

# **THE NATURAL ENVIRONMENT IN THE CONTEMPORARY URBAN LANDSCAPE: EXISTING CONDITION AND ALTERNATIVE APPROACHES TOWARDS ENHANCEMENT**

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## **Abstract**

One of the prevalent malfunctions of the contemporary urban landscape pertains to the disruption of the natural environment's procedures and consequently, the breach of the equilibrium in the composite urban ecosystem.

This paper deals with the most common forms of abuse and degradation of the natural elements (vegetation, ground, water and air) within the contemporary urban environment, examining the cause for this abuse in dependence with the conventions of the modern way of living. Furthermore, the impact on the quality of urban spaces and the living within is mentioned. The urgent need for adopting an attitude towards sustainability is underlined by making a brief reference to its multiple advantages - ecological, social, cultural and economic.

The main part of the study focuses on proposals made in terms of a sustainable development for the prospective urban landscape. Emphasis is laid, amongst others, on the need for redefining the relation between the natural systems and the urbanization processes; for new design strategies concerning both the public open spaces and the green areas (urban and suburban) by taking into consideration all the natural environment parameters; for collaboration between all the scientific fields involved; and the creation of a network of green areas aiming at the balanced distribution of open spaces into the urban web.

Additionally, there are mentioned the current tendencies on the issue of upgrading and enhancing the natural environment of the urban landscape, as these are outlined by the announcements of international competitions, European Programs and Actions, Academic Research Programs etc.

**Key words: urbanism, ecology, integration, landscape.**

## **1. Introduction**

The degradation of the natural environment followed by the impacts on the quality of living within the contemporary city are global phenomena which vary from place to place in accordance to the social, economic, political and environmental status of the region. The rapid growth of the modern city has caused severe disturbance to the natural environment of the urban and suburban space. It is recognized that urbanization processes, both traditional and modern, seem to function at the expense of the natural ecosystem, for they entail the interruption or alteration of the physical processes by depleting the natural resources and overburdening the ecological equilibrium. Particularly in the case of an anarchic development of the urban tissue – the case in most greek cities – the effects on the natural elements are nonreversible. In countries with less stringent inspectional procedures and ambiguous environmental legislation, there appears an unprecedented deterioration of the natural elements within the urban space and an intensive growth of the building pressure on the peri-urban environment.

## **2. Environmental degradation in the contemporary urban landscape.**

### **2.1. Origins.**

At an international level, the blistering pace of the modern way of living has dramatically modified the familiar image of the urban landscape, as it had been formed until the age of the technological revolution, economic migration and social upheavals in the 1990's. The technological progress and economic globalization, which dramatically affect the communications, mobility, work, human relations and culture, (see D. Massey and P. Jess, 1995) are clearly imprinted on the use and perception of urban space by changing its structure and function. In addition, the high rise of the economic land value of the city centers -

leading to high densities - gives priority to the built against the open space. The natural environment is thus diminished or eliminated and both the quantity and quality of the physical elements are severely affected.

Moreover, in a decision-making and organizational level, there are a number of issues that contribute to the environmental degradation. These factors - which have been obliterated or modulated in the modern western world – are the following: the absence of spatial planning, deficiency or late implementation of city plans, loose environmental restrictions on the application of infrastructural works, inability of producing integrated management plans, a tolerance to arbitrariness, and the absence of an environmental ethic among the public. The overall inefficiency to organize in advance and rationalize regional and urban planning with environmental policies and long-term objectives has added and continues to sustain the effect of “the inhuman jungle of modern cities”.

### **2.3. Forms and impacts.**

The forms of abuse of the natural elements within the contemporary city appear in numerous ways. The most important among these are briefly the following:

- alteration and loss of natural elements:
  - change of the land’s relief
  - impact on the soil conditions (contamination, compaction etc.)
  - contamination of the subterranean water and impact on the aquifers
  - encroachment of the streams
  - alteration of the coastal front and sea shore
  - elimination of the natural vegetation and changes in the flora composition
  - air and noise pollution
- prevalence of unfavourable microclimatic conditions
- dramatic decrease and /or loss of the green areas
- alteration of the natural environment in the peri-urban regions

Their impacts on urban living are equally familiar:

- reduction of the aesthetic, cultural, economic and ecological value of the urban landscape, leading to the degradation of the quality of living for both the inhabitants and visitors
- intensification of natural disasters (floods etc) in the cities
- diminished potential of relief to the peri-urban environment

## **3. Need for of a sustainable development in the urban landscape**

All the above seem to form a chain reaction of maladies that causes serious disfunction on the social, financial, cultural and ecological structure of the urban landscape. Nowadays, considering the rise of climatic change and global activation for the protection of the natural environment, the necessity for a sustainable treatment and re-claim of the natural environment in the crowded city centers is an issue of high priority for the safeguard of, at least, a minimal environmental equilibrium in the cities. The awakening of urban ecology brings forward issues of programming and co-ordination of technical actions, overall management and design of the urban landscape for the amelioration of the natural conditions within the built environment.

In ecological terms, sustainable treatment is the use of the natural resources so that a future quality and balance is ensured. The concept of sustainability is multifaceted and allows various interpretations. Referring to the notion of sustainable development, the triptyque “natural environment - economy - society” adequately describes the basic parameters of sustainability (WWF Hellas, 2008) which, as concerns the urban landscape, brings forward the issues of preserving natural reserves, establishing biodiversity and achieving a viable relation between human and the environment (see V. Kalogeropoulou, 2003). In the case of densely built urban space, sustainable management and design would upgrade the conditions of living, enhance the quality of urban landscape and secure a favourable balance for the future.

#### **4. Redefining the relation between the natural environment and the urban space.**

##### ***4.1. Alternative approaches towards enhancement.***

The contemporary discourse surrounding landscape architecture brings forward a relatively new notion of the urban landscape. Cities are considered to be just as “ecological” as nature, as the formation of both is mainly a matter of process (see D. Harvey, 1990), for they both comprise complicated systems of dynamic relationships and interaction among their individual elements (see M. Tratsela, 2008) – that is, among the physical elements for nature, and the infrastructures, society, natural environment etc for the urban landscape. Thus, similarly to nature, no aspect of the urban landscape - ecology, culture, economy, policies etc - could be isolated and comprehended as an autonomous parameter in the urban space formation procedure. As an integral part of the landscape and strongly interrelated to the rest, the natural environment equally participates to the formation of the whole.

Many environmentalists consider nature as being disconnected from the cultural aspect of the world; but it is often the natural environment itself that determines our sense of belonging to a specific space and time and strongly participates to the formation of an identity of a place (see B. Pedroli, A. van Doorn, etc, 2007), demonstrating already an interaction between ecology and culture. Therefore, it seems that the traditional ways of dealing with environmental issues through projects of rehabilitation for example, environmental protection and restoration, which are solely ecologically oriented, seem to fail to adequately address the source of the environmental problems and maladies, which, nevertheless, have usually social origin (see J. Corner, 1999).

Moreover, socio-spatial phenomena, such as the massive deindustrialization of the city centers, urban sprawl, mobility, high-tech communications and circulation systems, rapid exchange of people or materials – visible and invisible-, are inevitably interacting with the natural systems and processes; which means that the mutability of the contemporary society with its continuously changing needs and the new forms of expression emerging from the modern way of living, demands alternative ways and methods on behalf of the designers in order to comprehend the contemporary urban landscape. As a consequence, correspondingly to the environmental projects, urban or landscape design projects, which primarily focus on functional and aesthetic issues or the cultural enhancement of the cityscape, without taking into consideration the environmental parameter as equivalent, seem unable to deal with impoverished or diversified ecologies within the urban environment.

As the landscape architect and theorist James Corner points out “those who continue to assert unreflective, sentimental ideas of nature and landscape simply suppress cultural experimentation and the development of alternative modes of landscape practice”, whereas, on the other hand, reduce the possibilities of generating new modes for restoring the predicaments of the physical environment.

Consequently, within the context of a landscape approach, which embodies all the manifestations of the contemporary landscape from a social, ecological and perceptual point of view (M. Ananiadou - Tzimopoulou, 2005: 563), any effort to deal with ecological issues in the city environment ought to form part of an overall landscape design approach. In other words, environmental projects should be merged with wider landscape architecture projects, which, among other, aim to recover the attributes of the space, such as place, memory, ecology and culture, suggest seminal ideas for new forms of urban space and at the same time outline the potential futures of the landscape as a whole.

It seems that new strategies, or rather, organizational frameworks involving space, human and natural processes and their associated temporality should be invented, presuming that design does not emulate nature, and that infrastructures do not necessarily function at the expense of natural reserves within the urban landscape. Such strategies should be developed under the veil of landscape as the basic framework for an urban transformation.

The need for redefining the relation between the natural systems and the urbanization processes is reflected within the emergent notion of “Landscape Urbanism”, which considers landscape to be a “lens through which the contemporary city is represented and a medium through which it is constructed” (Ch. Waldheim, 2006:15). According to Waldheim, it is a design discipline operating in the spaces between buildings, infrastructural systems, and natural ecologies. One of the advantages of landscape urbanism, as Waldheim mentions, is the conflation, integration, and fluid exchange between environmental - meaning natural - and infrastructural, thus engineered, systems.

#### 4.2. From theory to practice.

These ideas are found in current landscape theory - there are a large number of papers, publications and manifestos concerning Landscape Urbanism written mainly by landscape architects in North America and Europe - whereas, they are promoted worldwide through international competitions - some of them being implemented - on urban landscape design, urban regeneration and development, as well as through academic research programs.

A representative example is the ideas competition “Urban Voids: Grounds for change” (*figure 1.*) by the Van Alen Institute concerning the landscape regeneration of the city of Philadelphia. The competition’s objective, set out by a multidisciplinary committee, focused on generating new possibilities for designing a comprehensive view of the city’s urban fabric that would create a new relationship between ecology and the built environment.... attaining to reconnect the vacant land to the city’s existing green infrastructure.



*Figure 1. “ Waterwork”. Winning project by Juliet Geldi, Gavin Rigall, Charles Loomis Chariss Mc Fee Architects. Photograph in [www.vanalen.org/urbanvoids](http://www.vanalen.org/urbanvoids).*

The winning project proposes a strategy to reclaim vacant sites by recreating them as public green filters by capturing and redirecting water flow. More specifically, the design proposal incorporates a system to capture water on all the houses in a neighbourhood for the use of naturally cleaned storm-water run-off, combining it with the use of existing city transit systems – railways and roadbeds - as sites for new underground gravel cisterns and byways. This would activate and create new urban streams, community spray parks and new biking and pedestrian trails. The design proposal illustrates an effort to add social and economic value to urban watershed.

Another example professing relevant views is the competition for Downsview Park in Toronto - the urban park design of a former 320-acre military base (*Figure 2.*), which aimed to provide a complex landscape, offering both passive and active recreation, while promoting environmental sustainability, new ecologies and the rich heritage of the site. The competition brief “engaged ecology by recognizing that human agency and the evolution of the environment are inseparable, suggesting that the design schemes cope with, and indulge the complex requirements of an evolving natural system, its cohabiting complex urban



system, and the mutually emergent result ... and invited the competitors to “play” with the processes of the site - water, soil, vegetation and habitat –” (J. Czerniak, 2001:16).

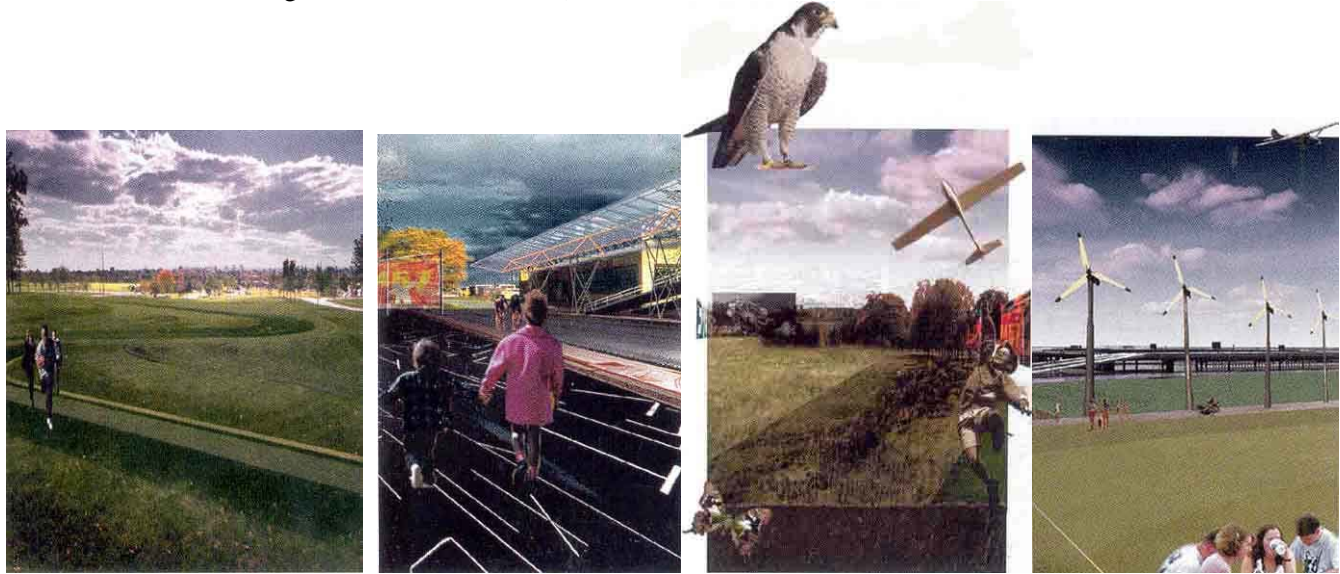


Figure 2. “Emergent Ecologies”, J. Corner /Field Operations, Stan Allen, Stan Allen Architect et al. Photographs in Czerniak, J. (ed.), (2001) *Case: Downsview Park Toronto*, Cambridge / New York, Harvard / Prestel.

The winning design -“Agri-tecture” by Field Operations – Diller, Scofidio and Renfro - (Figure 3.) for the High Line (FHL) competition in New York – an abandoned elevated railway line -, revises the relation between pedestrians and nature through a dynamic, programmatic network of changing densities of built and natural environment.



Figure 3. Field Operations (landscape architects) and Diller Scofidio + Renfro with Olafur Eliasson, Piet Oudolf, and Buro Happold (architects). [www.thehighline.org/design/competitiondesigns.html](http://www.thehighline.org/design/competitiondesigns.html)

Correspondingly, in the international competition for the Metropolitan Park and urban development of former airport of Hellenikon in Athens, the winning design (Iterae – OLM) (Figure 4., 5.) proposed the establishment of a self-sustained system including surface water collection, vegetation, circulation network and infrastructures.

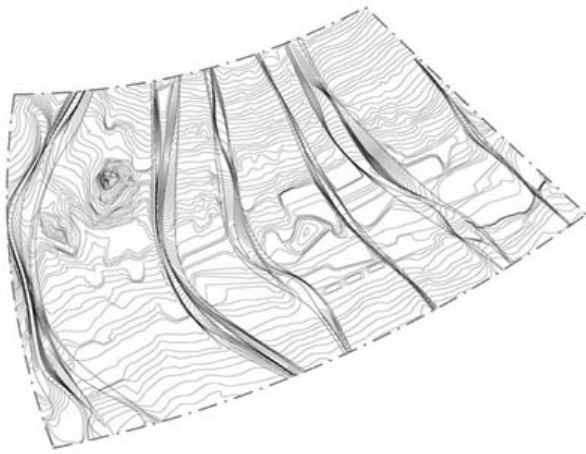


Figure 4. Diagram of the water drainage system. Figure 5. Site plan.  
<http://architettura.supereva.com/architettura/20050514/index.htm>

Albeit the significant differences from one competition to another, in almost all proposals there is a corresponding attempt to redefine the relation between the natural environment and the urban space, aiming to reconcile human activities with the natural world through landscape design.

University research programs sharing similar views are also being carried out. A representative example is the “Strategic and Operational Project for the Green Areas of Thessaloniki” (M. Ananiadou - Tzimopoulou, S. Diamantopoulos, etc, 2004) carried out recently by the School of Architecture of the Aristotle University, authorized by the city’s Organization for the Master Plan Implementation and Environmental Protection. The working team composed of scientists of different faculties, both designers and environmentalists, such as architects, landscape architects, urban planners, foresters, ecologists etc. The outcome of the project is cited in a range of principles and a city master plan (Figure 6.), which, among others, underline the need for a nature and city conflation into a common design strategy for the future urban landscape of Thessaloniki.



Figure 6. Master plan of the city in the “Strategic and Operational Project for the Green Areas of Thessaloniki”.



#### 4.2. Interdisciplinary collaboration

A common feature of the afore-mentioned design approaches is the interdisciplinary character of the working groups. The members of both the working teams of the projects and the scientific committees of the competitions came of different scientific backgrounds. Environmentalists, such as ecologists, foresters, horticulturists, geographers, geologists etc, and designers - architects, landscape architects, urban designers and planners, engineers etc - cooperated closely through out all the stages of the design procedure, in order to integrate the up-to-date knowledge and methods of the various scientific fields involved.

The multifaceted contemporary urban landscape and its growing complexity enforces the collaboration of a wide range of scientific fields, as the very isolation of disciplinary spheres limits our ability to affect change (see Czerniak, J. 2001) within our society and the urban space.

Within the context of the above mentioned landscape design approach, experts from different domains are invited to work collectively on individual projects. Apart from the domains already mentioned, it is often indispensable to work with artists, urban sociologists, psychologists and others. In addition, and especially in the case of wide urban regeneration projects, the involvement of the public, through local committees, environmental groups, relevant organizations, institutions, local authorities and individuals, is important, for they have much to offer by conveying the living experience of the place as well as their future aspirations and visions for the new place to be.

#### 5. Conclusions

The natural environment within the urban space is - if not eliminated - severely damaged. The hyper-modern way of living in the contemporary metropolis comprises the common denominator for both the alteration of the urban landscape and the degradation of its natural components. Thus, it seems that new economic, social and cultural conditions worldwide compel the pursuit of alternative modes for meeting the new environmental challenges within the urban space. In order to achieve the maximum effect possible for a sustainable urban landscape, it is needed a convergence of natural and anthropogenic elements on a unified, non-static urban ecosystem. As Corner argues (1999:14), "an ecology of human creativity ... has yet to be developed in resistance to an uncritical, scientific ecology that refers to an increasingly abstract "environment". The current discourses in the scientific field of landscape architecture suggest alternative approaches through landscape design, in which city is no longer considered as alien and detached from nature or as a system irreconcilable with the principles of ecology and vice-versa.

Moreover, the peri-urban environment, despite the threat of the increasing urban sprawl, still possesses a significant potential for upgrading and enhancement; it is thus playing a major role in contemporary urban and landscape design. The assurance of the physical processes and the protection of the sensitive natural reserves within it, as well as the equivalent and reciprocal correlation to the urban landscape could significantly improve the environmental equilibrium citywide by forming the appropriate conditions for recovering the natural environment and optimizing the natural processes into the urban space.

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