



Parque Cero

Parque Cero Special.

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The need for our cities to be sustainable is leading to the development of new models of parks and green areas. The aim of the Parque Cero Project is to create a living laboratory to contribute new solutions in this way. The Parque Cero approach is to work in the efficient use of water and its recovery, linked to the generation and consumption of clean management energies and the closing of biogeochemical cycles of those inputs or resources received by a common park.

Bearing in mind the growth in cities and increasingly urbanized living, parks and green areas in cities in general are beginning to be seen in terms of their use and environmental values as urban nature, and not only due to their aesthetic or ornamental forms in the city environment. (Platt 1194; Hough, 1998; Ward, 2002; Vélez, 2007).

Be it due to their metropolitan, area, recreational, thematic, ecological, etc. view urban parks in general are starting to be questioned today in terms of their contribution to sustainability; especially due to their environmental impact concerning materials, energy consumption, waste production, artificiality, and due to their being sterile as ecological habitats (Cranz & Boland, 2004).

Thus, compared to the paradigms that have helped in the creation or the design and the arrangement of parks and gardens, today the question about their contribution to the project of more ecologically sustainable cities arises, the issue of sustainable parks increasingly becoming more important (Cranz & Boland, 2004).



On a conceptual level, Cranz & Boland describe the general characteristics or attributes that make it different from other types of urban parks: resource self-sufficiency, savings on energy, natural resources (fertilizers, farm work, water) and maintenance costs, recycling, sediment control, noise and pollution reduction, configuration according to the ecology of the place, design and handling of the vegetation by phases, contribution of social welfare and public health, accessibility, connectivity and social and urban integration to the city.



Concerning this aspect, parks with sustainability criteria are beginning to be designed, such as the Parque de la Gavia, integrated in the “Ecovalle” project, which fosters a sustainable city model, in Madrid, and which is presented as a self-sufficient and sustainable park.



Picture with the Parque de La Gavia project

Another example is in Zaragoza, where the Parque del Agua has a treatment system that works with macrophytes. This system consists on taking advantage of the ability of green plants (in this case macrophytes) to metabolize polluting substances with the help of solar energy.

Parque Cero is conceived with the idea to create a sustainable park in the strictest sense: it easily maintains itself without any external help and without reducing its existing resources. This park should be able to renovate or produce all those resources it needs. Starting from the initial design, the approach of this living laboratory considers various factors such as the efficient use of water and its recovery, together with the generation and consumption of clean management energies on the basis of energy cycles, and the closing of biogeochemical cycles of those inputs or resources received by a common park. The action axes are the following:

- *Water*: rain water storage, recovery of irrigation water through drainage, gravity irrigation, intelligent irrigation, water quality control through natural treatment, water reuse.
- *Sources of energy*: estimation and reckoning of the park’s energy needs as far as execution, management and maintenance are concerned; energy obtention from renewables.
- *Biogeochemical cycles*:
 - The carbon cycle: compensation of CO₂ balances, plant waste composting.
 - The nitrogen cycle: nitrogen fixation in the soil accomplished through the use of leguminous plants, drainage collection and lixivates for fertigation.