URBAN ENVIRONMENTAL DEGRADATION: REALITIES AND HISTORICAL ILLUSIONS

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ABSTRACT

Every day citizens and visitors in Greek cities often find themselves constantly struggling with impediments: obstacles to their movement, their vision, to breathing air, etc. One cannot walk without being cautious so as not to stumble over a poorly repaired sidewalk, although it would have been easy to repair. You may find yourself next to the sea, but blocks of flats may hide it from you, restricting you to an endless maze, even though studies highlight the benefits for human health when coexisting with the natural bodies of water. One almost seems to be always close to roads with many car lanes and high traffic volumes; again despite the fact that studies highlight the adverse effects of car emissions on health. Why is this happening? Why do we choose and create such conditions? This paper attempts to shed some light on these questions by examining selected historical references to the 'promised lands' and some of the causes of the contemporary urban environmental degradation. The discussion focuses on an effort to comprehend the gap between the existence of urban environmental proposals and their lack of implementation at a greater scale, by (a) examining theories and proposals of major scholars concerning the environmental upgrading of urban space and by (b) examining the causes of the existing environmental urban degradation that currently affect many cities.

Keywords: contemporary urban degradation; health and urban degradation; history of urban environmental design; urbanization problems

Introduction

Being in a city often involves a certain degree of pain. More often than we might have hoped for, everyday life appears to be filled with impediments to all the primary needs of human beings, such as the need to breathe fresh unpolluted air. However, the exhaust fumes of cars and industrial facilities that cause air pollution are but only one effect, out of many, of urban degradation. This everyday reality, nonetheless, seems rather distant from many urban environmental proposals. From implemented examples, such as the Bo01 in Malmö, Sweden, to proposals of stunning imagery, such as Vincent Callebaut's 'Paris Smart City 2050', urban environmental projects appear truly captivating and promising. Indeed, while studying, researching and working in the field of urban environmental design one might be impressed by wondrous images, marvellous ideas and promising examples of the environmental 'promised lands' proposed by various researchers, scholars and professionals throughout history; surely alluring dreams, so much desired. Yet, more often than not, contemporary cities seem to fall short of these environmental 'promised lands', so much so that it may trigger troubling thoughts concerning their mere existence. Where could they be?

This paper, however, is not an attempt to find them. Instead, it tries to shed some light and draw attention to this curious phenomenon of the fact that although proposed solutions exist, for at least a couple of thousand years now, in terms of the environmental design of cities, their implementation and especially their long term and continuous application, appear to be somewhat deficient and in many cases totally absent.

This study will begin with a short exploration of 'past promised lands', mainly views throughout history concerning environmental notions and the city. Despite these conceptions, urban degradation is widespread. Then, we continue by discussing some of the causes that lead today to urban degradation, and we conclude with some closing remarks and a short discussion at the end.

Past Environmental 'Promised Lands'

One of the best known works on environmental urban design is no other than Vitruvius' *The Ten Books On Architecture*, the ancient textbook of good design and construction practices. Vitruvius (1st century B.C.) appears rather adamant in terms of what the architect/urban designer/urban planner needs to know 'the architect should also have knowledge of the study of medicine on account of the questions of climates …, air, the healthiness and unhealthiness of sites, and the use of different waters' (Vitruvius 1960). He then continues noting that the art of building is divided into two parts: 'the construction of fortified towns and works for general use in public spaces, and the second is the putting up of structures for private individuals' (Vitruvius 1960). Next, he marks the importance of a good choice of a site for a city, which needs to be 'a very healthy site' (Vitruvius 1960). He then refers to all those environmental aspects that he considers relevant. For example, he discusses the direction of the streets in terms of air movement, being rather meticulous about the effect of different winds on human health, and the way to block those that are considered unhealthy (Vitruvius 1960). Reading Vitruvius' work and particularly the above-mentioned parts, one cannot be but amazed by the environmental consciousness and the related design solutions that he presents. Surely, one might think, the world of his time had found and implemented these
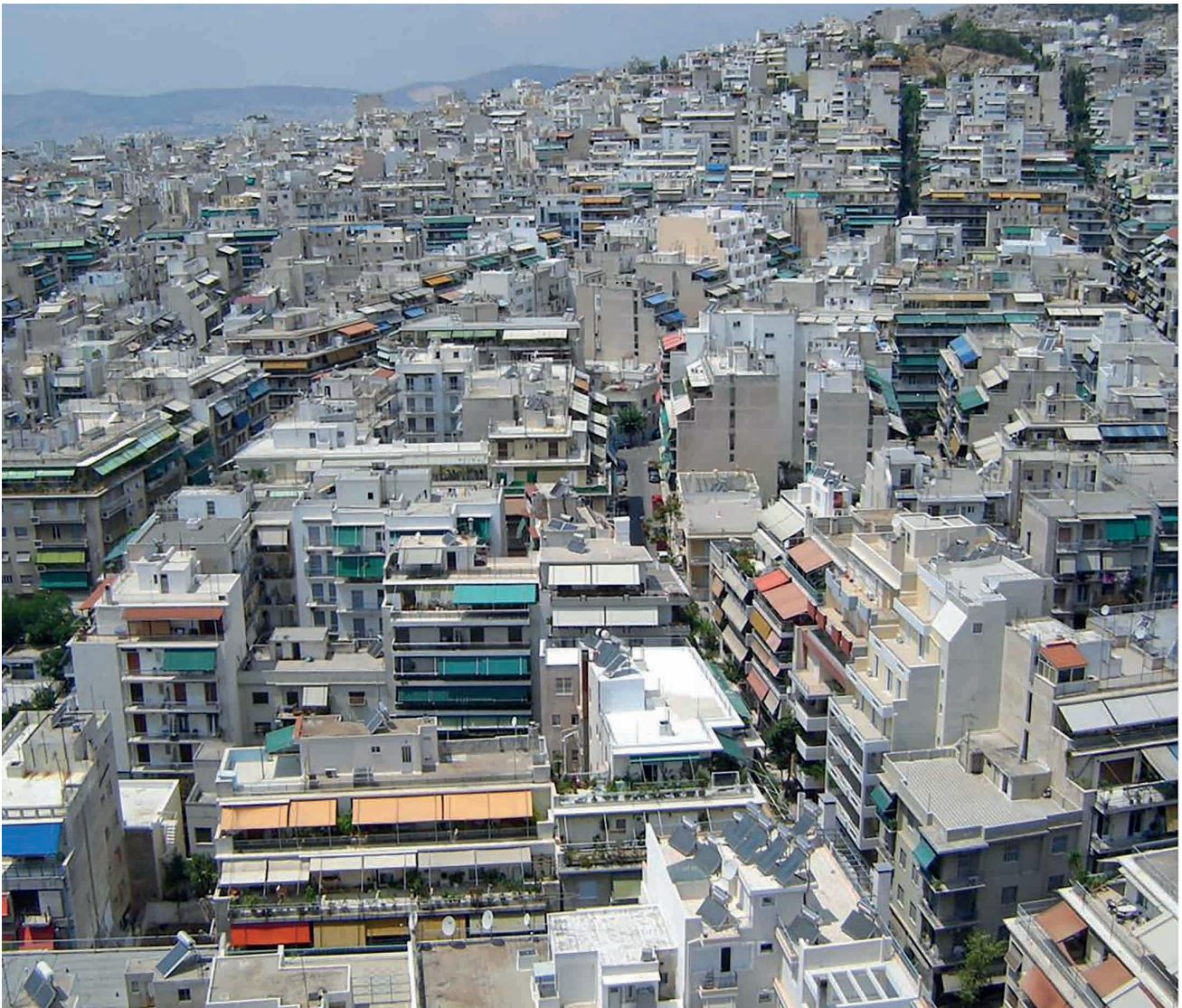
Fig. 1 A view of a central section of Athens, Greece (Photo: Syrakoy AC).

solutions, and the images of ancient cities were not only pleasing to the eye, but also environmentally pleasing. But were they truly? Indeed, ancient cities like Priene appear to have a design that does seem to follow the principles of environmental design: 'the site on which the city was founded was chosen according to criteria that applied generally to Hellenistic cities: to facilitate ventilation and to make the best possible use of sunlight, the building complex should face south and be built on different levels' (Dontas 2000). Yet, the city during Vitruvius' time, the capital of the Roman Empire, Rome, does not seem to have followed similar patterns, as accounts from that era portray a completely different picture. It is noted that 'Tacitus attributes the ease and speed with which the terrible fire of 64 A.D. spread through Rome to the anarchy of these confined streets winding and twisting as if they had been drawn haphazard between the masses of giant insulae' (Carcopino 1941). In addition, the majority of streets 'were daily defiled by the filth and refuse of the neighbouring houses and were neither so well kept as Caesar had decreed in his law, nor always furnished with

the foot-paths and paving that he had also prescribed' (Carcopino 1941). Where is Vitruvius' 'promised land'? Again reality seems to be rather distant from what seems to be the 'right way' of doing things.

Certainly Vitruvius' example is not the only one to have provided guidelines for 'good' environmental design in contrast to what can be seen in everyday life. An interesting example appears in the work of Ibn Khaldûn in the 14th century. Similar to Vitruvius, he also highlights environmental concerns about how the selection of a site for an urban settlement and design of the city can affect health. For example, he notes that overcrowding in cities has resulted in degradation of air quality, leading to epidemics, and that: 'science has made it clear that it is necessary to have empty and waste regions interspersed between urban areas. This makes circulation of air possible. It removes the corruption and putrefaction affecting the air after contact with living beings, and brings healthy air. This is also the reason why pestilences occur much more frequently in densely populated cities than elsewhere, as for instance in Cairo in the East and Fez in the Mahrib'

(Ibn Khaldûn 2005). In general, Ibn Khaldûn appears to support the idea that the low air quality in cities as well as other factors, such as lack of exercise of their citizens, lead to health problems, in contrast to the inhabitants in rural areas (Ibn Khaldûn 2005).

Another supporter of the idea that the conditions in cities were not always desirable was Andrea Palladio in the 16th century. Interestingly he notes that a 'Gentleman' is sometimes 'obliged' to reside in the city, and then continues by referring to the advantages of having a house in the countryside where he can '… preserve his body strong and healthy … and the mind being over labored by the fatigues of the city, will be singularly recruited and recreated' (Palladio 1715). The 'Situation' of the buildings in the country appears to be of the outmost importance, since '… not being commonly (as in Towns) straitened for room by public buildings, nor confined by our neighbours to certain determinate bounds, it is the duty of an able Architect to find out with all care and diligence the most commodious and healthy places' (Palladio 1715) Palladio also highlights environmental concerns in the design of the city. For example, he begins his chapter titled 'Of the compartment of the Ways (or Streets) within the City' as follows: 'In the compartment, or distribution of the Ways in a City, or Town, regard must be ever had to the temperament of the air, and also to the region of Heaven, or the climate under which the place is situated: because where the air is cold or temperate, there the Streets ought to be made large and noble, since thereby the City will become more wholesome, convenient, and beautiful: it by being certain, that by how much less piercing, and withal by how much freer the air is, by so much more a Town is situated in a cold place, or in a piercing air, and that the houses are high, by so much the larger ought the Streets to be made, that they may be visited by the Sun in every part of them … But if a Town is situated in a hot climate, the Streets ought to be made narrow and the houses built high; that by the shade and straightness of the passage, the heat of the air may be tempered, and consequently that it may become more healthy …' (Palladio 1715).

By the end of the 19th century and early 20th century, the proposal of Sir Ebenezer Howard *Garden Cities* (1898 and 1902) (Howard 2001) appears to be yet another example of an attempt to introduce environmental design notions on the urban fabric. This study seems to have had a profound influence mainly in the UK, after World War II, when the New Towns Act (1946) adopted Ebenezer Howard's concept. The concept of the garden city has been also influential in the US as well as elsewhere.

Later, the Modern Movement showed initially environmental design sensitivities. For example, one of its leading figures, Le Corbusier (1887–1965), notes in his book *Towards a New Architecture*, the following: 'Instead of our towns being laid out in massive quadrangles, with the streets in narrow trenches walled in by seven-storeyed buildings set perpendicular on the pavement and enclosing unhealthy courtyards, airless and sunless wells, our new layout… would show great blocks of houses with successive set-backs, stretching along arterial avenues. No more courtyards, but flats opening on every side to air and light, and looking, not on the puny trees of our boulevards of to-day, but upon green sward, sports grounds and abundant plantations of trees' (Le Corbusier 1986).

However, despite Le Corbusier's best intensions, he was later accused that his Modernized ideas regarding pure minimal form, his favourite material reinforced concrete, industrial materials and methods, etc. 'could ruin the harmony of an entire townscape … and have … destroyed the appearance of the entire city' (Dalrymple 2009). In general, the Modern Movement has been possibly harshly, yet perhaps justly, criticized for quite a few things, such as for the deterministic views on how people are supposed to live their lives: 'when architecture develops without any consideration of the social conditions within which it operates, it is inevitable that the "purity" it aims for is no more than an illusion' (Heynen 1999); an illusion from whose ramifications we are still today, as it often seems, trying to free ourselves.

Looking at the above examples it becomes evident that guidelines and recommendations existed throughout history in terms of the environmental design of cities. Nevertheless, as it is perhaps also rather clear, these were most of the time design theories for a utopia, since they never fully worked in real everyday life. Why did this happen? Why does it seem so difficult to implement our environmental design ideas and instead are left to what seems to be an eternal struggle against urban degradation? As it seems, if we really want to be crowned winners of this fight, it is imperative to fully understand the core of this struggle, and hence to look at the causes of urban degradation. Perhaps these causes concerning the previously mentioned past examples are somewhat in part hidden into the realms of time, yet contemporary causes of urban degradation are more accessible to us and are certainly pressingly demanding solutions. Hence, we will proceed in viewing some of the more contemporary causes of urban degradation in order to understand the complexity of this issue.

Causes of Urban Degradation

Defining the causes of urban degradation seems to be a somewhat confounding subject. Researchers believe that: 'urban degradation appears to be a fact in several urban landscapes, with different characteristics, different historical development, in different cultural, social, economic and geographical environments, etc. Therefore, the causes of urban degradation may vary from region to region and from one time period to another' (Syrakoy 2012). However, if we were to name but a few, studies have shown that the main causes of contemporary glo-

balized urban environmental degradation, as is discussed below, are connected with the rapid and uncontrolled urbanization, the negative aspects of urban expansion (urban sprawl or/and compactness) and the devastating priority of economic growth.

The rapid and uncontrolled urbanization

According to the World Health Organization (WHO n.d.), 'the urban population in 2014 accounted for 54% of the total global population, up from 34% in 1960, and continues to grow'. WHO, through the Global Health Observatory (GHO) data, records the emerging trends concerning the global urban population growth: 'The global urban population is expected to grow approximately 1.84% per year between 2015 and 2020, 1.63% per year between 2020 and 2025, and 1.44% per year between 2025 and 2030.'

There are, however, countries, such as Greece, where the percentage of the population living in urban areas seems to exceed the 54% mentioned by WHO. The urban population of Greece appears to be continuously growing. The National Statistical Service of Greece (NSSG, 1983, 1993, 2004) shows that while in 1920 the urban population reached 38.1% of the total population, in the 2001 census it reached 75.1% (Chatzicocoli and Syrakos 2006). During this period, the sharpest growing curve is recorded between the 1961 and 1971 census, which '… indicates the period of time of the most rapid urbanization in Greece' (Chatzicocoli and Syrakos 2006). Nevertheless, a comparative levelness of the growth of the urban population is indicated by the censuses from the last decades (1981–2001), during which time '… the rate of urban population growth has been 14.77% per decade, approximately double the rate of the total population growth in Greece, which, for the same period of time, has been 8.14% per decade' (Chatzicocoli and Syrakos 2006).

More recent data (CIA 2016) shows that the urban population in Greece had already reached 78% of total population in 2015, while the annual rate of change (estimated for the period 2010–2015) of urbanization is 0.47%.

The negative aspects of urban expansion (urban sprawl or compactness)

In response to rapid urbanization, cities, planned or 'unplanned', have expanded significantly by sprawling or/and by 'compacting'. Thus urban planners have to face the problem that 'many cities are expanding at rates that exceed their capacity to accommodate the growing population' (WHO-UN Habitat 2016).

One form of urban expansion is by stretching the city's limits, a phenomenon known as urban sprawl. Residents of the sprawling parts of the cities might have different characteristics and needs. For example, they might be somewhat wealthy residents seeking more space in lower density areas; or comparatively poorer residents who seek more affordable housing at the periphery of the urban nucleus or constructing informal settlements at the fringe of the city, where there is usually a shortage or even absence of city services and insufficient infrastructure (WHO-UN Habitat 2016). The sprawling cities' problems include: less accessible necessities of everyday life (markets, healthcare facilities, schools, etc.) for many residents that become more car-dependent, especially private motor vehicles, driving longer distances, resulting in high energy consumption (WHO-UN Habitat 2016). Furthermore, health problems are directly linked to air pollution and traffic accidents, which, among other reasons, are also caused by the increase in numbers of private motor vehicles combined with the increase in the distances travelled, hence longer trip lengths, due to lower population density (Hanaki 2011).

A city, however, cannot only expand 'outwards' (sprawl), it can also expand 'inwards' by increasing urban compactness and the 'density' of the city, leading to urban crowding. This can lead to a limited housing supply, which, in turn, can lead to an increase in house/apartment prices and rents. As studies have shown (ODPM 2004) urban crowding can also be a cause of ill-health.

The priority for economic growth

According to UN-Habitat (2011) 'cities have become engines for economic growth, generating more than 80% of global economic activity'. By also taking into account the global economic competition of cities, it might be understandable that the qualitative needs of citizens and the environmental aspects of cities have been, in many instances, excluded from the planning and design priorities of the designers. In addition, according to WHO-UN-Habitat (2016) 'when people and their quality of life are not recognized as priorities, the consequences are likely to be at least unhealthy and at worst fatal'. These consequences usually include 'substandard housing, traffic-clogged streets, toxic air quality and underserved neighborhoods' (WHO-UN Habitat 2016). It is also understandable that often the areas of cities where people on low incomes dwell are mostly affected, and thus those people are further driven into poverty and despair (WHO-UN Habitat 2016). However, there seems to be a shift in the understanding of what economic growth and economic competitiveness means and how it should be implemented. For example, it is noted in the 2003-2004 Global Competitiveness Report of the World Economic Forum, that the Global Competitiveness Index is based on 'three central ideas', which seem to revolve around '"three pillars" … on which the process of economic growth rests': '… the macroeconomic environment, the quality of public institutions and technology' (Blanke et al 2004). However, we can see today in the 2017–2018 Global Competitiveness Report that among the 12 pillars 'that matter for productivity and long-term prosperity' on which the Global Competitiveness Index is based, is number four: health and primary education. Health and primary education are in fact also placed in

Fig. 2 Urban sprawl around Thessaloniki, Greece (Photo: Syrakoy AC).

the 'Basic Requirements' list of the Global Competitiveness Index (Schwab 2017). Nevertheless, the implementation of measures to support this fourth pillar seems slow and limited on a global scale.

From the above it becomes perhaps evident that even the few mentions of some of the causes of urban degradation (rapid and uncontrolled urbanization, negative aspects of urban expansion and priority on economic growth), present quite complex issues. Urban environmental proposals for solving some of them might seem truly burdened with rather difficult and sometimes even obscure tasks.

Conclusion

In terms of environmental urban design, guidelines and recommendations have existed throughout history. However, these design notions, theories and instructions seem to have been difficult to follow; their implementation, and especially their long term and continuous ap-

plication, appears to be somewhat deficient and in many cases totally absent. Even today a similar pattern seems to exist but urban degradation still occurs.

Among the main causes of such phenomena are the rapid and uncontrolled urbanization, the negative aspects of urban expansion (urban sprawl or/and compactness) and the devastating priority on economic growth, which does not involve much consideration of the consequences for human health.

Indeed, it is not enough to know that there is a design for achieving a 'successful' environmentally designed urban area. Even if urban leaders, planners and designers anticipate each individual city problem, have a plan for achieving urban growth in a way that eases or prevents urban environmental degradation (and some of them actually do), it is not certain that they would/will succeed.

Some are trying to address this issue, such as, for example, in the field of Environmental Communication (see for example: Hansen and Cox 2015), which concerns, roughly speaking, the way we communicate en-

vironmental issues. Obviously this is a rather complex matter, but one that needs to be addressed, although it does raise some issues of its own. In particular, one issue concerning urban environmental design solutions, could be whether one such solution should integrate from its creation a relationship with the people that it is meant for, rather than resorting after its conception to communicative skills and means in order to implement the plan.

It is clear that it is not enough to just invent the most technically appropriate design solution for an environmental problem. It is also necessary to be able to successfully implement it, and this is often a completely different task. It is a task that needs to be vigorously addressed, otherwise our environmental solutions become an illusion, an unfulfilled 'promised land', one of many, lost in the realms of time as occurred in the past. The pain of being in a city is not related solely to the present situation, but more to the realization that it is highly likely that our environmental 'promised lands' will not be realized and, therefore, remain in our dreams…

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