Urban Regeneration of Universal Expos' Ex-Sites. Case Study of Seville

Attila Simo , Anamaria Andreea Anghel , Flaviu Mihai Frigura-Iliasa * , Elvis Alexandru Dogaru

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Article

Urban Regeneration of Universal Expos' Ex-Sites. Case Study of Seville

Attila Simo [1,2], Anamaria Andreea Anghel [3], Flaviu Mihai Frigura-Iliasa [1,4,*] and Elvis Alexandru Dogaru [1,2]

[1] Faculty of Electrical and Power Engineering, POLITEHNICA University of Timisoara, 2, V. Parvan Bvd., 300223, Timisoara, Romania
[2] Academy of Romanian Scientists, 54 Independentei, 050094, Bucharest, Romania
[3] Faculty of Architecture and Urban Planning, POLITEHNICA University of Timisoara, 2/A, T. Lalescu Str., 300223, Timisoara, Romania
[4] National Institute for Research and Development in Electrochemistry and Condensed Matter Timisoara, 144, Dr.A.P. Podeanu Str., 300569, Timisoara, Romania
* Correspondence: flaviu.frigura@upt.ro; Tel.: +40-744-191533

Abstract: The capacity of exhibitions to transform a city covers a large period. Long before its celebration, the exhibition is already quite present in the city's daily life through its planning, organizational activities, and the need for mobility of citizens. The complex is transformed into a unique scenario for architecture, diversity, technology, mobility, and culture during the event itself. After the exhibition is over, work continues with the architectural transformations necessary to reconfigure the place into one that responds to the needs of the city and its inhabitants. The collateral actions of urban development through exhibitions involve the regeneration of different areas of the city, such as emblematic areas, and the reconfiguration of its operational systems such as transport, telecommunications, various networks, etc. Seville is an important case study because it housed two exhibitions that had a major influence on the development of the city: the Ibero-American Exposition of 1929 and the Universal Seville Exposition of 1992. This paper presents the situation of urban regeneration of those areas of Seville (Spain) and some original future developments related to the integration of ex-expositions' sites into the life of a modern city.

Keywords: Urban Regeneration; Universal Exposition; Seville Urban Planning

1. Introduction

The International Exhibitions (Expos), also known as Universal/World Expositions or International Specialized/Registered Exhibitions, have become emblematic models, adopting visionary urban planning as a strategic component, becoming case studies of urban organization and providing, through their pavilions and sites, panoramic visions, overviews of the cities of the future [1,2].

Universal exhibitions have often left a decisive mark on the cities in which they took place. Over time, the principles of the Exhibitions have changed.

At first, exhibitions were designed to last 3 to 6 months, then they were demolished (partially or completely most of the time) for example, the cases of London in 1851 and Paris in 1889.

Currently – they are thought of from the beginning as part of the city, later incorporating different functions necessary for the city (a very good example is Lisbon 1989 in Portugal and Zaragoza 2008 in Spain) [3–5].

Most of the time, some emblematic parts of the exhibitions have remained symbols of the city (for example in Paris 1889 – the Eiffel Tower or in Montreal 1967 – the Geodesic Dome).

The *Bureau International des Expositions (BIE)* is the intergovernmental entity in charge of organizing and regulating all major World Expositions, since 1931 [6]. BIE is particularly concerned with the future of all cities, in general. Cities are increasingly confident in sustainable urban

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development, and, in this way, exhibitions are becoming an important tool for sharing these practices and stimulating global discussions on solutions corresponding to such ends. In this sense, when cities decide to host an exhibition, this intervention will not be made in a free field, without any urban issues, but, on the contrary, the exhibition will be integrated into the development plan of the city and will most often subsequently direct the desired transformation.

Although exhibitions are usually related to short-term, transient events, they can have, if they are thought out from the very beginning, a concrete and lasting character. Exhibitions have always played an important role in urban planning as strategic instruments for urban, economic, and cultural revitalization [5,7]. Despite its short physical duration, 3 to 6 months, the exhibitions are part of projects with a long-term impact on the transformations they bring to the city. The positive and long-lasting impact of an exhibition depends on its ability to successfully integrate into the city, being part of much broader objectives.

Over time, the principles and themes of the Exhibitions have changed.

- Between 1851 and 1940, the exhibitions were strongly influenced by the idea of material progress and technological inventions. The themes were generally based on the passion to build the future and the importance of national identity, for example: "Agriculture, Art and Industry", "A Century of Progress", "Art and Technology in Modern Life", etc.
- Between 1958 and 2000, they were characterized by the need to put technological innovation to the service of the prosperity of humanity. The interest changes from a unitary, monolithic identity to relationships, emphasizing the interconnection of people, technology, research, and nature. The change in perspective is also reflected in the new themes addressed, namely: "Towards a more humane world", "Man and his world", "Progress and harmony for humanity", "The age of discoveries", and "Humanity, nature and technology".

The new century is characterized by interdependence. Exhibitions reflect the awareness that every action has long-term consequences for the environment and our lives. There is also a new conviction that exhibitions can once again be true instruments of progress in all areas that present sustainability problems of the global way of life: environment, energy, health, education, etc. Although over time the focal points of exhibitions have changed, a very important concept remains permanent, namely progress, which for the BIE represents the innovation and continuity of exhibitions, while each exhibition is a step towards the future and a catalyst for developments [6,7]. For example, the themes of these exhibitions: Aichi 2005 "Nature's Wisdom", Expo Shanghai 2010 "Better City, Better Life", Expo 2015 Milan, "Feeding the Planet, Energy for Life", Expo Dubai 2020, "Connecting Minds, Creating the Future".

The International Bureau of Exhibitions (BIE) attaches great importance to the integration of the exhibition complex into the city, and also to the need for successful management of the plan to allow its reuse. These concerns are regulated by the 1994 Norms of the General Assembly on the conditions for the implementation and reuse of an exhibition complex. Namely, to ensure the contribution that exhibitions should have to the development and improvement of the quality of life of the city concerned, great attention should be paid to the following [6]:

- the environmental conditions of the insertion of the complex and the access infrastructures, reduction of contamination risks, conservation, the establishment of green spaces, and the quality of urban development.
- the reuse of the complex and the infrastructure after the end of the exhibition.

The overall design of an exhibition begins with its architectural landmarks, such as palaces, towers, exhibition halls, and singular monuments, so that later the exhibition ensembles are born, ample spaces containing different attractions, most often isolated from urban areas, after which a third dimension characteristic of exhibitions was reached, that of urban regeneration, the transient program of the event has become a sustainable part of the city [8–10]. At this point, exhibitions have become much more complex and have difficulties in aligning the initial visions of the event ensembles with the future, more or less predictable ones.

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2. Materials and Methods

A Universal Exposition can be physical planning, and coherent thinking on all levels, from infrastructure to the smallest landscape details.

Like other mass-attraction events, such as the Olympic Games or more recently the cultural capitals, exhibitions fall into the category of "urban opportunities". Once chosen as an exhibition venue, the city can take advantage, design the necessary infrastructure, and attract major private investments, which, without this opportunity, would have had much less chance of being realized in such a short time. The recent trend is to assign great importance to public space, which has become the most effective protagonist. Public space is the element that can favor subsequent transformations.

The municipality of Seville (Spain) hosted two exhibitions that have had a major influence on the development of the city [8,9]:

- THE IBEROAMERICAN EXHIBITION (130 ha): located in the south of the historic area, it took place in 1929. The Great Iberoamerican Exhibition allowed the sudden development of the city towards the South; the exhibition pavilions are currently part of the buildings that serve the city – they are either the headquarters of the embassies of the countries once represented or various centers belonging to the faculties – libraries, exhibition halls, etc.
- EXPO'92 (250 ha): in the North, North-West of the historic area the Great Universal Exhibition of Seville - EXPO'92 took place in 1992, greatly impacting the city.

In the following, the role of these two exhibitions in Seville will be detailed, how they influenced – negatively or positively, and to what extent they managed to be later integrated into the city.

Figure 1 depicts the actual locations of the two expositions on the city map.

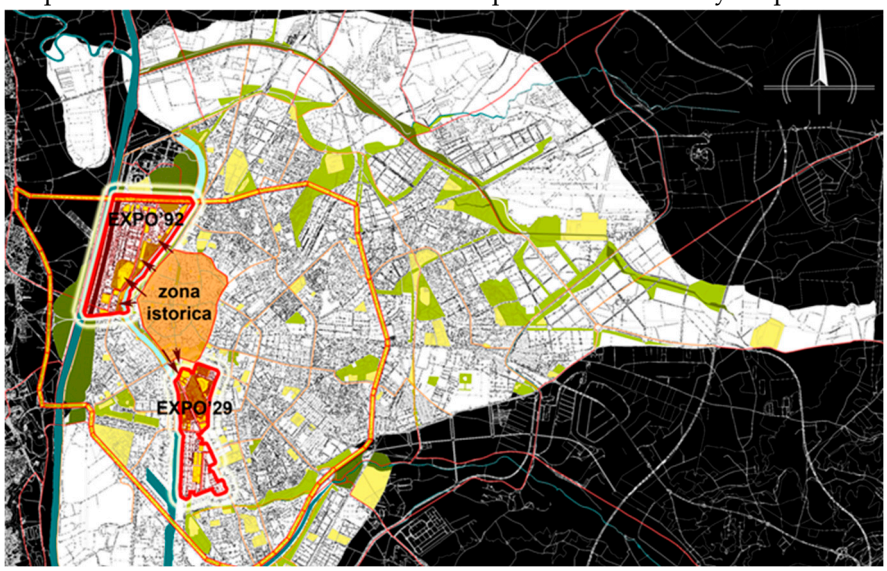

Figure 1. Location of the two city expositions on the Seville map.

2.1. Seville and its Urban Planning

Seville is the fourth largest city in Spain by population (684,234 inhabitants in 2021).

It is located at an altitude of 20 meters above sea level, in the middle of a low plain area, crossed by the Guadalquivir River.

It is one of the major commercial and artistic centers in southern Spain and one of the cities with the strongest personality. Seville is a city of significant tourist importance, preserving the largest historical and artistic urban center in Europe. The Giralda, the Cathedral, the Alcázar, the Archive of the Indies, and its surroundings were declared a World Heritage Site by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1987.

This area is composed of 46 municipalities very closely linked to the capital (Seville), having around 140 km^2. Most of these municipalities are dormitory cities and the others help the city in commercial aspects, services, facilities, relaxation, rest, and entertainment. The development of this metropolitan area began between the 70s and 80s, but the great urban apogee occurred in the 90s and

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continues to this day when this metropolitan area continuously grows through villages and extensions [9,11,12].

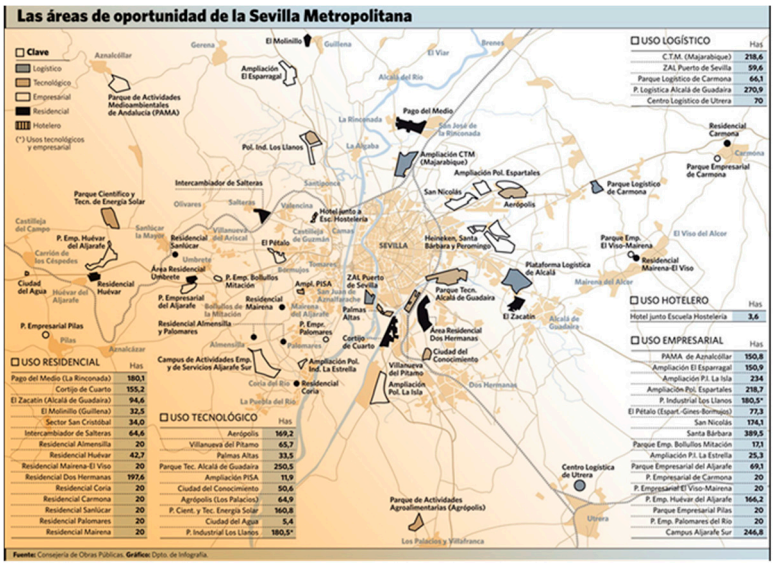


Figure 2. General Urban Plan of Seville.

The 20th century in Seville began with the dream of an Exposition, which finally took place in 1929. The Ibero-American Exposition left behind the Plaza de España, the Plaza de America, and the pavilions of the main participating countries, which presented different styles that evoked the indigenous pre-Columbian cultures. The century ended with Expo 92, which commemorated the 5th Centenary of the Discovery of America and which, from an urban point of view, meant not only the incorporation of Cartuja Island but also the elimination of the two train stations that represented a great obstacle to the internal communication of the city, the construction of the Santa Justa Station, the high-speed train, the ring roads, etc.

2.2. The Iberoamerican Exposition

The Ibero-American Exposition was opened on 9 May 1929 and lasted until 21 June 1930. The countries participating in the exhibition were: Portugal, Brazil, the United States, Mexico, Argentina, Uruguay, Peru, Colombia, Chile, Cuba, Venezuela, the Dominican Republic, Bolivia, Panama, El Salvador, Costa Rica, and Ecuador. Every Spanish region and every province of Andalusia were also represented [8].

The aim of the exposition was to improve relations between Spain and the participating countries, many of which were former Spanish colonies.

The exposition was a replica of the one held in Barcelona the same year. The city of Seville prepared for the exposition over the course of 19 years. The exhibition buildings were built in Maria Luisa Park along the Guadalquivir River. Most of the buildings were designed to remain permanently after the exposition closed. Many of the foreign buildings, including the United States pavilion, were originally intended to serve as consulates of the countries represented. By the time the exposition opened, all the pavilions were finished, and some were no longer new. Not long before the opening of the exposition, the Spanish government also began a modernization of the city in order to prepare it for the large number of participants and visitors. Namely, they built a lot of new hotels and widened the medieval streets to allow for automobile traffic, etc.

- *Spanish Pavilions and Exhibits:*
  Spain invested large sums of money in developing its exhibits, which they presented in elaborate constructions. The exhibits were designed to display Spain's social and economic progress, as well as to express its culture. Spanish architect Anibal Gonzalez designed the largest and most famous building of the exposition, which surrounds the Plaza de Espana. This building housed one of the largest exhibitions, the "Salon of the Discovery of America", which included maps,

 doi:10.20944/preprints202412.1465.v1

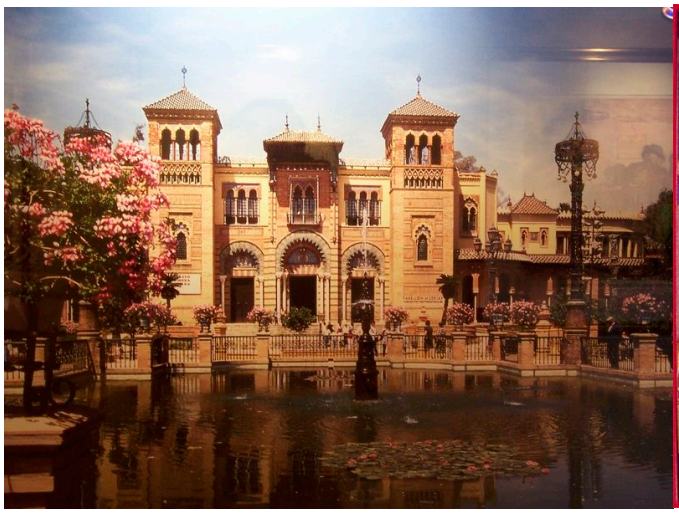
letters, and other documents related to the discovery of America, including those of Christopher Columbus.

- *United States of America Pavilions:*
  The U.S. contributed 3 pavilions to the exhibition, the main one of which presented a multitude of household appliances, and which was later intended for the consulate, and the other two buildings were intended for a cinema theater and government exhibitions.
- *Latin American Pavilions:*
  10 of the participating countries had individual pavilions (Peru - the largest, Colombia, Brazil, Mexico, Argentina, Uruguay, Cuba, Dominican Republic, Guatemala, and Venezuela), and others such as Bolivia, Panama, El Salvador, Costa Rica, Ecuador presented their products in the "American Commercial Gallery".

Today, many of the exhibition pavilions remain standing, such as the famous Plaza de Espana (Figure 3), as well as the national pavilions converted into consulates general (Figure 4). Many of the buildings are now museums or schools, such as the Flamenco dance school in the former Argentine pavilion. Due to the architecture, characteristics of each country once represented, this setting has been used in many films.

Figure 3. Plaza de Espana, Seville, today.

Although the assumptions prior to 1929 predicted that this exhibition would be a total waste and very unprofitable, despite the relatively low number of visitors (800,000) due to the world crisis of 1929, the city had to gain enormously from this event. Namely, a factor of modernization finally intervened in a much too traditional city, the standard of living was raised through major infrastructure projects and equipment necessary for the city and, last but not least, the most important consequence was the new direction of urban development of the city towards the South, until then completely abandoned.



Mudejar Pavilion

Expo Poster

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Argentina Pavilion Chile Pavilion Mexico Pavilion

Morocco Pavilion Peru Pavilion

Figure 4. Different images of Expo 29 pavilions (from our archive).

2.3. The 1992 Exposition

Seville92 represents a unique example in the history of exhibitions. First of all, it must be placed in the Spanish context of the 1980s. The main objective and pretext was the celebration of the 500th anniversary of the discovery of America by Christopher Columbus. Because this name was very questionable, the Spanish government redefined the theme of the exhibition as "AGE OF DISCOVERIES". The focus of the EXPO'92 Exhibition was on presenting the new frontiers of science and technology, opening the way to a much more innovative project.

The city of Seville, with approximately 700,000 inhabitants at the time, began planning the most ambitious urban development operation in its history. The project aimed to present to the world an image of a modern country, of technological progress, but also a project of regional rebalancing in favor of a southern region, traditionally not industrialized like Andalusia, focusing on projects of modernization of its administrative capital (Seville), through a strong territorial dynamism of the metropolitan space and betting on this opportunity of regional articulation and north/south balance in Spain, in the shadow of European policies oriented to this end [13].

The Cartuja Island - "Isla de la Cartuja" is located very close to the historic center, on the right bank of the Guadalquivir River, an ideal strategic place for the location of the exhibition area. In order to create the Universal Exhibition, 250 hectares of agricultural land were used where the historic Cartuja Monastery is located, from where Christopher Columbus prepared his journey to America and where he was buried for 30 years. The monastery is in an advanced stage of degradation and

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total rehabilitation was necessary to recover its former splendor and also to become one of the symbols of the 1992 Exhibition. The transformation of this land known as "Isla de la Cartuja", the Cartuja Island, is considered one of the most important public works of the last century in Spain. Figure 5a presents the island before the intervention and Figure 5b presents the situation during the intervention.

a) b)

Figure 5. Isla de la Cartuja before and after the intervention.

The exhibition was in fact a means to revitalize a city, a historically depressed region. As Perez Escolano said, the need to address these unprecedented urban and territorial transformations had, alongside the actual proposal of the exhibition '92, the simultaneous support of a General Urban Organization Plan, whose objectives were fully achieved.

In organizing the exhibition, there was a shift from an ambitious vision of arranging the exhibition spaces along the riverbank to more pragmatic visions in which the buildings were concentrated in a single enclosure. With these premises, the competition of ideas for the Management Project of the complex began in 1986. Of the 20 teams that presented themselves, the jury gave two prizes to the architects Jose Antonio Fernandez Ordonez and Emilio Ambasz.

Ordonez proposed a complex of pavilions arranged in an orthogonal grid, with a linear park on the banks of the Guadalquivir River and a giant sphere (100 m in diameter) as the planetary symbol of the exhibition.

Ambasz's conception was much more landscape-oriented, making particular use of the importance of watercourses.

Despite the great differences, both urban-landscape concepts had certain common features, in particular the weak connection with the riverbank. The final project was developed by Julio Cano Lasso (1987), a hybrid between the two solutions, with a rather conventional air regarding its autonomy from the riverbank and the historic city, as seen in Figure 6. But, despite this relationship with the riverbank, a connection was created between the city and the exhibition, through new pedestrian streets, promenades, and bridges over the river. Also, a new road network was created, the railway network was strengthened and the very fast train AVE was introduced.

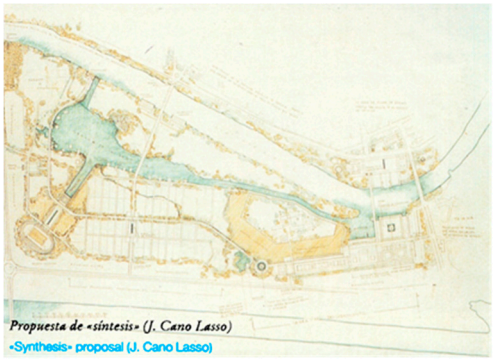

Figure 6. Final proposal of J. Cano Lasso.

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The Expo'92 Universal Exhibition brought many changes to Seville from an urban point of view. Over 70 km of new stations were built, a train station and the high-speed train, the AVE now connects Seville with Madrid in less than 3 hours. The Guadalquivir River was restored to its original state, bridges were built: Puente del V Centenario, Pasarela de la Cartuja, Puente de las Delicias, Puente de Chapina, Puente de la Barqueta, and Puente del Alamillo. Other buildings built for Expo'92 are the Maestranza Theater, in front of the bullring of the same name, the Cartuja Auditorium, the Congress Palace which boasts a huge golden dome, and the Old Cordoba Train Station was transformed into an exhibition hall.

Figure 7. Layout and location of the Expo 92 site.

The exhibition was open to the public for 176 days, during which time it was visited by 42 million people (Figure 8, Figure 9, Figure 10, and Figure 11).

Figure 8. Aerial view of the Expo 92 site.

During the 176 days that this exhibition lasted, there were numerous concerts and shows. The attraction of the night was the Lake Show where various shows were projected on the sprayed water, mixed with light, sound, laser, and fireworks.

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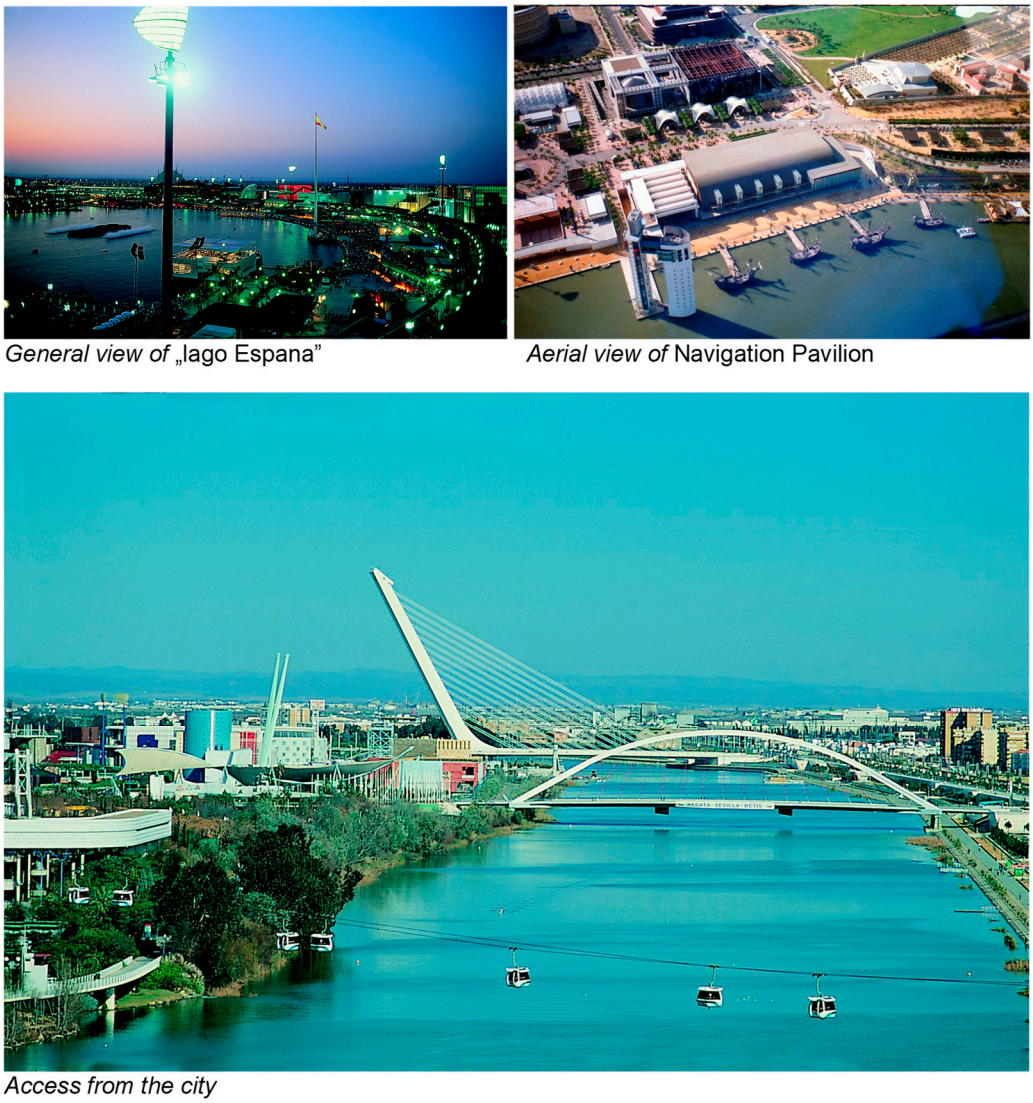

Figure 9. Different views of the Expo'92 site at that time.

In the landscape design, numerous elements were extremely important in order to create a city with vegetation in two years. On the one hand, a master plan of the ensemble organized by a team of landscape architects was used, and on the other hand, projects were made by landscape architects to coordinate the free spaces around the buildings with the built space to create unity.

Figure 10. Avenida 3 – Bioclimatic sphere.

The execution in a record period of two years, the use of 25,000 plant species, the introduction of new species in 20th-century Europe, the development of the green ring, and the design of planted public spaces converted this project into a reference for future exhibitions and also had an influence on the design of new cities and urbanizations.

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Figure 11. The most important bridges related to Expo'92.

A nursery was created within the exhibition for the training, and growth until the moment of transplantation of the species necessary for the exhibition, but also a place where exotic plants such as species brought from Latin America could be purchased.

The most important landscape projects within the exhibition, some of which are still current, would be Guadalquivir Park-Garden, Cartuja Garden, American Garden, Defense Wall and plantation in galleries, Boulevard 1,2,4,5, "Avenida 1,2,4,5", World Trade Center (the building is built around an interior courtyard of vegetation), Lakeside and the Plant Pergolas Project.

During the exhibition, vegetation had an unexpected success among visitors, the vegetal pergola projects, the projects of the 5 boulevards and the American greenhouse competing with the most famous singular architectural objects of the expo. After this event, green spaces became important protagonists alongside architecture and urbanism [14].

3. Results

The case of the 1992 Seville Expo is relevant in terms of post-expo land use, both for the thinking and planning in the early stages of the exhibition design and for the outcome in the years that followed. Some of the previous examples (Montreal 1967, Tsukuba 1985, or Vancouver 1986) suffered from the slow process of urban integration of the former exhibition grounds [15].

3.1. Post-Expo Urban Planning

Very interesting for Seville is that, despite the criticisms made, due to the lack of a post-expo project, it is easy to demonstrate that the reality was completely different: it was not the absence of a project but the coexistence of visions and conflicts of interest for the reuse of the land that posed great difficulties in respecting the initial plans. In 1989, the Andalusian Department, through the Andalusian Promotion Institute (IFA), hired a team of specialists (members of the universities of Seville, Malaga, Madrid, and the EXPO'92 State Company) to carry out the Investigation Project on New Technologies in Andalusia (PINTA) under the direction of Manuel Castells and Peter Hall. The EXPO'92 State Company adopted an innovative strategy, establishing one of the basic objectives of the future of the exhibition in 1993, the optimization of an advanced infrastructure of the complex for

 doi:10.20944/preprints202412.1465.v1

a future "attractive location for the establishment of research centers, scientific centers, and innovative high-tech companies". For this reason, the criteria of immediate economic profitability were left aside, and the future was thought of: activities encompassed under the concept of a "Science and Technology Park". But, in addition to the economic and political conflict of interests shortly before the exhibition's inauguration, the economic situation after 1992 stimulated the reconversion of the initial idea towards a state-of-the-art business park rather than a technological one [16,17].

After the end of the Expo, Cartuja Island was divided into several areas, each with different specifics and a different owner, (according to Figure 12), namely [18]:

1. Seville Tecnopolis - Cartuja'93 Scientific and Technological Park which reuses much of the infrastructure of Expo'92 (currently, the "Puerta Triana" project - the first office skyscraper in Seville is being developed in this area);
2. Monumental Ensemble "Santa Maria de las Cuevas" ;
3. Cultural Area;
4. Entertainment, Relaxation and Culture Area;
5. Entertainment and Relaxation Area (theme park "Isla Magica");
6. Hotel;
7. Sports Facilities;
8. Alamillo Metropolitan Park;
9. University Park;
10. Spanish Radio Television.

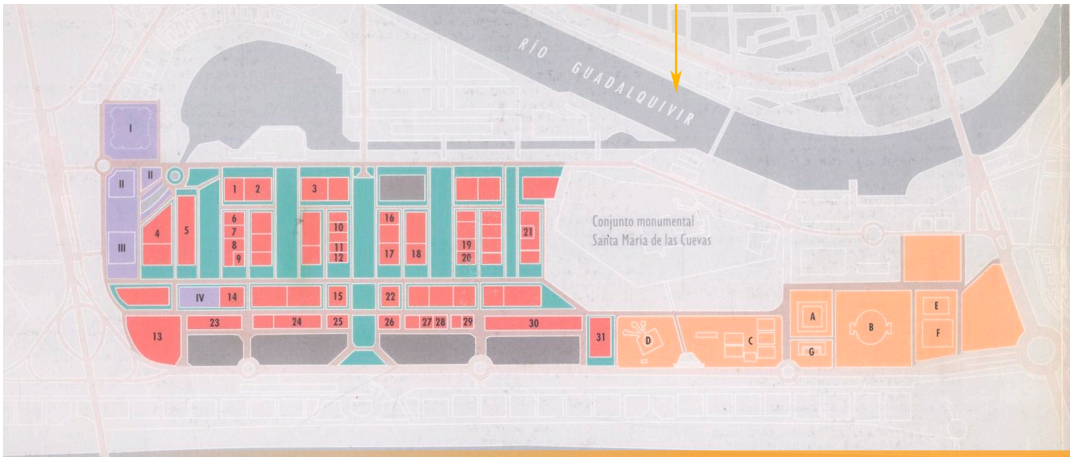

Figure 12. Cartuja'93- Scientific and technological park – areas of use.

Since it has been operating, Cartuja'93 has become one of the most developed scientific and technological parks in Europe, with 567 company headquarters (including many innovative start-ups), technological, research, university, and training centers. Cartuja'93 Technology Park has more than 15000 employees and an economic gain of 2.194 million euros annually. The area of Cartuja'93 is presented in Figure 13.

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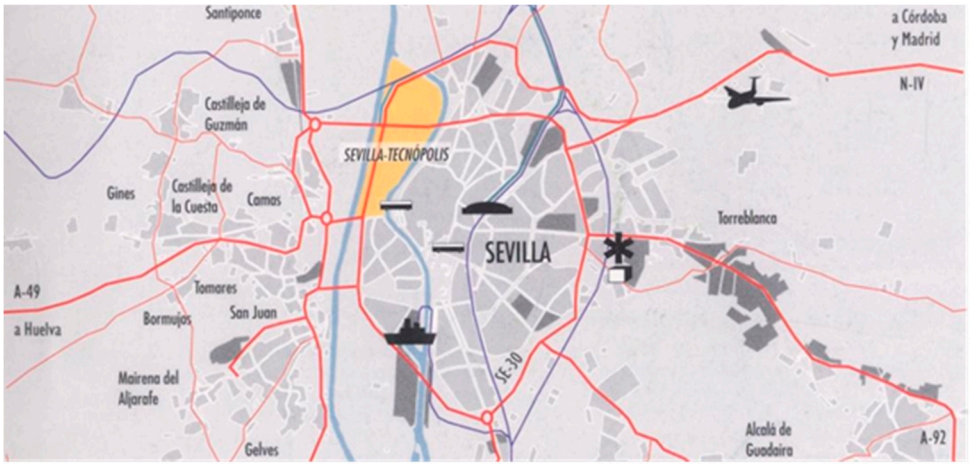

Figure 13. Seville Tecnopolis - Cartuja'93 Scientific and Technological Park integration into the city.

The area of the Technological and Scientific Park has good things but also some very bad things because the areas currently unused by companies are totally abandoned and are in an advanced stage of deterioration, as presented in Figure 14.

Figure 14. Demolitions and Neglect of Expo'92 Elements.

Somehow that compositional unity that the exhibition was proud of has been lost. Among the pavilions that still have no owner and have been unused for over 15 years would be that of Czechoslovakia (which was destroyed at the end of February 2008) of Austria which is still standing, and the "Palenque" area that stage, the open-air market which due to the high cost of the land was demolished at the end of 2007 to build new office buildings, as seen in Figure 14, [18].

Some new construction sites have been added to the site, as described in Figure 15.

Figure 15. New construction sites in the Expo'92 area.

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The Belvedere tower, the cable cars, and the urban train have been completely lost and the saddest thing is that the Guadalquivir and American Gardens have been closed to the public for over 10 years due to lack of funds for maintenance. These gardens were in 2008 in the final stage of destruction, over 60% of the plant species have disappeared and if beneficial intervention were not made in these plots, everything would have been lost.

The 5 boulevards that were the strong points of Expo'92 are also suffering, being abandoned.

After the state of abandonment in the public spaces of the old Expo'92 premises, the revitalization of the area and at the same time the REGENERATION based on culture began = the implementation of functions of major interest for the city (Exhibition centers on different themes, museums, shopping centers, office buildings, parks and green spaces, amusement parks, etc.) => CREATION OF A COHERENT WATERFRONT.

The construction of the first sky-scraper of Seville, The Seville Tower (*Torre Sevilla*), known also as the Pelli Tower, is one of the major construction projects of Cartuja Island. It is an office skyscraper having 180.5 m tall and 40 floors designed by the architect C. Pelli. The construction started in March 2008 and was completed in 2015 (Figure 16).

Figure 16. The Seville Tower and its controversial historic.

UNESCO was considering putting Seville's monuments - which are classified as World Heritage Sites (the Cathedral, Alcazar, and Archivo de Indias) - into the "Threatened List", because of the tower's "negative visual impact" on the old town skyline of Seville. UNESCO even asked the municipality to lower the tower's height, but most of the city officials ignored all these ideas.

Some Future projects for Isla de la Cartuja: "NATURALIA XXI" a project that aims to restore and recover public spaces to create: A Scientific-Cultural-Educational and Recreational COMPLEX with ENVIRONMENTAL character (existing proposal)

Naturalia XXI is an open proposal for which funds are being sought. The aim is to create a complex with an environmental character located in Cartuja Island and its vicinity, targeting the already existing spaces. In general terms, the Naturalia XXI project aims to recover the abandoned spaces of the Expo'92, those that were used inappropriately. This project was born from the desire of the inhabitants of Seville and those in love with the former universal exhibition [19].

This masterplan aims to save as much as possible the concepts that were the basis of the exhibition and the public areas - the main goal is to introduce nature into the space of the former Expo'92.

The areas targeted by the project would be, according to Figure 17:

1. American Garden – recovery of plant species
2. Reuse of the Pavilion of the Future as a science center-museum
3. ISLA de TERCIA Ecological Reserve
4. Bike paths - proposal
5. Alamillo Park – expansion
6. Monastery Orchard – recovery
7. Aquatic Ecology Center
8. San Jeronimo Park
9. Nursery – project

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10. Riverbank forest-park-promenade – proposal
11. Meander bank forest-park
12. San Jeronimo Meander

Figure 17. Naturalia XXI Project Map.

There are new projects and competitions for several other buildings, like the bio-climatic office building and many others.

3.2. Botanical Garden and Multifunctional Building

The theme of the project was the revitalization of an area within the former EXPO'92 site (215 ha), and the proposal of a function appropriate to the place and the needs of the city. The studied land, as well as the entire exhibition, is in an advanced stage of degradation. The theme of nature had an important role in the exhibition.

Despite this, the site is currently abandoned and closed to the public. The plants in the parks and gardens have completely dried up. In my attempt to give life to the EXPO again, we chose one of the abandoned plots, the old American Garden (1.7 ha), one of the successful areas of the event, which at that time housed thousands of types of plants brought with great effort from America.

The motivation for choosing the location was simple: first of all, the choice was based on the attempt to revitalize an abandoned and degraded area that causes an unfavorable image for both the area itself and the city, and secondly, due to the key position within the site dedicated to the universal exhibition, the neighborhoods: the river (extremely important role in the city) of neighboring functions such as - the amusement park, the LA Cartuja Art Museum, the Auditorium, the Guadalquivir Garden and the future projects of the Science Museum, the Aeronautical Museum and the Naval Museum which, together with the proposal for a Botanical Garden on the chosen site, will be able to complete a chain of functions, a network, a closed area for public use for rest, entertainment, relaxation and also information.

Following the analysis of the site and the possible developments, trends, and needs of the area, the main lines of development of the project were:

- Context within the Metropolitan Area and its development
- City-River relationship as a center of attraction
- History, art, and integration into the museum circuit
- Relaxation, rest, fun, study – moments spent in free time
- Neighborhood in the natural setting and outdoor spaces
- Future, sustainable development and environmental respect.

The project will detail a "Multifunctional Center with Botanical Garden specificity". The chosen theme is directly related to what is currently found on the site - namely the remains of a former garden with plants brought from Latin America, a simulation of the Amazonian rainforest (the

 doi:10.20944/preprints202412.1465.v1

evergreen equatorial forest that covers the entire Amazon basin) which unfortunately if the necessary attention is not given to its rescue as soon as possible, it will disappear. A former area of fountains and small water basins that connected the artificial lake and the river, exist only as infrastructure, being abandoned once the exhibition ends, as we can notice from Figure 18, where our project is located in area number 3.

Figure 18. Project site location and actual status.

The project tries to save as much of what is left of the exhibition on this site, the intervention will be as minor as possible, it will be a project designed to be open to the public but will also have annexes, spaces for rent, which although not directly related to the specifics of the botanical garden are necessary for the proper functioning of the ensemble both from the point of view of the whole and from the financial point of view. Through these annexes such as the conference room, classrooms, exhibition rooms, and cafes, the building can function with their help, not depending on continuous financing from public funds [11,12].

The construction integrates into the natural setting of which it is a part. Being bordered by the riverbed and the land on a slope, the adopted form seems to be born from the water, transforms into a wave taking advantage of the existing slope, and stops suddenly intersecting with the rectangular part of the building which it dresses in vegetation, as observed in Figure 19.

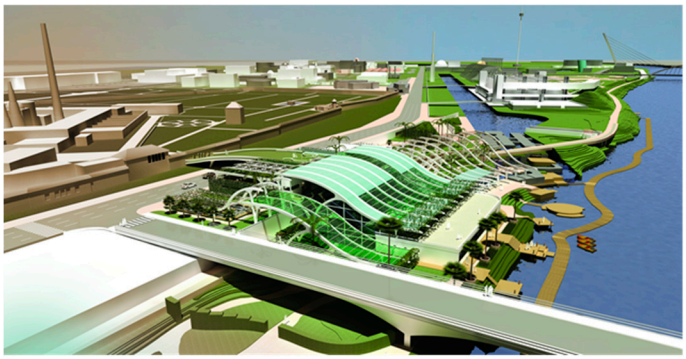


Figure 19. Project Overview.

Also, on the opposite side of the Monastery, a green pedestrian walkway starts, which counterbalances and gives a note of balance to the architectural dynamics. This shape is optimal for a botanical garden because palm trees need vast, high spaces. The shape is conducive to good

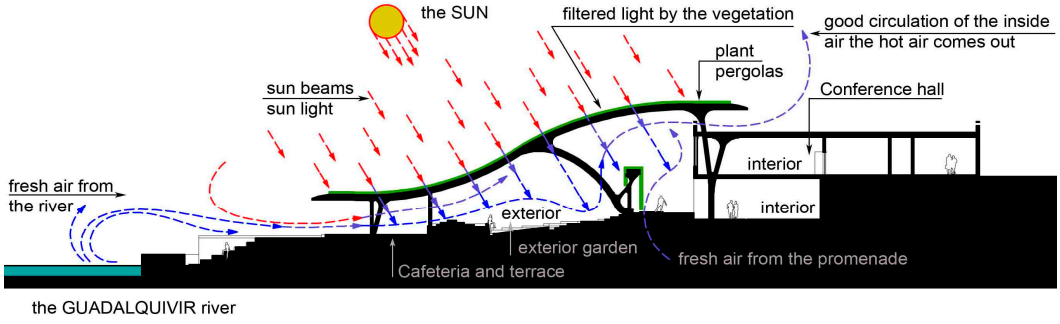
 doi:10.20944/preprints202412.1465.v1

circulation of interior air that can be used for energy use and at the same time, being a predominantly glass building, sunlight, and its heat can be used for the good technical functioning of the building.

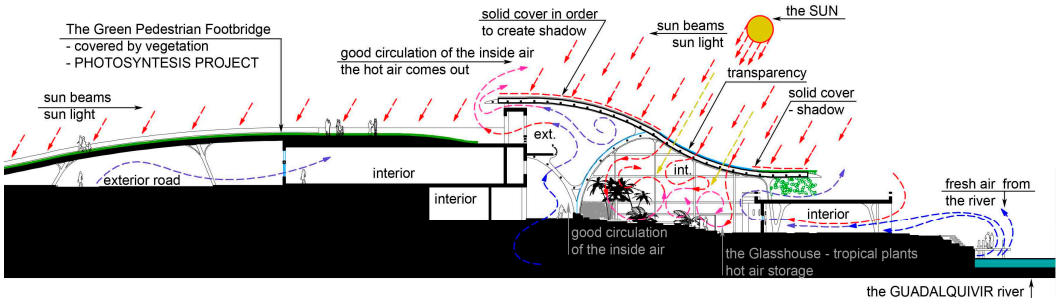
Using a skeletal structure of the "rib" type, we tried to integrate architecture and modern construction technologies in the project implementation area. Thus, natural, vegetation can grow freely, covering the structure. The resulting vegetal pergolas create a pleasant, fresh atmosphere on hot summer days in Seville as seen in Figure 20.

Figure 20. Top view of the structure.

The new proposed function integrates well with those already existing on the site and in the vicinity, and forms with them a cultural, museum, and leisure network for spending free time. The first phase in approaching this project was to emphasize the existence of an old connection between the functions on the riverbank. Within the site there will be an internal network for visiting the botanical garden, namely the visit will begin from the access area where, descending on a ramp that surrounds an internal courtyard, the Amazon rainforest will be simulated, after which a route will be accessed from which you can reach the area intended for tall plants (palm trees of different types) and the diversity of flowers and exotic species, after which you will reach the area intended for water plants. Once you arrive here, the route can vary, it can continue, eventually reaching the Guadalquivir Garden or it can take a 90-degree turn in the direction of the small park or the old area intended for the American Garden. The annex spaces - reading rooms, exhibition halls, conference room, and cafes - are located on this route, interacting with it and making it easily accessible, as described in Figure 21.



Air flow inside the building



Energy exchange inside the building

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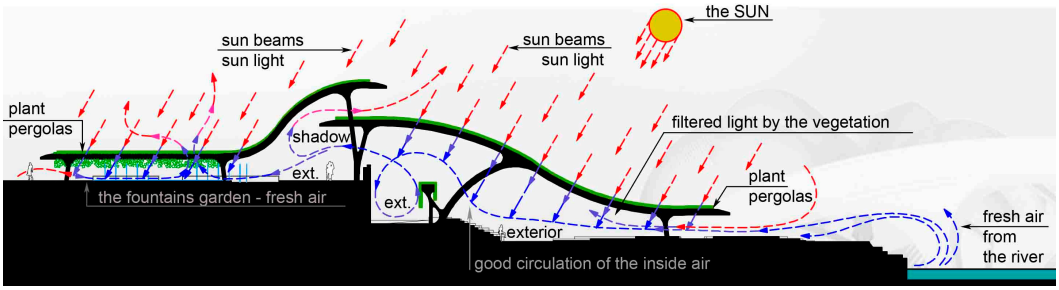

Energy exchange inside the structure

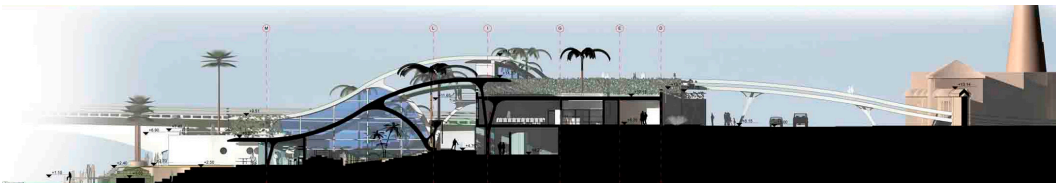

Figure 21. Design and energy efficiency.

Seville's biggest problem is the strong sun during the summer.

In this sense, the project is divided into 5 areas treated differently in terms of their relationship with natural light, as seen in Figure 21.

1. The outdoor promenade – suitable for outdoor walks, thanks to the pleasant light filtered by the vegetal pergolas.
2. The outdoor garden and parks: such as the American Garden with numerous cacti or the aquatic plant garden – are treated differently, with fountains, sprayed water, and filtered light.
3. The indoor Botanical Garden – a glass greenhouse for plants that need high, constant temperatures.
4. Simulating an Amazon rainforest – a space where it rains very often, which does not need direct light, protected by tensioned translucent canvases, specially designed for reliable use.
5. Interior spaces - such as classrooms, exhibition spaces, cafes, conference rooms, shops - positioned near spaces with good air circulation, refreshing the indoor atmosphere.

The main concept of the project is Photosynthesis and Sustainability.

As plants need sunlight to grow, people also need plants to live. Plants do not only produce oxygen through the process of photosynthesis, but they completely transform the environment, visually and aesthetically.

We need plants to live in a simple relation: light-plants-people-life.

Light is the most important aspect of our lives, the goal of our project was to use sunlight differently, to create different areas depending on the need. By studying the importance of sunlight, I designed a sustainable architecture, that takes into account the needs of the users.

In any case, it is clear that the Expo undoubtedly had a major impact on the urban structure of Seville. The accumulation of investments produced in only a few years led to spectacular transformations.

4. Discussion

Due to the fact that, after the end of the exhibition, in 1993 the area was subdivided, control over what was originally intended to be a whole was lost. What worked and still works very well (with large expansion plans, doubling in 5 years) is the respective technology park, but the area seems and is lifeless.

Of course, the area attracts a very large number of people daily, thanks to the companies who work in these offices, but there is no unity. These people do not relate to the site or each other, because there are no attractive public areas. I am not saying that public areas do not exist, on the contrary, they could function if they were restored. Up to now, nothing has been invested in revitalizing these main public areas.

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The attempt to revitalize the ensemble has begun through the current projects under development stated later:

1. Naturalia XXI which proposes opening the riverbank to the public, with pedestrian and bicycle paths was a very important first step, namely - creating the city-Island Cartuja connection. (existing proposal)
2. Step 2 - the revitalization project and creating a coherent Waterfront - by implementing cultural functions (Museum of Contemporary Arts, Naval Museum, Science Museum) along the river, recreational functions - revitalizing the Isla Magica amusement park, relaxation functions - revitalizing the parks along the Guadalquivir riverbank (fictitious proposal)
3. Step 3 - new projects for the Island Cartuja, such as the new Pelli tower - an office building with commercial spaces, terraces, and green areas at the base. (existing proposal)

5. Conclusions

The most important change brought about by this exhibition was the transformation of the city, which was equipped with new roads, a high-speed train, a new airport and new bridges that opened the northwestern area of the city to residents, and the large metropolitan park that benefits both the population of Seville and the metropolitan area.

In this way, after completing the steps mentioned before, the area will certainly gain life. Revitalizing an area that has reached this stage of degradation consists of finding the missing points, the negative points but also the strong points that work. Creating a relationship between them is the solution. Implementing functions currently missing on the site (shopping, terraces, bars, relaxation spaces, green areas, cultural functions) will certainly help, they will open the area to the city, and they will make it easily accessible and attractive in the first place.

Step 3 which we talked about previously is unfortunately almost impossible at the moment, if we do not succeed in convincing public opinion. Seville is much too traditionalist, it does not accept this type of implementation in the city, claiming that it will ruin the way the city is currently perceived. The following image is also suggestive, in which both the residents and a large percentage of those in charge of the city were in total opposition to the new office building proposal.

We believe that Seville would gain enormously if it were no longer so traditionalist and thought about the future of the city in a much more open way. The same problem that existed when Seville was chosen as the Expo site for 1992, when the inhabitants claimed that there was no need for this in their city, is exactly what is happening today, the inhabitants are somehow still living a long-gone dream, of what Isla de la Cartuja once was for the city, the 1992 Expo. They do not want to change anything, they want to revitalize the area, to bring the Expo back to the city, exactly as it was in 1992 "que revive la expo'92", but this should be thought of and superimposed on a 21st-century city, the Seville of 2024, which is no longer the one of 1992.

After the experience of presenting our project to the Seville City Hall, a few years ago, they were very enthusiastic about the proposal, which took into account 100% of what existed on the ground during the 1992 exhibition and proposed an expansion and opening of the area to the city. They preferred "due to lack of funds" only a surface cleaning of the abandoned area, hoping in the future for a possible proposal of this kind on the site. This strengthened my conviction that, if Seville cannot overcome the barrier of what is currently in the city and does not try to overcome this moment, the city will not be able to develop and will stagnate.

The two exhibitions, the one in 1929 and the one in 1992, undoubtedly had a major impact on the urban structure of Seville, they left traces, without which, today's Seville could lose its identity.

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