

Achievements of Barcelona 1992 in the realm of sustainability: goals of urban legacy and a better quality of life

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Abstract

The 1992 Summer Olympics were conceived as a tool for creating a long-term urban legacy, which contributed to the positive image and appeal of the Barcelona's city brand. Barcelona City Council planned to execute the environmental regeneration of the metropolitan area during preparations for the 1992 Olympics. This vision led to three strategic cornerstones, i.e. the regeneration of the shoreline, the reduction of air pollution and the promotion of parks. The municipal authorities developed an urban regeneration of abandoned areas for building or refurbishing most Olympic venues. At the same time, ecological issues gained great social and political awareness, so this article begins with the hypothesis that the 1992 Olympics in Barcelona were a milestone on account of the existence of sustainable regeneration plan throughout the Olympic event. It argues that achievements in the realm of sustainability accomplished by Barcelona'92 revealed that environmental issues could be part of the urban legacy plan aimed after the organisation of this sports mega-event.

Keywords

Barcelona'92, Olympic Games, sustainable development, environmental management, urban legacy

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Introduction

Lately, Olympic host cities use to expect long-term tangible and intangible outcomes, economic benefits, urban modernization and continuous utilization of sport facilities. Generally, as incomes after the very high expenditure of the entire event (Hiller 2006). Parallel to the increasing complexity of managing an Olympic event, planned urban legacies are more and more important, so positive legacies are a priority at the present time for local and national political authorities. Likewise urban development and regeneration are basic goals for political leaders and citizens when bidding for the Games in order to overcome potential undesirable impacts (Long 2016).

In connection with the concept of legacy, sustainability appears as a key idea because it means consuming natural resources (but also social and economic ones) at a rate that will allow long-term development.¹ In the 1980s, ground-breaking green-oriented laws were passed in some Western countries, but ecology was still not approached as a global issue. Despite the learning capacity of the legal system, the promotion of ecological awareness was different from its reactions to changes in the environment. In 1987, the Brundtland Report stated that “*sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (Brundtland Report 1987). Consecutively, environmental and legacy objectives appeared in the primary vision of sport mega-events planners.

The Barcelona’s Olympic candidature, launched in 1982, planned to use facilities mostly based on existing sport infrastructure. *Anteproyecto*, the bid’s guidebook published by Barcelona City Council in 1983, emphasized three primary goals: to meet real needs and post-event use, to regenerate neighbourhoods with shortcomings and to integrate the Olympics into a general urban strategy. Finally, after very few changes and following those three goals, the 1992 Olympic and Paralympic Games were held in 42 sport facilities in Barcelona and its surrounding metropolitan area: 15 venues were new constructions (eight in Barcelona and seven in other municipalities), ten were upgraded or renovated and 18 had already existed (Abad 2002; Bohigas 1992).

¹ Concerning the recent guidelines on sustainability of the IOC, the 4th recommendation of Agenda 2020 proposes that “*Develop a sustainability strategy to enable potential and actual Olympic Games organisers to integrate and implement sustainability measures that encompass economic, social and environmental spheres in all stages of their project*” (IOC 2014, 12).

The Barcelona's bid for the 1992 Olympics was promoted arguing that it would be a perfect occasion to renovate old-fashioned areas in the city. That is why the municipal authorities proposed establishing the sport venues in four abandoned neighbourhoods (Montjuïc Hill, Poblenou-Seafront, Vall d'Hebron and Southern Diagonal). Some of the greatest challenges facing Olympic heritage include sport facilities management. Barcelona sought to integrate them into those urban areas. The sustainable conservation of Olympic venues required due consideration of both the heritage values of these buildings and the requirements for their continued interaction with the urban environment. Barcelona sought to yield benefits such as a strategically planned legacy to market its city brand through urban regeneration. The Olympic Organising Committee of Barcelona'92 (COOB'92) worked together with fundamental stakeholders like municipal authorities to achieve those goals. The Games were organised with certain ideas in mind, such as the building of sustainable facilities, the city's redevelopment, coastal regeneration and new green spaces. This sustainable principle was applied to the sports facilities and when considering the urban impact of the Games.

The academic literature usually explains that the relationship was implemented later, after 1994, through events like the IOC's collaboration with the UN Environmental Programme, the new Sport and Environment Commission in 1995 and an environmental paragraph added to the Olympic Charter of 1996 (Roper, 2006; Oben, 2011). The article of DaCosta in 1997 about the steps that the Olympic Movement had to follow for making effective its announced ecological awareness was one of the first papers on the relation between ecology and the Olympics (DaCosta 1997). Since then, different authors have discussed the pedagogical and practical origins of the so-called Olympic green dimension. Lillehammer'94 is often mentioned as the pioneer Games in implementing a global eco-friendly management: "*It was the Lillehammer Games in 1994 (...) that brought the issue to the forefront*" (Leopkey and Parent 2012, 933).

Additionally, it is also common to highlight Sydney'00 as the first Games that were completely planned following the new IOC green guidelines in collaboration with NGOs: "*The Sydney 2000 Games were the first to be subject to the new code and (...) Greenpeace was involved in devising the numerous measures taken to conduct a Green*

Games" (Toohey and Veal 2007, 58). The literature review shows us that Barcelona'92 is frequently ignored as part of this process, although its strategy of a planned urban legacy is generally used as a positive example of city regeneration (Chappelet 2003; Cashman 2003)².

As a result, this paper examines the role of sustainability as an implicit idea within the management of the urban and facilities management of the 1992 Summer Olympics. It is structured into sections according to the particularities of the concept of sustainability in relation with a sports mega-event. Firstly, the middle and long-term aims behind features of the sport venues constructed or refurbished for hosting Barcelona'92 from the main actors comprising these Games (local authorities, the Organising Committee and the Olympic Movement) will be analysed and assessed in terms of economic-social rentability and urban entrepreneurship. Secondly, the research analyses aspects of eco-friendly within the management of these Games and its urban plan. The overall goal, in both cases, is to discuss if there are enough evidences to describe as sustainable some goals of urban legacy and a better quality of life in the shade of the Barcelona Olympics. In brief, this study is underpinned by the following objectives:

- To investigate the existence of sustainable features in urban planning executed during the Barcelona'92 organization
- To clarify which goals of social and economic profitability took place in the constructions planned for these Olympics.
- To analyse the elements of ecological sustainability around the management of the event and its implemented urbanism.

Although the Barcelona Games are widely acknowledged because of its urban legacy plan, this paper focuses on a less familiar aspect of this mega-event: the existence of features of sustainable development few years before the adoption of a green dimension by the Olympic Movement. Thus, this research is based on relevant bibliography and official documents in search of subjects related to sustainable and environmental aspects of Barcelona'92. The selected documents were consulted at the Olympic Studies Centre in Lausanne, the Olympic Studies Centre J.A. Samaranch in Barcelona and the Municipal Archive of Barcelona.

² For instance, Cantelon and Letters (2010) argued that Albertville'92 caused controversy among ecologist groups, so the environmental measures of Lillehammer'94 were used by the IOC to defend a green-oriented communication strategy, without treating the case of the Barcelona Games.

Although the link between environmental and sustainability issues and the Olympics is a subject with a notable abundance of secondary

academic sources, the exact subject of this research (sustainable elements within the Barcelona 1992 Olympics) does not have a body of literature.

Keys of the sustainable plan of Barcelona'92

Games without 'white elephants': long-term facilities

The 'developmentalism' under the Francoist dictatorship had led to an unprecedented growth of metropolitan Barcelona in the 1960s and 1970s that promoted concerns about the unsustainability of the model. Oriol Bohigas (1963) shared this concern about a speculative economy that would end up being unfeasible because a population density growing exponentially was harmful to public health and welfare. Two decades before launching the Olympic bid, Bohigas advocated reviving the urban planning spirit of 19th-century architect Ildefons Cerdà, adapting it to contemporary paradigms. The Olympic project sprang when new municipal leaders (voted in 1979 at the first municipal elections after the dictatorship) pursued the end of a 'developmentalist' urbanism. They recognised that "*the Olympic Games by themselves will not solve any problem of our society*". However, the Barcelona authorities promoted the city's candidacy as a way that "*their organisation could be a good tool for political decision-making and collaboration to accelerate the implementation of ongoing actions that will improve everyone's quality of life*" (Oficina Olímpica Barcelona'92 1983, 8). From an economic standpoint, the *Anteproyecto*, or preliminary draft, also revealed a desire for sustainability when it decreed that the Olympic Games would guarantee economic self-sufficiency and an investment programme subject to real needs: "*It is a project based on rationality and constant concern for the profitability of investments*" (Oficina Olímpica Barcelona'92 1983, 24).

Aiming to achieve a positive legacy for itself, Barcelona encouraged a premeditated urban impact. It embarked on a massive improvement programme under the dynamic impetus of Mayor Pasqual Maragall. The construction of a ring road nearly eliminated rush-hour traffic jams, with a corresponding drop in air pollution and noise levels. This was accompanied

by the creation of an additional 3.5 km² of green areas. The construction of an Olympic Village over 0.5 km² has brought Poblenou next to the shoreline, a decaying industrial area, back to life. A whole section next to the coast was thereby regenerated. Supervised by architect Oriol Bohigas as Head of the Municipal Urban Planning Department, the plans enabled the seafront to be reclaimed and revitalised. Therefore, the three famous sustainable achievements were the building of transportation infrastructure (along with two ring roads, known as Ronda de Dalt and Ronda Litoral, that allowed for faster traffic flows), the implementation of green areas (which increased between 1986 and 1992) and, mostly, coastal renovation work to transform the seafront.

The Olympic Games of the 1970s and 1980s were marked by the rise of 'giantism'. The prevailing scheme for organising them was to meet the demands of sports federations. Prior to the 1990s, the Olympic Movement there were few but significant cases of urban integration of sports facilities: e.g., Munich '72 had witnessed the first systematic planning of an urban legacy with new green areas such as the Olympiapark³. The site plan for Barcelona '92 followed this model and opted for a plan of "reasonable dimensions", by which Barcelona City Council took pre-existing facilities into account. When it had to build new facilities, it made sure to do so in neighbourhoods where sports infrastructure was lacking (Truñó 1987). Barcelona City Council established that the city should get the maximum social return on using the facilities built or renovated for Barcelona '92, meaning that they should be converted into sports centres and facilities open to public use after the Games.

Regarding the main Olympic venues, such as Montjuïc Stadium (athletics) and Palau Sant Jordi (gymnastics, volleyball and handball), the Municipal Sports Department made a financially profitable plan of use that covered the expected high maintenance costs (Ibern and Lahosa 1988; Truñó 1996). It was suggested that the football club RCD Espanyol could move to the Stadium⁴, while Palau Sant Jordi could host all kinds of sports competitions as well

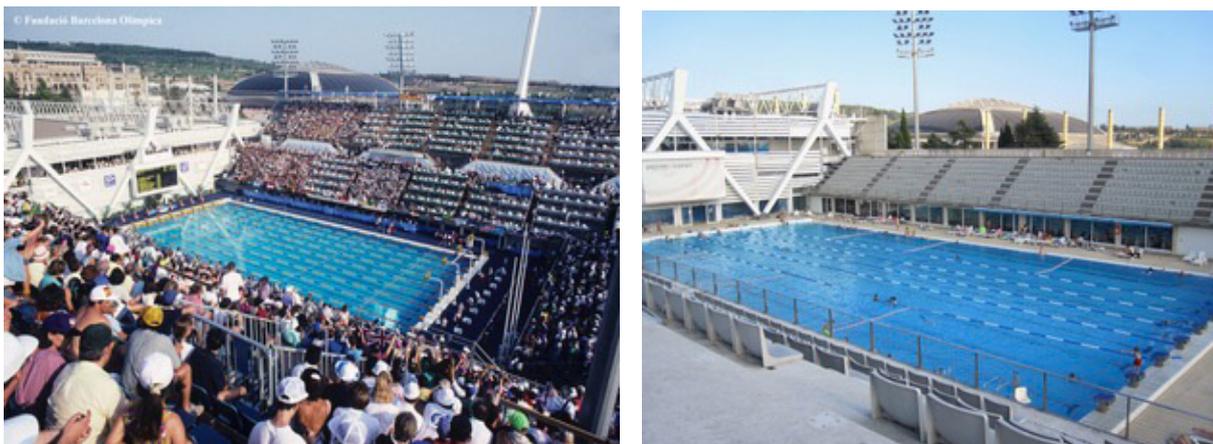
³ There was only one precedent of a mayor who combined city government with the chairmanship of the Summer Games Committee: Hans-Jochen Vogel, mayor of Munich from 1960 up until a couple of months before the start of Munich 1972. The 1972 and 1992 Games were based on the systematic planning of an urban legacy, and both of them had the only organising committees in history to be managed by municipal authorities.

⁴ In 1997, RCD Espanyol stopped playing in the Sarrià Stadium, a building that was demolished (it is the only Olympic facility that has been demolished) to build blocks of flats and open a small park. Montjuïc Stadium hosted the football team's matches from the 1997-1998 season until 2009, when Espanyol moved to its own stadium built in Cornellà.

as cultural and musical events. An economically rational approach was also raised during the configuration of the candidacy. The *Anteproyecto* of 1983 stated that the public funding necessary for building or renovation should be fully justified under the precept that “when the 1992 Games are held, these facilities must already be public facilities” (Oficina Olímpica Barcelona’92 1983, 13). Thus, it had been decided in this stage of the candidacy that the investments should involve social returns and that the sports facilities had to be adjusted in size and functionality for their post-Olympic utility.

The plans to attempt to keep the Olympic facilities continuously in use after the summer of 1992 led to the renovation of facilities without a high number of permanent stands. These were supplemented with the placement of portable seats during the mega-event. The magnitude of the Games forced the COOB’92 to add temporary stands for many of the 42 sports facilities, so as to meet the fundamental spectator capacity requirements established by the Olympic Movement. These portable stands were rented, in most cases, by the Organising Committee. If we exclude football stadiums, the remaining 37 Olympic venues included 275,280 seats for spectators (Cuyàs 1992a). Of them, 89,557 were temporary seats. That means that one third of the seats in Barcelona’92 consisted of portable stands, a very telling figure in relation to the facilities plan for the Games.

Figure 1. Comparison between the Picornell Swimming Pool during the 1992 Olympic Games and nowadays as a public sports centre.



Source: Olympic Studies Centre Joan Antoni Samaranch

A very illustrative case is provided by the Picornell Swimming Pool, displayed in Figure 1, which hosted a fundamental sport in the Olympic programme: swimming and aquatic events. Apart from an indoor pool for training, this municipal facility property has

an outdoor one built with a permanent grandstand of just 3,000 seats. However, thanks to the installation of removable stands, almost 10,000 spectators were able to attend the water events in 1992 (Cuyàs 1992a). As Long (2016) argues, the use of temporary facilities or stands provides for sports facilities that are useful for the Olympic mega-event but do not endanger the longer-term needs of the host city. Additionally, by involving facilities of a more modest size than if they were totally permanent, less urban area is also required for their construction (Aragón-Pérez 2018).

In fact, the IOC had chosen the Spanish city as host city in 1986 based on a candidacy with a clear proposal for its Olympic facilities. Although Barcelona'92 was able to craft a facility strategy that connected with the vision of urban regeneration, the public authorities and the COOB'92 endured pressure from Lausanne and from international federations that demanded larger and more expensive facilities. The reason was that the Olympic Movement wanted stadiums and magnificent and large pavilions, in line with the aforementioned 'giantism' model, which did not correspond to the facilities offered by the Barcelona Olympic Games. The federations demanded their sport to be held in a space with more spectators or, simply, to influence a more magnificent architectural layout.

Even so, the CEO of the COOB'92, Josep Miquel Abad, revealed that it had made its facilities plan a reality despite constant pressure from various international federations. According to his testimony, Barcelona'92 defended its plan for modest installations because "*we did not (...) aim to create pharaonic works or subvert the principles that guided the project: (...) the Games were supposed to serve the city and not the other way around*" (Abad 2002, 31). Barcelona's vision as an Olympic city rested on the desire to erect facilities that could be enjoyed by the general population, which was achieved because many of them are municipal sports centres that have been open to everyone since 1992. The sports pavilions of Espanya Industrial (venue for weight-lifting), Mar Bella (badminton), Estació del Nord (table tennis) and Vall d'Hebron (volleyball), the Colom pelota court (Basque pelota) and the Montjuïc and Picornell swimming pools prove nowadays that most Olympic venues in Barcelona were effectively reconverted into municipal-owned sports facilities for public use after Barcelona'92.

The public authorities' reconversion of the Stadium of L'Hospitalet (venue for baseball in 1992) is an example of post-Olympic

planning. Baseball was not popular in L'Hospitalet, the second-most populated municipality in Catalonia, so L'Hospitalet City Council feared that the facility would fall into disuse. To prevent this, it decided to carry out adjustment works after Barcelona'92 to turn the stadium into a football facility, a more popular sport, as can be seen in Figure 2. Both publicly owned venues (the Badalona Sports Palace for basketball, the Granollers Pavilion for handball, the Viladecans Stadium for baseball, the Terrassa hockey complex and the pavilions where roller hockey was held in Reus, Sant Sadurní and Vic) and private ones (Camp Nou and Palau Blaugrana, both owned by FC Barcelona; the Real Club de Polo, and the stadiums of Valencia CF and Real Zaragoza) have remained constantly active in sports since 1992 by being used in team sports by local clubs.

Figure 2. Comparison between the Stadium of L'Hospitalet during the 1992 Summer Olympics hosting baseball and nowadays as a football pitch.



Source: Olympic Studies Centre Joan Antoni Samaranch

Many sports centres and stadiums in Barcelona'92 were effectively turned into municipally-owned sports facilities for public use after the Games or have remained constantly active in sports since 1992 because they are used by local clubs. As Rigau (2011) says, the sustainability model of these Games is demonstrated by their current intensive use by thousands of people and hundreds of sports groups. Yet as Borja (2010) quotes, the initial optimism about the positive effects of Olympic urban development on the quality of life in Barcelona has led to both critical and positive judgments over the years, but less than in the past. José Cuervo, the Head of Health and Environmental Issues for the COOB'92, says that with the perspective that comes with the passage of time, the layout of some pieces of infrastructure could have incorporated more sustainable elements, like energy efficiency, for example (Cuervo, interview, April 2017).

Urban renewal of Barcelona: the four-zone plan

Spatial planning was another important aspect of Barcelona'92, since it was the inducement to promote the renewal of Barcelona and its metropolis. Efforts were exerted to not concentrate too many Olympic facilities in the same area and possible harmful impacts on the urban and metropolitan ecosystem were minimised (Kováč 2003). The planning of the 1992 Olympic Games was based in four main urban areas promoted by Barcelona City Council: Montjuïc Hill, Poblenou-Seafront, Vall d'Hebron and Southern Diagonal. These areas complemented the regeneration strategy through an urban plan that was unveiled in 1987 in the municipal publication *New downtowns in Barcelona* and consisted of serving spaces that were vacant or in disuse (Ajuntament de Barcelona 1987; Rueda 1995). In the early years of the implementation phase, local media outlets reported that "*the locations for the Olympic areas were not determined by chance*" (Galí 1988). All the fronts were part of a uniform strategy to restructure and modernise the city and to increase its residents' quality of life.

It was hoped that this concern for renewal in search of higher levels of well-being would be achieved through a mega-event that could also entail dangerous unwanted legacies due to its exceptional size. The director of infrastructure of the COOB'92, Lluís Millet, says that some Games "do not have to be aggressive at all" because the risk can be controlled under appropriate management: "*The Olympic Games are an excellent system for promoting growth, activity and sustainability in cities. What happens is that this can be done poorly. There are many Games that have been done poorly*" (Millet, interview, February 2016). Millet supports this idea in which the negative impacts could be prevented because, following concepts inherited from Los Angeles'84, the four-zone plan resisted external pressure:

"The Olympic authorities want weightlifting, fencing, wrestling, etc. to take place in palaces placed side by side. This is nonsense. Therefore, a good urban layout and location for each of these event areas is desirable, but if it is bad, you'll have to throw it away the next day. This is the great drama. If they [the Olympic family] were in charge, everyone would create an Olympic Park as complex and as compact as possible."

(Millet, interview, February 2016).

Indeed, the urban regeneration of Barcelona was carried out

through specific plans for specific areas. The municipal team of urban planners and architects led by Oriol Bohigas advocated a systematic vision of the city, meaning that it should be regenerated by studying its elements, like neighbourhoods and parts of neighbourhoods (Bohigas 1999). The Anteproyecto of 1983 reported that the definition of nine Olympic areas (four within Barcelona and five in secondary cities) had resulted from consideration after in-depth studies. Following that initial study, which was based on real urban needs, the four-zone plan in the city remained intact until the summer of 1992. The four Olympic zones were located in different neighbourhoods of the city within walking distance of each other (never more than 5 km), but without producing agglomerated sets of facilities⁵.

This was also true in the subsites, where sports facilities (and secondary Olympic villages, such as in Banyoles and Montigalà-Badalona) were almost always integrated into urban centres⁶. The presence of the subsites was important and planning was decided on a metropolitan scale, but emphasis was placed on the city of Barcelona, especially in the neighbourhoods linked to the four Olympic zones (Bohigas 1992). The Olympic urban planning had been based on a theoretical framework that ceded both to the legacy of Ildefons Cerdà and to international influence in promoting sustainable criteria, enhanced green areas, prevented the agglomeration of buildings and positioned them according to effect of sunlight (Bohigas 1963; Rueda 1995).

Lluís Millet (1986), the creator of the candidacy plan for the four zones, explained that they were chosen so they could be restored as important pieces of the urban ecosystem. The use of the mountain of Montjuïc was intended to establish it as the most important urban park in the city, the use of Vall d'Hebron was the first step to create a green space linking the mountain range of Collserola with an area of bordering neighbourhoods and the use of Poblenou was the excuse to begin an ambitious plan of the seafront. As a whole, *“the maritime front (...) and the mountainside, a façade of the city and the great park of Collserola at the same time, would*

⁵ At the Montjuïc Olympic Ring, where the most Olympic event venues were concentrated, there were six competition facilities. Outside the Ring, but considered part of the Montjuïc Olympic zone, there were three others: Espanya Industrial, La Fira and the Palau Municipal d'Esports.

⁶ Often belonging to metropolitan areas, Olympic cities are committed to distributing facilities throughout different parts of their urban area. Despite the fact that the IOC, athletes and accredited journalists prefer compact Olympic Games, with many of the facilities in the same “Olympic Park”, this is an unsustainable model and host cities such as Barcelona have used subsites within the metropolis (Hiller 2006).

make for a true green belt with facilities in the future, with a powerful impact on the entire metropolitan environment” (Millet 1986, 67).

In brief, this urban development based on sustainable facilities was also connected to an idea of environmental sustainability. Barcelona City Council was interested in ensuring that the four Olympic zones were determined according to sporting tradition criteria and the structure of the territory, including the choice of the subsites (Truñó 1996). In other words, thought was given to the people when modernising and rationalising the sports infrastructure, as well as to renewing urban living conditions by integrating basic elements of nature (green areas, the sea and air quality). The different fronts designed by the municipal authorities were part of the same strategic planning that Mayor Pasqual Maragall himself described as a set of actions “*from Montjuïc to the Besòs River: the ring roads, railway [underground in Poblenou], the port, the sewers, the treatment plant (...) the new beaches*” (in Febrés and Rivière 1991, 101).

Environmental controls and monitoring, but no communication plan

Barcelona City Council also conducted environmental management. This strategy was based on protecting the athletes during the Games (reducing the air pollution, establishing some control patterns for the seawater, etc.) and thinking of a longer-term urban quality of life. In addition to its Olympic preparations, Barcelona gradually introduced environmentally-oriented policies that responded to environmental laws decreed by the European Economic Community (EEC) in the 1980s (Spain joined the EEC in 1986). Moreover, Barcelona City Council investigated and enquired into the concerns of the city’s residents (mostly the air quality and excessive traffic) and the problems of the urban ecosystem (Cuervo 1987; Cuyàs 1992b; Marshall 1993; Plasència 1994).

UN Resolution 44/228 of 1989, which called for the Earth Summit (held in Rio de Janeiro in June 1992 as a major United Nations conference), listed a series of recommendations for proper environmental management (in Johnson 1993, 14). Barcelona City Council considered these suggestions and implemented environmental measures, encouraging the COOB’92 to collaborate. Most of the actions that followed the UN resolution were integrated into the programme ‘Ajuntament – Jocs Olímpics’ that the authorities launched to coordinate all the operational

management of the event. Following the UN resolution's order, the most significant actions were (Aragón-Pérez 2018):

- Barcelona City Council, the COOB'92 and the National Meteorology Institute worked together on the real-time monitoring of concentrations of several pollutants in the atmosphere. This consisted of measuring and calculating the average times of chemical elements and pollutants like carbon monoxide and sulphur dioxide. The results were accessible to national committees and international federations. Moreover, the COOB'92 launched the 'Smoke-free Games' campaign to ban smoking in the indoor Olympic facilities (Spanish law did not prohibit this at that time).

- The Segre River at La Seu d'Urgell and Banyoles Lake were valued ecosystems near the Pyrenees that were respectively planned to be the venues for the canoe slalom and rowing events. Their natural value triggered protests by ecologist groups, so the COOB'92's Infrastructure Department decided to negotiate with them. Consequently, both facilities were built to comply with very strict ecological standards. The authorities started programmes to enhance their unique environmental character and biodiversity.

- Barcelona City Council and the COOB'92 also monitored the concentration of several pollutants on the seacoasts. This control of seawater pollution met to the requirements of the Sailing International Federation and was part of the strategy for shoreline regeneration.

- As we explained earlier, preparations for the 1992 Summer Olympics enabled the creation or renovation of many parks and green areas in Barcelona. However, ecologist groups protested because infrastructure for the Games like the Ronda de Dalt ring road and Norman Foster's Communication Tower affected Collserola, since trees were felled.

- Although waste treatment programmes were not implemented much in Spain in the early 1990s, the COOB'92 agreed to introduce two initiatives: a recycling programme within the International Youth Camp and the construction of a pneumatic system for trash collection at the Olympic Village. However, these few measures were purely testimonial.

The Earth Summit in Rio confirmed some sustainable development policies that Barcelona City Council was applying, incorporating environmental concerns into its urban and metropolitan

development strategy (Montaño 1994). However, the COOB'92 did not have any regular communication plan or a department for ecological or sustainable affairs. Major events inevitably have an environmental impact. In light of the Albertville'92 Games (criticism arose among ecologists and local citizens after some ecological controversies) and international pressure from the UN, there was a need for the IOC to embrace environmentalism (Newlands 2011). Although Barcelona'92 took advantage of the event to implement sustainable urban development, the ecological risks were real. The IOC never supervised the 1992 Olympics with ecological guidelines: Lausanne did not perceive this topic as something relevant before Lillehammer'94.

Conclusions

By focusing on the existence of sustainable features in urban planning carried out during the organisation of the Olympic Games in Barcelona in 1992, this paper argues that environmental, social and economic features can be found, just as sustainable development equally involves all three types. Although it has been essential to trace what could be described as sustainable, the analysis conducted has established that many Barcelona'92 projects were based on ideas of economic modesty, rationality and legacy and of harmonisation with the ecosystem in association with the local residents' welfare.

The gradual growth of the physical and organisational dimensions of the Olympic Games during the 20th century was criticised as excessive, threatening to leave harmful environmental impacts and requiring many investments that did not produce any benefit for the host society. The COOB'92 may have felt that desire for grandiosity, since it received pressure from the IOC, and prominently from many international federations that demanded monumental and therefore very expensive infrastructure. However, the candidacy proposed an Olympic venue plan for 1992 that prioritised facilities that were already in place or that fit the city's needs if they had to be built. The aim was to make the facilities as socially profitable as possible, planning ahead for their post-Olympic use. This return also had to be economic, aimed at making reasonable investments and ensuring profitable maintenance later. The largest and most expensive facilities, the Montjuïc Stadium and Palau Sant Jordi, were the subject of a meticulous plan that aimed to procure benefits and constant activity.

In line with the urban and legacy vision that guided the Olympic project, some facilities were located according to social demand in city neighbourhoods and in municipalities that served as subsites where there was no sports complex or where there was a tradition of practicing a certain sport and building modern facilities. This is why spatial planning was recommended, as the locations of the facilities guaranteed their rational distribution according to plans for future use. This dispersion led the candidacy to focus on four areas in the city of Barcelona and 16 subsites, with specific plans for each area. The planning avoided concentrating too many facilities in the same area and helped to regenerate strategic points in Barcelona and its metropolitan area (i.e., Montjuïc, the coast, Vall d'Hebron and the vicinity of the Llobregat Delta).

The planning of tangible legacies through new urban and intangible infrastructure in terms of well-being was designed to maximise positive social effects and economic benefits. It can be used to verify characteristics implicit in the social and economic foundations of sustainable development. Anyway, this rational urban development did not consist of an explicit commitment to environmental sustainability. Instead, it reflected the municipal policies of regeneration and urban development in which the promotion of quality of life and living conditions played a central role. These policies involved that the 1992 Olympic infrastructure were aimed at supporting regenerative urban development and did not pursue colossal dimensions.

The findings provided in the paper also allow for discussion of environmental sustainability, though we must qualify that it was in implicit terms. The theory of sustainable development and the coining of the term (thanks to the *Brundtland Report*) emerged at around the same time that Barcelona'92 was organised. Even though these Olympic Games received no guidelines on the issue, its sustainable nature can be seen in various projects of the city's Olympic strategy due to the needs of the Barcelona ecosystem. The regeneration promoted by the authorities addressed the city's structural shortcomings due to growth with hardly any urban development planning. Such goals of urban regeneration promoted by local leaders had few precedents, further than Munich'72. It is not usual for a municipal authority to lead the organisation of an Olympic event, as attested to by the objectives and leaderships established in the immediately

preceding and subsequent organising committees. In 1988, in the South Korean capital, the Games were part of the national plan of a prevailing semi-authoritarian regime, while in 1996 in Atlanta they stemmed from a project largely dependent on private capital (Toohey and Veal, 2007).

The description of the 1992 Olympic Games as sustainable does call for some nuance. Some features may be highlighted and described as such, especially in three aspects: the premise of building only according to plans of subsequent profitability, the promotion of urban green spaces and the rehabilitation of the coastline. Even so, we cannot speak fully of sustainability specifically because we refer to it as implicit. If the organisation had been guided, albeit minimally, by clear criteria and recommendations, like energy efficiency management, for example, the sustainable nature would have been more consistent and its application would have been more effective. There was no plan to minimise the spike in energy consumption involved in preparing for and hosting the Olympic Games. Still, there were one-off initiatives like the La Seu d'Urgell pumped-storage power plant or the energy-efficient design of Palau Sant Jordi.

After the experience of the 1992 Olympic Games, based on implicit sustainability, Barcelona City Council gradually adopted criteria of sustainable development that the Earth Summit extended on a global scale. Although the Earth Summit did not result in immediate international agreements, it introduced environmental concern to the government programmes of many public administrations, including Barcelona City Council. Barcelona and other Spanish municipalities participated in the approval in 1994 of the Charter of European Cities and Towns Towards Sustainability (known as the Aalborg Charter), which was a European Commission project that reflected the commitment to participate in the local initiatives of the United Nations Agenda 21 and to implement programmes aimed at sustainable development.

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