBILLO <i>Keynote Speaker</i>	
18:30			
19:15			

Team 5
Programme 7

PART I

Organizer’s welcome message..... 13
Foreword DINÂMIA’CET 15
Conference theme..... 17
Framework of the conference within the research project 19
Special Session: CELEBRATING VITOR MATIAS FERREIRA LEGACY 21
KEYNOTES SPEAKERS 25
Round Table: João Matos Fernandes, Gonçalo Byrne
and Ricardo Paes Mamede:..... 27
Claire Colomb..... 31
Manuel Salgado and Josep Acebillo.....35
Christian Schmid.....38
Jean-Louis Cohen 41
**Special Session ROUND TABLE: Ana Brandão, Jorge Bassani
with Camila D’Ottaviano and Eduardo Nobre, and Stefano Di Vita 45**
Side event: LISBON WATERFRONT BUILDINGS AND PUBLIC SPACES..... 51

PART II

Track 1: Mega-Events And Mega-Projects: Trends And Demands.....59
Shared economy as a vector for gentrification 61
Urban legacies of sport mega-events..... 71
Olympic agenda 202085
Margins of the Olympic Rio..... 99
Ecological design strategies for urban spaces in European
World Expos.....111
How mega interventions are shaping Tokyo 123
Peak event.....135
Great event, more troubles.....137
Protests and Mega-events147
Cultural mega-events in heritage-rich cities.....163
Olympics and urban form.....165
Olympic waterfronts 177

Track 2: Starchitecture195
Urban projects by an Architecturbanistic tandem..... 197

Counter (Grand) Projects..... 213
The competition for the Bastille Opera 229
The great Egyptian Museum..... 243
Designing cities for arts..... 255
Transnational architecture and urbanism 271
New Housing in Angola. From modernity to contemporaneity273

Track 3: Terrain Vague Redevelopment 289
The Cable Factory, resilient architecture in Helsinki 293
Military terrain vague in Italy 307
Space__between..... 309
Designing in two expectant areas of Lisbon and Barcelona
waterfronts 311
A public space in the post-apartheid city:.....333
Rethinking creativity at neighborhood level in the
post-industrial era 349
The Mauá Pier as a terrain vague..... 363
Subverting terrain vague.....377
Occupy Estelita..... 387
Petit projects..... 399
Thinking with the unfinished413
On the unpredictability of space..... 427
The ocean as a “terrain vague” of the twenty-first century 439
Walking in-between 451
Terrain vague, property, free space:
the ideal of a common space..... 465
Railway territories..... 479
From drawing to space 495

Track 4: Environment Impact Awareness In Urban Developments511
Assessing Impacts of Urban SUNstainability515
Seeing, pausing, inhabiting the riparian limits..... 527
Heritage and History as resources for the creation of new,
sustainable, city 541
Lomas ecosystems landscape 555
Barra Funda intermodal terminal as an
urban centrality in São Paulo571
Weaponized Chagos Archipelago..... 587
Integration, adaptation, reconversion 589

Track 5: Methods And Technologies On Architectural Design And Urban 601
22 years later, what is the future for the South Door of Expo ‘98? 603
The construction process of a pedestrian bridge
in Covilhã, Portugal.....619
A new waterfront for Vila do Conde 629

Track 6: Urban Policies..... 649
Urban regeneration policies and mega-events 653
“Uma praça em cada bairro” program..... 655
After all, what are Favela Museums?..... 669
The urbanism of exception?681
The governance of Grand Urban Projects:
public power and private actors 683

Track 7: Urban Competitiveness And Social Challenge 695
The spatial change between migrations and religions
in the capital city of Taipei..... 697
Representations and landscapes of Lisboa94 and Expo98:715
The reproduction of the beautiful city by the 2014 World Cup725
Still selective after all these years?739
Touristification of spaces and urban lifestyles.....741
White elephants in southern europe.....753
Porto Maravilha Project 10#years 765
The pandemic challenge on temporary public space
in Indonesia775
The entrepreneurial countryside.....791
Lisbon Boom(erang).....793
Potsdamer Platz Urban Project 809
Seizing the opportunities of the post-pandemic to
save a cultural district.....819

Track 8: The Role Of Artists And Urban Art821
The ‘Expo’ and the post-‘Expo’ 825
Horticultural parks in Lisbon..... 837
Gentrification and Public Policies..... 839
The Estelita case and the influence of Grand Projects on the
formation and production of young professionals’ collectives851
Malagueira..... 865

**Track 9: Syndrome Of Grand Projects: Contamination Processes Between
North-South, West-East, Global-Local..... 885**
Urban Voids and the Contemporary Spatial Production:..... 889
Luanda’s Venice 903
São Paulo from the 1990s to 2020s919
Progressions and new deals between urban rivers and dwellers:
from an enclosed channel to a new fluctuating social space927
Jungle fever: Manaus and 2014 World Cup..... 939
Meta-cities XXI 949

Track 10: Urban Analytics And City Design967
King’s Cross..... 969
Utilizing gis for a critical heritage mapping of urban activism
in Istanbul in the 1960s 971

Author Index 984

Acknowledgements 987

An urbanism that does not favor major road infrastructure works, such as bridges and tunnels, nor removes favelas, but understands the flows and networks of the city, and seeks to integrate them at the different scales of a metropolis. And that, as is clear in this case, sought to promote ecology through economics.

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66 Progressions and new deals between urban rivers and dwellers: from an enclosed channel to a new fluctuating social space

The Metropolitan Water Park, Expo 2008, Zaragoza

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ABSTRACT

The 20th century defined a pattern in city's relationships with urban rivers on a global scale, based on criteria of exploitation and immediacy, where the river-side space was suppressed in pursuit of the supposed need to protect citizens and property. With the new millennium came the pressures of climate change, forcing a paradigm shift that translated into a new sensitivity toward these lines of conflict. Some international events, such as the 2004 Rotterdam Architecture Biennale, began to acknowledge this reality, but it was an International Exhibition in 2008 that materialized these changes in a grand project.

For three months, the city of Zaragoza became the headquarters for the international exhibition Expo 2008, which centered on the theme “Water and Sustainable Development”. The exhibition grounds were located between the banks of the Ebro River and the edges of Zaragoza's fourth ring road. In addition to serving as a splendid emblem of the exhibition's intentions, the venue offered an opportunity to improve the city as a whole, mainly by opening the city toward the Ebro River, among other major infrastructural changes.

The relevance of the Water Park—designed by aldayjover and Christine Dalnoky—lay in recognizing that it entailed designing a transformation process, attuned to the surroundings and to the passage of time, in a process that defined architectural,

topographic and landscape logics to promote geographic, historic and territorial integration. And yet, the Water Park should not be understood as an isolated exercise; rather, it explains the strategies used in a series of pioneering projects on a radically different scale. At the same time, the Water Park kicked off a specific trend in subsequent designs, paving the way for a specific and globally recognizable progression in the use of innovative tactics that range from working with the idea of socio-ecological landscapes to a dilution of the classical partitions established by urban planning.

Keywords: Water urbanism, socioecological systems, sustainable river management, post-industrial water.

Introduction

Since the dawn of civilization, water has been a cardinal element for the development of humanity, who has depended on rivers as a source of food and drink, as a system for irrigation, energy, transportation, commerce, and even sometimes as an important defense device. Therefore, it is no accident that for more than 2000 years of our common history, water structures were a key element in shaping the built urban environment (Shannon & De Meulder, 2008), defining the origin of settlements, the foundation of their infrastructure, and the engine of primeval productivity.

Despite this enormous tradition behind us, the value of river systems in the definition and management of urban structure saw a drastic disappearance from the conformation of the industrial city, coincidentally during what some historians of the urban form have called “the age of great hopes” and reorganization (Benevolo, 1979, p. 37), which coincided with the appearance of modern urbanism as a scientific discipline. From that moment on, urban rivers became authentic nauseating sewers, the main function of which—in cases where their navigability or use as energy for essentially productive purposes was inviable—was the disposal of domestic and industrial waste. Rivers became elements of shame, unworthy of being exalted and included in the design of the urban form. In addition to the sanitary problems inherent in their new use, rivers began to be understood as a clear hazard to public and private property, which meant that mechanisms had to be devised to protect against systematic overflows and onslaughts (Haidvogel, 2018). As a consequence, river engineering, until then incipient, established an unprecedented relationship of control and imposition with urban rivers that lasted until the end of the 20th century. The rivers were channelized, piped, relocated, and ultimately hidden and cast out of the collective worldview and of urban life, in a process that combatted nature.

Fortunately, the first decades of the current millennium are beginning to point toward a paradigm shift, possibly forced by the urgency of climate change and the resurgence of ecological concerns. Water academics, in their very diverse disciplinary approaches, have begun to build a critical mass of knowledge on the profuse dimensions of water, including new appellations that are helping to reconstruct the modern hydrological discourse. The consolidation of water in the post-industrial city understood only as a technical element, recently summed up by the term ‘modern water’ (Linton, 2014), offers a vision in which water is isolated and disconnected from its social, historical, and local contexts. In contrast, the process of reinterpreting the social value of water—in keeping with its ecological properties—has paved the way for the incorporation of other vectors, such as political implications (Swyngedouw, 2004), which allow for reading the relations of dominance over water bodies established throughout the 20th century as strategies rooted in governmental and economic power.

This paper attempts to detect the transition point between Linton's *modern waters* and what we will call hereafter *post-industrial waters*: a paradigm shift in understanding, but especially in acting on, urban rivers and their banks, distinguishing them as part of a socio-ecological renewal process. To that end, we will rely on a very particular case study, the project for the Metropolitan Water Park carried out within the framework of a major international event, the Zaragoza International Exposition held in 2008 with the theme of "Water and Sustainable Development".

The Water Park project designed by the firm aldayjover in conjunction with Christine Dalnoky's office, will be analyzed not as an isolated event, but as a direct consequence of a series of publications, events and designs that, simultaneously in different parts of the planet, helped shape this turning point in a process of cross-contamination that took place between the last decade of the 20th century and the first decade of the 21st. Interpreting the Water Park as an example of the state-of-the-art at the turn of the millennium entails an exhaustive bibliographic review, in parallel to the use of a qualitative-descriptive methodology that makes it possible to establish comparisons with other project which are similar in their intentions, but contrast radically in their scale and geographic context. Finally, the city of Zaragoza, in the northeast of Spain, offers a unique opportunity to understand the impact of grand international events in the context of a midsize European city, where administrations are not always prepared to take on the management of large-scale projects.

Indicators of the watershed moment

The outcome of ineffective approaches from engineered hydraulic infrastructure

Riverine ecosystems have been modified—with a significant recent variation in the intensity of the effects—since the invention of irrigation (Mays, 2008). These alterations have ranged from river channelization to dredging operations, weirs, locks and even levees to control flooding.

Engineered hydraulic infrastructure based on rigid criteria of defense and domination began to prove deficient in the 1970s, not only in response to nostalgic criteria or the apparent resurgence of the symbolic and ecological meanings of water. Paradoxically, the same engineering that had led to the collapse of river-side ecosystems shifted its focus towards much softer interventions where the urban river "is no longer engineered away, but is again an integral and indeed value-engineered part of urban reality" (Shannon, 2013, p. 165). In parallel, and with the emergence of the notion of transdisciplinarity, professionals in hydrogeology, geography, biology, ecology, landscaping and urban design, among other actors, have now begun to provide new parameters to justify this change of model. The reasons range from hydraulic to hydro morphological concern, maintenance and long-term management issues, environmental and social interests, and last but

not least those related to water policy and legislation (Wohl, Lane & Wilcox, 2015). One thing is certain, all of them seem to coincide in the need to reorient the interventions towards a long-term and sustainable restoration model (Hohensinner, Hauer & Muhar, 2018), which allows rivers to recover their natural adaptability in response to exceptional situations while, at the same time, making it possible to restore their socio-ecological potentials.

Synchronous sensibility references

The first unequivocal signs that a change in approach was brewing can be found in the early texts by James Gore (Gore, 1985) and in later publications that began to gain scientific relevance during the 1990s. By then, the issue had transcended the academic sphere, resulting in important events such as the Marrakech first World Water Forum of 1997, held by the newly founded World Water Council. Afterwards, with the celebration in New York of the UN Millennium Summit in 2000, which led to the publication of the Millennium Development Goals (MDGs), administrations focused on incorporating the sustainable management of water and quality of rivers into the political agenda for the first time. In the field of landscape architecture, specifically, the theme of water came to the fore at the second International Architecture Biennale in Rotterdam entitled "The Flood", held in 2005 and curated by Adriaan Geuze.

In the sphere of praxis, it is also worth highlighting a series of projects that were being carried out synchronously around the world. Perhaps the most relevant was the renaturation of the Aire River near Geneva—carried out by the Swiss landscape architect Georges Descombes in conjunction with ADR and Superpositions—in a project that began in 2002 and that ended in 2015. The project for the Aire River was pioneering in its approach, which harmonized natural and cultural logics, generating an honest progression in which the river and the passage of time played an active role. Even more ambitious was the Cheonggyecheon Urban Renewal in the heart of Seoul. The Cheonggyecheon urban stream, once channeled and covered by infrastructures, was the subject of a controversial and costly transformation that was also questionable from the perspective of sustainability, carried out between 2003 and 2005. However, it was able to reinvent citizens' relationship with one of the city's most important geographical elements. Two final projects that stand to mention are the restoration of the Drau River in Austria, developed in 2003, and the restoration of the Ruhr River in Germany, conducted between 2006 and 2011, both flagship projects of the European Union program *REFORM* to restore hydromorphological conditions in European rivers.

Given the prominence of these examples, and taking into account their dates of completion and their disciplinary significance, the project for the Water Park emerges as a timely and enlightening addition at a time when climate change was finally beginning to be treated as a relevant challenge.

The Metropolitan Water Park, Expo 2008, Zaragoza

For a medium-sized city like Zaragoza, which had close to 700,000 inhabitants in 2008, hosting an International Exhibition was a major challenge. On the one hand, the event brought significant national investments, which offered the opportunity to undertake a series of ambitious urban improvements. On the other hand, the different administrations in charge of the management had to coordinate those investments effectively to ensure the success of the event while also introducing significant and durable improvements to the urban structure of the city. The Water Park project was just one of the proposed objectives founded on the idea of increasing relations between the city and the Ebro River which runs through it, in a process intended to generate a new structure for a comprehensive urban and metropolitan park system. Additionally, Zaragoza updated its traffic infrastructures with improved ring roads, enhanced its airport, augmented the performance of its rail system with a high-speed train, and expanded its services and facilities sector with a broad range of new hotels, shops and facilities.

The project for the Metropolitan Water Park, covering 125 hectares, was located adjacent to the main exhibition site, outside the city's ring road in a sector of the Ebro River called the Ranillas meander. Although its land use qualification defined it as a natural space, the Ranillas meander was far from being a virgin territory. Over the centuries, it had been subject to interventions that were not respectful of the riparian ecosystem and the river's dynamics. Agriculture had modified the topography, creating defenses to confine the channel, taking over space from the riverside forest, and reducing the areas where the river could overflow to reduce its energy and speed. In the northern part of the meander, the riparian forest had completely disappeared, buried under a series of unstable dikes made of waste material, whose slopes descended dangerously over the channel. In parts of the southern area, sand and gravel were extracted and rubble was dumped in proximity to large masses of trees and shrubs.

The project for the park was centered on the implementation of uses for city residents that would replace the agricultural uses. At the same time, it incorporated the return of a significant part of the meander's surface area to natural fluvial dynamics and the recovery and enhancement of the riverside ecosystems. The topography and the outline of the meander were preserved and reused. The agricultural plots changed their use, the irrigation ditches were widened into canals and the general structure of the meander was recycled without being substantially modified.



Fig. 1 – Aerial view of the Water Park project during flooding. Source: (Courtesy of aldayjover, 2008).

The recovered woodlands slow and filter floodwaters, while receiving irrigation and fertilization. The strategy of floodability establishes the ability to maintain function during flooding for a return period of up to 25 years. In these events, the water table will inundate the paths that run along the canals and the lowest lying areas of the park, while the swimming areas and auxiliary buildings remain protected. The park will still be partially accessible during an extraordinary flood event at 50 years. At that point, the paths that run along the canals at a higher level will provide access to elevated sectors, where the most delicate uses are located. Finally, the 100- and 500-year floods will submerge the meander nearly entirely, and only the main built elements will be protected.

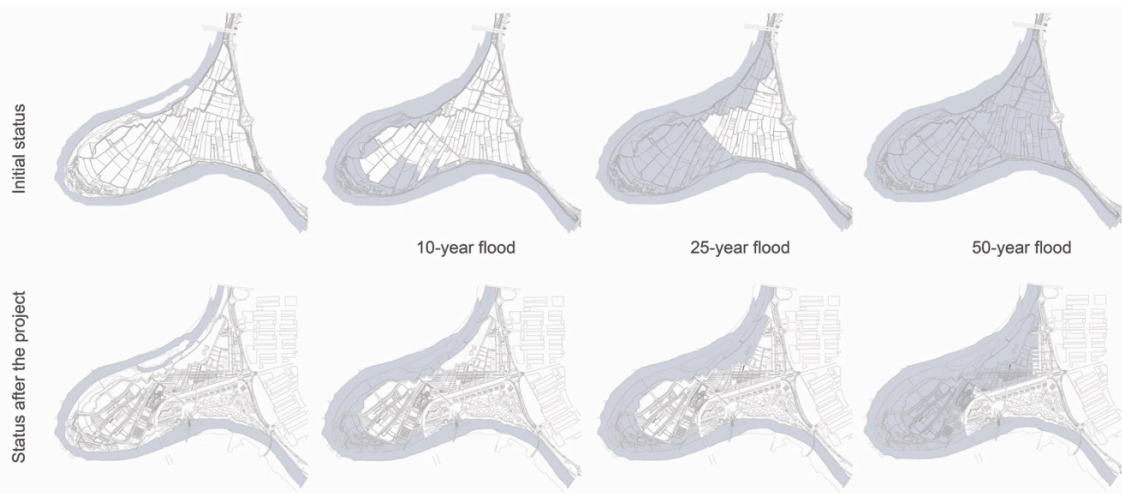


Fig. 2 – Flood schemes before and after the project. Source: (Courtesy of aldayjover, 2008).

Apart from flood management, the park has a complex internal hydraulic structure, founded on the definition of an aqueduct, which qualifies spaces for different uses over a stretch of 2.5 km. The aqueduct remains above the water level during flood periods, preserving the entire plant and mineral-based water treatment system and allowing an unusual viewpoint over the moving waters of the Ebro River overflowing its banks. The water is collected, its quality is improved using green filters, it is used for swimming and boating, it is recycled for irrigation, and it is returned into the river via infiltration, aiming for maximum water surfaces and minimum consumption. The water system is organized to harness the pre-existing agricultural layout: the irrigation ditches are widened to be used as canals for navigation, recycling the formal structure of the meander.

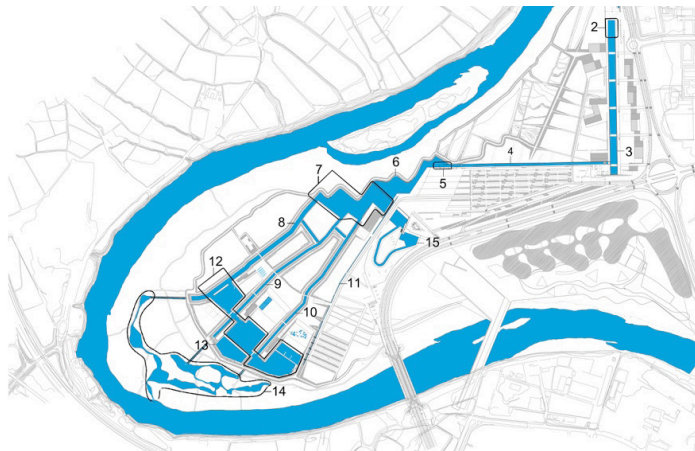


Fig. 3 – Overview of the park’s water system: 1. Rabal’s ditch. 2. Collection and pumping (rooftop reservoir). 3. Large reserve channel. 4. Aqueduct for cleaning. 5. Cascade aeration. 6. Dam. 7. Treatment ponds. 8. Main canal. 9. Channel 1. 10. Channel 2. 11. Ditch. 12. Swimming and boating lagoons. 13. Irrigation pond. 14. Infiltration lagoon. 15. Whitewater channel. Source: (Courtesy of aldayjover, 2008).

Origin strategies and subsequent referrals

The sensitive strategies towards the Ebro River presented in the Water Park are detectable in a much more modest but unprecedented project, also by the firm aldayjover, with origins dating back to 1996. The project for the recovery of the Gallego riverbanks in Zuera—also located in the region of Aragón—was pioneering in its recovery of the relationship between the town and its river. At the same time, it reversed decades of damage to the ecological and hydraulic structure of the waterway.

The project in Zuera, which began as an isolated commission for a bullring, was also groundbreaking in its ability to combine the interests of several agents—from local administrations to European bodies—that would make it possible to adapt the scope of the initial commission. Thus, the bullring ended up becoming part of a coordinated plan to redefine the city’s relationship with the river, an

environmental cleanup effort, and the establishment of a wastewater treatment system, all in the context of a new river park with the added function of protecting the inhabitants of Zuera from eventual flooding.



Fig. 4 – Aerial view of the Zuera project. Source: (Courtesy of aldayjover, 2001).

Even so, the most revolutionary aspect of the project was its ability to bring the seasonal cycles of the Gallego River into harmony with the life and activities of the people living alongside it. The bullring, for use by a town of 6,000 inhabitants during one week a year for their local celebrations, is understood as an element belonging to the park. It can be used for bullfights, festivals, concerts and sports events, but also for sunbathing, gathering in groups, and watching the river and its vegetation. In parallel, during episodes of flooding, it becomes a floodable area, capable of reducing the intensity of the water’s rise, while promoting infiltration processes and acting as a genuine socio-ecological space—an idea widely defended by aldayjover (Jover, 2019).

Along the same lines, and incorporating the lessons learned from the Water Park, the project for the Aranzadi Park, completed in 2013 in the city of Pamplona, shows an evolution of these concepts, reinterpreting the flood processes to introduce new ways of inhabiting the banks of the Arga River. A compromise was struck between the need to recover the land for public use and the dynamics of flooding, combined with a careful recognition of the social and cultural heritage of the pre-existing orchard, which resulted in a micro-topographic intervention to ensure the park can adapt to the functionality of the river system. The river territory became a shared territory: 350 days a year it is for citizens’ use, and on the other 15 days the river takes back control—long enough to allow ecological regeneration.



Fig. 5 – Aerial view of Aranzadi Park project during the 2018 flood. Source: (Courtesy of aldayjover, 2018).

After-event period. Effects on citizen dynamics

The specialized literature has written little about the conflicts before and after the Water Park project, as has been the case with so many other works of a similar scale and diffusion. Newspapers, on the other hand, have been able to publish articles, at length and for years, on the large number of scandals that plagued the management of the Zaragoza International Exhibition (D. L. G., 2016), from corruption scandals to disagreement between the various administrations in charge of management and innumerable problems with the management itself (possibly attributable to the size of the city and its lack of experience with this type of infrastructure, the high financial burden of the project and its subsequent maintenance). Moreover, with the effects of vandalism and abandonment that users are currently complaining about, the truth is that it is possible to elaborate a lot on the issue of how large projects fit into post-event civic and administrative dynamics.

However, in the case of the Water Park, a singular effect has been detected in terms of the perception and assessment of the users and city residents, who, despite harsh criticism of the management and of how the space has been maintained, continue to positively value the natural infrastructure, considering it to be an essential collective gain.

Conclusions

The late 20th century gave way to an awakening of some previously neglected notions, like ecology, and their applicability in the political or social sphere. This awakening led to the emergence of ideas that were initially critical of the old relationships established by urban planning between water and the city—such as Linton’s “modern waters”. Later, terminologies were established to refer to the new management mechanisms that broke with classic dichotomies contrasting the urban sphere and its natural counterpart (Meyer, 1997) and, especially, cities and rivers. Consequently, the turn of the millennium saw a transformation in the discourse on water, which shifted from being exclusively centered on engineering and essentially defensive, to incorporating civic activities in a process of mutual tolerance between hydrological fluctuations and human activities.

As part of this progression, the Water Park project has been understood as one element in an active timeline between the last decade of the 20th century and the first decade of the 21st, in which the transition to a new paradigm has effectively taken place. A succession of events and publications, the founding of new control agencies, and strategic projects have all overlapped during this chronological period to consolidate what we have defined as the birth of *post-industrial waters*, understood as a sensitive approach towards the dynamics of urban rivers and their surrounding societies in a respectful ensemble. Beyond these issues, the Water Park also exemplifies other up-and-coming concepts that include the consolidation of the hydrosocial management of the territory “as spatial configurations of people, institutions, water flows, hydraulic technology and the biophysical environment that revolve around the control of water” (Boelens et al., 2016, p.1). Finally, landscape architecture—and more specifically in regard to its action on hydric dynamics—has broadened the scope of its work, incorporating different vocabularies, disciplines and methodologies that have allowed it to become relational rather than exclusive.

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72 Jungle fever: Manaus and 2014 World Cup

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ABSTRACT

Isolated by the largest rainforest on the planet, Manaus is a Brazilian city of about two million inhabitants, chosen in a contradictory and controversial process since its inception as one of the venues of 2014 World Cup. The paper examines this process, especially aspects related to design and construction of the main equipment required by the event – Amazon Arena – as well as checking further use and evaluation of project impacts on Manaus society.

Contradictions of city’s bid are highlighted by government effort to justify the heavy disbursement of financial resources, needed to make a city like Manaus host of such global mega-event: exaggeratedly unequal in social terms, quite apart from other Brazilian metropolitan areas in terms of geography and infrastructure, without a relevant representation in the national sports landscape that, among others, withstand this massive movement. To minimize these contradictions and justify such investment to society, direct benefits were attributed to the stadium construction like physical activity popularization, encouraging new sports talents and inclusion of Manaus in the major musical and sports events route, that lie upon this type of equipment; and indirect, such as real estate appreciation and tourist icon creation. It is from these compromises that the paper proposes to analyze changes caused by the construction of the stadium, with special attention to space occupation and use by citizens in the years following the event.

This analysis aims to further detail the panorama of the Brazilian response to mega sports events and their consequences, a key point for debate and understanding of those initiatives when carried out in underdeveloped countries. It was prepared with support in archival material and stakeholder’s testimonies related to construction and post-event use of the equipment.

Keywords: World Cup, Brazil, Manaus.