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Landscape design in Athens during the preparation of the Olympic Games in 2004: project implementation & maintenance

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Abstract: During the Olympic Games preparation of 2004 in Athens many project applied to the urban and to the rural area of Attica County where Athens is the capital. The purpose of this study is to point out the main design concept of several projects and to present the main difficulties during the process of transition from design drawings to construction and the maintenance strategy.
In many cases the final Design Drawings had to change in order to overcome obstacles that we have faced during the Construction. The Developer, the team of Landscape Architects and the Supervisors of a project had to cooperate and also had to be flexible and ready to adjust in new situations, very fast and take quick decisions and readjust their part of involvement in the project. Time was the greater enemy and dealing with the bureaucracy was a constant battle. It is though a unique lesson for everyone involved in these processes and a significant experience to all professionals that took part in these projects. It was impossible to avoid all mistakes but it is true that everybody did his best and the result amazed. Athens - Greece has moved forward in different levels after this event.

Key word: Landscape Design, Olympic Games, Olympic reformation, landscape constructions

1. Introduction

Greece was the birthplace of the ancient Olympic Games over 2,000 years ago and Athens was the host of the first modern-day Olympic Games in 1896. So it seemed only fitting on that the 2004 Summer Games be awarded to the Greek capital once again [1].

Athens's development strategic plan was governed by a long-term target: the fostering of a Sustainable Development, a development that would satisfy the needs of the new generation, without undermining the potentialities of the future generations. The development focused on the conservation and renewal of natural resources and on the fostering of an improved quality of life, without jeopardizing the vital balances within the ecosystem [2].

This effort was required new interventions and a fresh prioritisation of main options, as well as setting new priorities in implementing measures and carrying out public works. It was required an alternative strategic plan for the development of Athens that will secure the productive, social, environmental and cultural cohesion of Attica. It was required the balanced development of Athens and Attica with respect to the potential and developmental pace of the other regions in the Country [2].

This effort was required different values and ways of life, a different behaviour from all the citizens. It was required different relations between the individual, the city and nature itself as well as between people and their cultural heritage.

The Ministry for the Environment, Physical Planning and Public Works, has jointly drawn up a program of studies, works and interventions, in order to achieve all the above values.

The main principles were (Ministry of the environment, 2005) [2]:

- The ecological balance and reconstruction of Attica by securing vital open spaces.
- The protection of the peri-urban land from unplanned urbanization and uncontrolled building activity.
- The aesthetic improvement of the urban sites, and the urban venues
- The canalisation of urban pressures and peri-urban productive (industrial, handicraft, commercial) activities in modified reception areas with the necessary infrastructure.
- The strict protection and preservation of the remaining open space and the natural environment, the green, agriculture land, archaeological and historical sites

With all of the above intervention units -all broad range urban rehabilitations- the existing uses will be rationally set up and any additional ones will be judiciously established. All of these developments will take place with a view to decentralizing its services, so that the city would retrieve the physiognomy of a contemporary urban centre, with all its particularities, both historical and functional, of a city like Athens [2].

The design concept of Athens Olympic Games was to combine history, culture and nature with sports and Olympism.

Today, the Olympic Games belong to the world – every host city and country adds its own cultural character to the Games. The universality and uniqueness of the Games can be found in the Olympic ideals

The concept was [1]:

- To organise technically excellent Olympic Games.
- To provide to the athletes, spectators, viewers and volunteers a unique Olympic experience, thus leaving behind a legacy for the Olympic Movement.
- To display the Olympic ideals in a contemporary setting through their traditional Greek symbols.
- To promote the cultural and natural heritage of Greece to the eyes of the world.
- To protect and enhance the natural environment and promote environmental awareness.
- To promote the worth and the value of Landscape Architecture
- To showcase the achievements of modern Greece and its potential for the future.

For the people of Greece, the legacy of the 2004 Olympic Games will begin with the economic benefits of investing in upgrades to the transportation infrastructure, and to the environment. These investments will benefit Greece the following years.

They include [1]:

35% improvement of the quality of the environment

290,000 new trees, 11 million new shrubs

120 kilometers of new road

A $1.3 billion (€1.22 billion) boost in public sector revenues

An increase in tourism

In addition, the skills, expertise and training of the workforce in Greece across every sector will be enhanced. The workforce will be called upon to manage large scale complex projects that require integrated planning and detailed coordination.

On the other hand Olympic Games of 2004 brought Greece in a great member of contradictions in an enormous scale with a number of problems, unfamiliar with the Greek standards. Most problems caused by bureaucratic matters, the time pressure and sometimes of the attempt of synchronization of the several organizations and committees that took part to the whole project causing retardation (delay) to the implementation project. Equally unfamiliar were the potential solutions to these great problems.

Consequently time pressure caused many problems. The constructions projects followed by the landscape projects therefore some of them have to be finished the last period time. Consequently the planting works took place during summertime, June, July and August in high temperatures. The summer high temperatures demand high irrigating programmes and in some cases were lacked of adequate water for irrigation, so the daily plant's watering was another terrible problem.

The time pressure also didn't allow the public preference to participated to the design drawings so in some cases caused reactions and transitions to the initial proposals.

During the Olympics Athens transformed to a whole new place. Only a few months before the Opening Ceremony and the several works was still under construction as also has happened to other cities just before the Olympics like in Sydney or in Atlanta. The general aesthetic of the environment was seriously damaged and people's everyday lives were full of difficulties.

The Olympic Games 2004 forced Greece to face unexpected problems and requirements for the Greek reality. Therefore the problems have been managed and worked out with solutions. As result Athens succeeded to reach the appointment and finally to have successful Olympic Games.

In the following study is analyzed the process development and the accurate problems that came up, through the designing installation of the Olympic projects.

Hopefully through this process useful conclusions and useful future recommendations will come to light, for the study and the installation of special reformatted projects.

2. Methodology

The research method was a combination of personal designs, supervisions of designing, modifying the design according to the construction needs and finally supervising the construction of the implementations spaces. The paper results to estimation of the current conditions, the difficulties during the landscaping works, the functionalism of the places and the construction phase by the direct supervision of the contractors and subcontractors of each one project.

Ministry of the Environment Physical Planning and Public Works, was the accurate responsible for several projects so the initial proposals drawings and every transition which implied these projects, was reported. In the following study have been examined some important projects which have been implemented in Attica county during the Olympic Reformation.

These are: (1) **Marathon route**, (2) The interchange of **Kifisos and Posidonos Avenue** (3) The surrounding landscape of the Olympic Athletic Centre in Nikaia, in **Selepitsari,** (4) **Lycabettus slopes**

In the following figure fig.1 can be seen the Attica county, with the regions and the Olympic projects

Fig. 1. Athens 2004 Olympic Venues

3. Analysis & Discussion

3.1. Case Studies

3.1.1 Modulation and reformation of Marathon route

The Landscape

The construction of this project constituted one of the basic arguments in claiming the Olympic Games of Athens since it is the symbol of Olympic Games' rebirth in 1896. Also the widening of Marathon Road it forms a project of vital importance which connects the Municipalities of Eastern Attica with Athens city.

It concerns the first 26 klms of a rural and suburban route, which passes through a quiet similar landscape, with the ancient one, from the start of the Marathon Race Race at Marathon village to Pallini, as well as the bypass round road by the historical Tomb of Marathon. The project was divided in two parts. The first one was from Marathon village till the 9th k\lm Marathon – Athens, where the landscape consists of native shrubberies and rural cultivations, whereas the second one from the 9th - 26th klm Marathon – Athens, where the landscape is a suburban area view a warren and a heavy-industrial environment.

The Marathon Route Project consists of two projects:

a) the widening of Marathon Road, that is a project of vital importance since it connects the Municipalities of Eastern Attica with city of Athens and
b) the landscaping of the pedestrian ways along Marathon Rout, that is an essential project for the improvement of the human scale environment around a big car road.

The Design Concept

The requisition committee of the Olympic Games aimed to ascribe to Marathon route the illustration of a linear landscape, with high aesthetic value, which would combine the ancient archeological sites with the natural surroundings and would project its physiognomy [3].

Because of the special requirements of Marathon's contest, had been scheduled the constructions of:

- a starting point, in Marathon village, called the Marathon start
- the reconstruction of the termination area, which is Athens's Panathinaikon stadium - the famous Marble Stadium known as "Kallimarmaro" where the Games were revived in 1896.
- and the redevelopment of the total Marathon route

The aims of this project were indicating to ensure:

- the facture and the service of Marathon contest
- the effective function of the whole area
- to ascribe the route's physiognomy, with its great historical value
- the potential to use the site as a social area for recreation
- the best and brute connection of Athens with the Eastern suburban areas
- the aesthetic improvement of the site

The landscape concept was:

- the replacement of the plant species which have been cut during the construction of the road.
- the creation of shady areas
- the encouragement of biodiversity, using native species
- the adjustment of every part to the overall surroundings
- the integration of wall, landscape and plants
- planting troughs nested in the walls, or climber usage to cover the walls

The landscaping along the Marathon route were indicated the following:

a) To the right sidewalk - width 4m, were suggested two planting zones an external and an internal with a cycling route through the two of them, which never build up, because of financial reasons. The external zone would have a tree row and shrubbery fencing for aesthetic value and noise protection. The internal zone would have shrubberies and climbing plants to cover the walls, where ever was appropriate.
b) To the left sidewalk – width 2m was suggested a tree row every 10 meters.

The landscaping follows the landscape design principles where local and historical plants (roughly) planted along the pavements.

The implementation [4]:

- The road has been expanded along the route.
- The area have been released by the parked cars and vehicles
- A linear ecological park has been created along the 26 klm of the route.
- Native species tightly connected with Greek culture and civilization, have been used along the route and around the historical tomb of Marathon.
- 7,332 trees, 46,330 shrubs have been planted along the pavements that can offer shade to the visitors and the motorists and shelter to the wild birds, and 1,070 climbing plants have been used to cover the pre-existent retaining walls

The difficulties

The planting project had subcontracted to builder contractor, who at the same time had undertaken the road construction. He was completely irrelevant with the topic and the only obligation he had was to cooperate with a Landscape Architect. That two different projects, the road and the planting, were implemented at the same time at the same place had occurred many problems like (Georgi & Kapnistou, 2005) [5]:

1. It was impossible the planting project to forgo the construction project
2. Every delay which occurred in construction project was delayed the planting project
3. The road expansion along the route has been designed by the General office of the Civil Projects. The initial design drawing was providing three stripes and a cycling route for its direction and a service road, for local use, with total width 32metres. In that drawing there were many reactions, by the locals because of personal profits and by environmental organizations, because of the cutting of the existing trees along the route slopes. Entirely there has been a compromise, with two stripes, without a service road, for its direction, with total width 23 meters, and have been suggested walls for ground supporting and for bounding the limits of the properties.
4. The traffic was another difficult part. The contractors were working view a constant circulation, as the route was impossible to stop running. Circulation adjustment was required in order to avoid accidents.
5. Preexistent networks of electricity, telephone lines, or watering, lead to design's transitions.
6. The approach to private properties also created frictions with the citizens. There were objections to the planting, to the access width or to the aesthetic appearance.
7. The plant watering. The planting took place during the summer (June, July, August 2004), in high temperatures and in bad soil conditions. The daily watering was imperative necessity. The delay of the establishment irrigation system faced temporarily by a water wagon.

3.1.2 Modulation and reformation of the interchange of Kifisos and Posidonos Avenue

The Landscape

This project implies the construction of a big 15 different direction Road Node, in the city of Athens, in front one of the main Athletic Complex (the Stadium of Peace and Friendship) and near sea. Its position is very important and very critical for the car circulation in a regional and a city scale because it's connecting Athens to Pireas (the main international port of Attica), Athens to South areas of Attica (Glyfada, Voula, Sounio, etc), and also accessing the main National road to North and South Greece (through Kifissos Avenue).

Its proximity to Stadium of Peace and Friendship, convenience the access to this Complex that accommodates not only the Athletic Facilities for big events and everyday workouts but also accommodates big cultural, political and educational events that bring together thousand of visitors in one day, often for several days.

Finally project's position, next to the sea and next to the new Yacht Marine, adds another use and facilitates Yacht owners' and visitors' access, in order to enjoy the new facility.

From all above, plus the proximity of the 'Karaiskaki' Soccer Stadium, 'home' of Olympiakos Soccer team, that is one of the biggest and most popular Greek soccer teams and

Metropolitan Hospital, there has been the need for parking lots that can accommodate hundreds of cars in one day. The challenge of course was to create parking lots that function as needed but also provide spaces with aesthetical value even when those were empty.

Consequently the project concerned a heavy structured area with damaged views, of litter and rubble disposal, suffering by heavy traffic jam. It's a coastal area with covered edges at the sea level, where the beach is kept far away from its physical point. The area was unorganized and without any use, unimproved and unexploited, so the remodeling of the project was big necessity.

The Design concept

When the project of reformation of the new node was defined, the coming up at that time Olympic Games of Athens 2004, Stadium and Marine, prescribed the program of the site.

The priorities were:

- Car and Pedestrian access to Stadiums (SEF and Karaiskaki), Marine, waterfront, Metropolitan Hospital, urban neibourghoods in the area, the new Tram station (Afetiria) and old Subway-Metro system,
- Car access to all the different directions mentioned before,
- landscaping the parking area creating 3 to 4 new parking lots and elaborating with trees in order to improve the microclimate and with shrubs for aesthetic purposes
- Pedestrian walking and resting areas. The creation of a satisfaction shady area along the pedestrian route
- The planting reformation of the area which aimed in future to work as a protection zone against the noise.

The Design concept was about organizing all the above in a way that function and form, practical and aesthetical issues, would be addressed, within the International Construction Standards, the best way possible. The project was divided in two main projects:

a) the multi-Node Road project, that is roads on the ground, connecting bridge-roads and ring roads, exit and entry roads coming up and the down the ground level,
b) the reforming Project, that is the Project of Design, remodeling and planting the areas in between, around and along the new car roads, on the ground and on bridges. It also includes the pavement constructions, two new water reservoirs for irrigation and the creation of four different places for parking area.

This paper refers to the second project.

The difficulties

It obvious that the Landscaping project followed the Road project therefore any delays to the Road construction influenced the Planting construction. The road construction has been submitted in July 2004 so the Landscaping project was delayed enough. During the digging procedure leads of gunshot, from the Second Global War, have been found, in active state, which needed the intervention of the army, in order to be transferred and that causes extra delays to the project. The constantly circulation of vehicles led to the construction of secondary routes and of metal bridges which ruined the surroundings in a bigger scale. The unsteady subsoil, because the whole area was filled with rubbles, demand extra stabilization which raised the budget and created financial problems. The litter and the rubbles disposal with the completion of the project was 350.000m3 and one month before the Opening Ceremony was an extremely time consuming procedure to be transferred (Kontou, et al, 2005) [6].

These delays pushed the planting period to summertime that is a very difficult situation especially in Athens, due to the high temperatures that reaches the 40dC for several days. This was risky for the new planted trees, shrubs and grass. Also that meant greater water need.

Now the landscape project is under maintenance contract that is constructor responsibility for 12 months, after finishing the construction. Another problem is the security of the whole area. Since it is open to the public, and certain days there are thousand of visitors for a football game or other event, it is difficult to control the entrance and the use of the area. So sometimes people cause damages that is a constant expanse.

3.1.3 Modulation and reformation of the surroundings and of the access route of the Olympic Athletic Centre in Nikaia, in Selepitsari and the connection with the corresponding area in Keratsini

The Landscape

This project is located in an area in the southwest of the Attica region at an old limestone quarry of 520 acres, in Selepitsari Hill, in Nikea and performs extreme climatic conditions, with high temperatures during summer and extremely low temperatures during winter, with strong winds. It's a place which has been deeply affected by dig outs.

The Nikaia Olympic Weightlifting Hall (NIH) has been constructed at part of this area and consists of a main Indoor Gym building modifying the overall landscape. Weightlifting is very popular for Greeks and the Hall was one of the first projects to

be planned and supported for the 2004 Olympic Games by the General Secretariat of Sports. The venue has supplementary areas for warming up, resting, changing,
training, hygiene-medical care and hostels for the athletes, as well as additional rooms
for security, press, spectators' services and recreation.

The design concept

The design proposals of the surrounded area of Nikaia Olympic Weightlifting Hall aimed to utilize the place as a Cultural Park of art with possibilities of recreation and athletic activities. The preexistent buildings and the outdoor spaces needed to get upgraded in order to work and function effectively during the Olympics and after. New activities aimed to attract different ages and different genders throughout the year. The idea of a connecting network of the Athletic Olympic Centre with the Keratsini area was accessible and in general the overall aesthetic improvement and the smooth adaptation of the hillside area in the surroundings. The rock faces and some special rock formation were designed to be highlight. Finally the landscape enrichment with trees, shrubs and scented plants and the ground covering with lawn were two of the main priorities in order to improve the bio-climatic conditions and elaborate the site.

The role of this Metropolitan pole will be fundamental in serving the needs of the wider area and in upgrading the Western District of Attica and, especially, of the municipalities of Piraeus [2].

Aims and [2]:

- Increasing green and open sites in the central area of Athens.
- Joining together and unifying green areas with the area of green on Lycabettus hill. The unification zone is the core, the centre where great interventions and major public works have been planned, aiming to rehabilitate of adjacent urban sites. These begin from the perimeter of the Unification Zone and develop in all four cardinal points.
- Environmental rehabilitation of this area. This will allow for an "oasis" to be created, where activities for the inhabitants of the adjoining as well as the wider area, took place, such as: Sculpture Thicket, Outdoors Theatre, Water-areas, Outdoors Sports and Refreshment Stand etc.
- The construction of a Cultural Park.
- Removal of specific installations and activities and rendering of the respective area for public use or for welfare activities.
- Unifying cultural activities and associating them with other related activities of the wider area.
- Creating a network of pedestrian walkways incorporated in the unified green areas giving also ease access at the stadium and the surrounding areas to people with special needs.
- Arranging traffic and parking of vehicles, procuring the unity of the area.
- Building subterranean parking areas, "diversion" and "service", that will meet the needs of the total area. Building subterranean parking areas, "diversion" and "service", that will meet the needs of the total area.

The difficulties

The design proposals have been altered because of constructions transitions and because of the weakness to find the appropriate plants, during the summer time.

The connection with the Keratsini area couldn't archive due to properties reasons. The whole project has been delayed because of bureaucracy reasons. Therefore the whole project has been constructed in time in extremely time pressure. Underground irrigation system was established in a very short time and then the planting works was followed up. Some irrigations problems cause the usage of specific plants tolerant to salty water that has been solved with the regularity of watering. The

extremely high temperature of the exposed site caused several problems too the stock of plants tha were at the site and at the planting procedure, but several solutions was given at the site (e.g. watered all the time, sensitive plants were planted during the evening). Now the landscape project is under maintenance contract that is constructor responsibility for 12 months, after finishing the construction.

3.1.4 Land restoration of Lycabettus slopes for mountain cycling.

The Landscape

This project concerns a limestone rock reaching almost 227m. of height and is extended 350 acres in the heart of Athens. The hill of Lycabettus offers a unique sight of Attica's peninsula to Athens, Piraeus and the Saronikos golf.

This project includes landscaping projects and mainly landscape transportation projects for the Olympic Games by special reference on the cycling route, which circle the Lycabetus hill slopes, an urban ring road around a main green historical area of Athens. Due to the special natural ecosystem, the technical difficulties (high slopes) and the long history of this site, the development and the landscape design of this project is a highly challenging task and requires methods for ecological balance.

During the last century Lucabettus was a bare hill in Athens where several quarries were taking place and only some natural herbs thieved there. Different Plans took part in the past for the design of reforestation and restoration of Lycabettus [7]. Entirely, in 1930 Lycabettus Hill has been reforestated by Pinus brutia, Cupressus sempervirens and by a shrubbery of maque species. At the same time the quarries where closed and Lycabettus theatre was build. After the remodelling in 1977 Lycabettus theatre hosts various theatrical performances and concerts [7] and its quiet famous to Greeks.

The Design concept

The implementation of landscape design in this project, aimed to restore the landscape which have been affected by the construction works, incorporating transport work into the landscape, emphasizing on areas of particular interest (e.g. rest areas) while at the same time observing the principles of an efficient operation and safe use of the alignment. The circle road during the Olympic Games crossed the central of Athens city with its main part crossing the surrounding road of Lycabetus hill. This was a unique change for improving the factional and the aesthetic quality of the slope, since Lycabetus is one of the main green areas of the city centre of Athens (with Pedion Areos and National Gardens).

The present application of the landscape restoration aimed to provide, among others for the protection of slopes against surface erosion and the reinforcement of their stability, the improvement of road functionality, and the aesthetic improvement of the landscape, adaptation of the road landscape to the greater environment and visual guidance of the user.

The landscape design strategy and landscape applications considered as part of the sustainable development of the road creating a highly an esthetic scenery, ensuring the security of transportation the environmental protection.

The difficulties

The initial design proposals didn't take on consideration the historical and cultural value of Lycabetus Hill, so the plans should be altered and modified in order to impress the high aesthetic value of the surroundings, and native species should only be used.

The organization committee in order to serve the needs of the athletes, of the visitors and of the providers (sponsors), was making alterations in the road and sidewalk design, caused in correspondence alterations to the Landscape projects.

Finally serious problems caused by soil erosion, led to the construction of a retaining wall, for slope stabilization, which should be covered by climbing plants.

4. Conclusions – Future recommendations

In Greece during the preparation of the Olympic Games 2004, have been constructed many important infrastructure projects, which with their function manage to enhance the quality of life in Athens, releasing the circulatory problems, increasing the percentage of greenery and creating recreational areas [8] .

Determinant factor to the completion of each one project was the Opening Ceremony of the Olympic Games which worked catalytic to the immediateness of taking decisions and making actions.

Greece proved for another time that is able to bring up any responsibility with great coherence, and with great success. Cultural, social and urban-nature environment of Attica have been taken seriously in consideration and the design proposals have been adapted to the special needs to the pre-existent statement, of each one space.

Olympic Games so far, was the most important chance for Greece to define, design and construct Landscape projects. It was a new aspect to spend a significant budget in Landscape Architecture budget, in the Outdoor Spaces Formation and Modulation, and to the Landscape aesthetical improvement of cities and urban spaces. But if it was given more effort to the landscape design, the city could present an even better impression. But unfortunately the Landscape Architecture is not a recognized profession still in Greece, so not many Landscape Architects have been involved in the designs. Greek bureaucracy needs law revision about the Studies and the Implementations projects and needs to release the mechanism actuators, coo-coordinating effectively the administration teams. Management conservation and maintenance should be clarified and be assigned to an administration team work, ensured the project's conservation.

The public participation should be promoted and encouraged in future projects, so that user's opinion, prospect and special needs, to be taken in consideration.

Landscape Architecture increases the quality and value of the urban sites, so we should invest to environment for future recognition.

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