

CHAPTER 11

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REMARKS ON CONTEMPORARY ANTHROPOGENIC THREATS FOR URBAN GREENERY IN POLAND

Introduction

Greenery in urban areas fulfils many positive functions both for natural and socio-cultural environments. Compositional values of green areas have been appreciated for thousands of years (see *e.g.* SIEWNIAK, MITKOWSKA 1998), but their ecological value started to be explored in the second half of 19th century. Important health functions were then acknowledged. Since this time considerable increase in scientific research on urban green spaces and the rise of greenery's position in spatial planning and in public awareness have been noted. However, few towns can prove that the condition of greenery and of a natural system was seen as a priority during their development in an industrial age. Nowadays the issues of organization and design of urban greenery are enjoying a revival (see *e.g.* *Greenkeys and Your City*, 2008). The tendency is promoted by global processes such as transformation of post- industrial areas, increased thoughtfulness for natural environment and the growth of life quality. This is simultaneously accompanied by a steady increase in knowledge on influence of green areas on urban sub-systems. Additionally, activities directed at improvement of greenery become more frequent and more efficient. Noteworthy, recognition of impacts of green elements on urban environment abounds with relevant literature (*e.g.* HEJMANOWSKI 1989, ŁUKASIEWICZ 1995, CHIESURA 2004, TRATALOS ET AL. 2007).

Regarding a great role of greenery for functioning of the whole urban area, the theme of its anthropogenic hazards seems to be of great significance. A here presented study concentrates on a general analysis of factors and processes leading to urban greenery degradation in Poland, focusing on the current situation. An author agrees with the suggestion that green areas, forming

the basis of urban ecological systems, should be examined using a system approach. Taking under account a strong influence of vegetation patterns on structure, functions and values of urban landscape, the study stresses a landscape level to be fundamental not only for scientific analyses, but also for activities connected with management of urban greenery.

Urban greenery in a system view

A city is a specific ecological system formed by two fundamental parts: anthropogenic and natural. This system (in geographical terms 'geoecosystem') exhibits distinct features. Dependence on human control and openness belong to the most essential (see BARTKOWSKI 1981; SZPONAR 2003). Whereas the city system is built by following elements of a sub-system level: socio-economic, technical and natural, greenery as a substance of natural origin is usually incorporated into a natural (ecological) subsystem (however, a term 'sub-system' is frequently replaced by 'a system' in professional literature). Treating urban greenery in system categories is based on the assertion that green spaces are not separated from each other, but they form a wider arrangement- an ecological system. This is the premise, which can be found in works devoted to the development of the concept of urban ecological systems. Apart from theoretical significance, employing such perspective must be helpful in urban greenery management. And indeed, genuine thought of CZARNECKI (1961) should be evoked here; who decades ago recommended incorporation of green areas into a coherent system, proposing thus a holistic approach to urban greenery development in Poland.

How is the term of 'an urban green areas' system 'understood? A system of urban green areas has been defined here on the basis of the works of SZULCZEWSKA and KALISZUK (mainly of 2005), SIEWNIAK and MITKOWSKA (1989) and the author's own remarks as

'a conceptual unit embracing green areas of a town, ordered in an organisational arrangement, which usually follows the urban composition'.

This unit is featured by relative character, reflected also in the bonds with adjacent natural structures. However, its range usually cannot follow the natural boundaries, because the system is linked

with administrative units. Importantly, green areas' systems are the parts of higher-level units- urban ecological systems of which they usually constitute core elements.

Greenery in an urban landscape- main values and functions

Urban landscapes bear strong anthropogenic pressure regarding both the system and individual areas. According to RICHLING and SOLON (1996, p. 246) main features of urban landscapes consist in:

- (1). a rather moderate rate of changes of an abiotic environment
- (2). a slight spatial diversity
- (3). a medium degree of heterogeneity of a landscape mosaic
- (4). a little ability to modify internal environmental conditions
- (5). a little: stability and self-control, but
- (6). a large degree of species exchange.

Concerning spatio- functional structure of the landscape, built areas and surfaces permanently covered with technical infrastructure are dominant, whereas plant cover is usually scarce. Importantly, relations between built and unbuilt (biologically active) areas are the key issues when urban ecological systems are analysed. These relations are principal for modern town-planning ideas which tend to establish models of 'sustainable cities' or 'eco-cities' (see *e.g.* JENKS, BURTON, WILLIAMS 2002). Urban landscapes encompass more or less legible architectural arrangement formed by contemporary and historic patterns; however, high structural legibility is specific to historic forms.

An analysis of values and functions of green areas regarding a high range spatial unit- a landscape requires taking under account three major aspects of a landscape: structure, function and physiognomy. Noteworthy, each landscape can demonstrate multidimensionality of functions; therefore, its values cannot be narrowed down to physical structures only. The role of a plant cover for a landscape is extremely high; vegetation becomes simultaneously the substance and the content of a landscape.

Polish bibliography of the subject shows several examples of classification of urban green areas' values (*e.g.* CZARNECKI 1961, PTASZYCKA 1950, SZPONAR 2003), garden values (*e.g.* MAJDECKI 1993, SIEWNIAK, MITKOWSKA 1998) and values of woodlands (ZAJĄCZKOWSKI 2001). In the opinion of the author of this study,

division of urban green areas' values should demonstrate a full range of influence on environment as well as the concern for the landscape level. This assertion is reflected among others in the classification presented in *'Greenkeys and Your City'* (2008, p. 10) and in the work of SIEWNIAK and MITKOWSKA (1998), which refers to parks and gardens. Several types of positive influences of greenery on environment have been distinguished in *'Greenkeys...'*: 1. Ecological and environmental, 2. Economic, 3. Social, 4. Structural. SIEWNIAK and MITKOWSKA describe gardens regarding their cultural, natural and use values.

Trying to combine the author's own observations and above-mentioned solutions, it is proposed to accept the following classification of urban greenery values:

- A. natural values: ecological and environmental
- B. socio-cultural
- C. economic
- D. spatio-structural values.

In fact, many qualities operate at the same time, therefore the division cannot be clear. For instance, use values belong both to categories B and C, whereas the last group (spatio- structural values) is the result of interactions among all former categories. Significance of greenery for the landscape context embraces each of distinguished spheres, but it usually highlights spatio-structural issues, focusing often on compositional values and scenic interlinkage.

Since vegetation is of natural origin, the examination should start from natural values and functions of green spaces. Greenery belongs to crucial elements responsible for the functions of an urban environment and for improvement of its state. Main ecological functions of urban natural systems consist in increasing biological diversity and in maintaining ecological balance (however, ecological balance in cities can be understood only as a potential one). Diversification of ecological structure forms a central issue. Generally, vegetation forms and modifies natural or saying better, semi-natural conditions. Many green areas play or may play the roles of ecological corridors and wildlife refuges; their protective role is enormous, not only for humans, but also for other living organisms and even for abiotic

elements. Regarding environmental functions, positive impact on microclimate, limiting the noise and air pollution as well as saving functions of soil and water should be underlined. These roles are linked with technical functions of greenery; technical functions operate thanks to *e.g.* a role of barriers for acoustic waves and thanks to absorption of air pollution. Influence of vegetation on the air and microclimate play a highly beneficial role for human health. Apart from air purification of harmful gases and dust, vegetation (trees and shrubs especially) make a significant bactericidal effect. Large quantities of phytoncides are released by numerous species, particularly by pines, birch-trees, bird cherries and junipers (ŁUKASIEWICZ 1995), besides bacteriocidal effect, phytoncides have a considerable impact on human wellbeing, being able to activate or calm down an organism. Additionally, vegetation usually positively influences human mental sphere- this topic bring forward the next aspect of qualities.

A socio-cultural context overwhelms a wide array of values linked to various social or individual needs. Important functions of greenery consist in improvement of life quality and in forming of cultural assets. A socio-cultural sphere embraces also a high importance of greenery for tourism and leisure. Distinctively, these are historic parks and gardens that demonstrate especially appreciated set of values.

Economic benefits consist mainly in the role of green spaces for creating a town's image; greenery makes a considerable impact on attractiveness of a whole town or its parts. Of course, attractiveness is important for both local residents and investors. It is observed that the presence of well-cared-of green areas increase the prices of properties. Apart from that, the group of economic values is connected with additional revenues for municipalities thanks to entrance fees, taxation and other benefits. However, green areas demand some funds when they are established and managed.

A spacio-structural aspect is associated with the influence of greenery on the form and structure of a town. It regards compositional and aesthetic values, though the role of vegetation may far exceed aesthetic functions. Greenery can play a fundamental role generating a town's structure and outline the

range of basic structural units of urban areas (this concern has been investigated by e.g. ZACHARIASZ 2006, SIEWNIAK, MITKOWSKA 1998).

Degradation of urban greenery- natural and non- natural factors

Decline in urban greenery values is connected with many processes; their underlying reasons are found both in natural and non- natural conditions. However, owing to a dominant position of man in urban landscapes the latter factor is of much more importance. Ecosystems being present in towns are seldom featured by a high degree of naturalness. Processes leading to transformation of semi-natural or natural ecosystems into anthropogenic occur here relatively quickly (see SZPONAR 2003). Among all elements of natural environment, vegetation reacts on changes at the highest rate. An urban plant cover is usually built of heavily transformed ecological units, SZPONAR (*ibidem*, p. 189) defines them as ‘secondary patterns’ characterised by differentiated stability and various dependence on human interventions. Noteworthy, degradation is linked not only with ecological functions, but it accompanies all greenery values. Moreover, large-scale land transformation and decline in values of the whole landscape may appear in the result of negative impact on vegetation.

Urban greenery, as a biotic component, is highly sensitive to changes. Progress of time is fundamental here. Time, natural ageing of vegetation may lead to heavy deterioration in a given object- this is easy to observe in neglected historic gardens. Depending on a character of changes, reversible and irreversible devastation can be distinguished; the latter one may even lead to disappearing of a given form and it is especially important for historic objects.

Many negative changes in the substance of parks, gardens and other green areas are caused by natural factors. They comprise degradation of water-soil substratum, presence of inconvenient climate conditions and emergence of natural disasters such as humidity surplus, drought, strong winds and a frost. Plants are frequently threatened by biogenic hazards, mainly disease organisms and pest gradation.

Vulnerability to changes of urban greenery is large, mainly because of improper environmental conditions occurring in urban areas. Vegetation in towns encounters very difficult life conditions- increased temperatures, insufficiency of humidity, damaged soil and polluted air. Roadside trees (see ŁUKASIEWICZ 1995) frequently meet the worst life conditions, including poor state of soil and spatial limitations.

As it was highlighted before, functioning of a town geosystem and of an urban landscape is highly dependent on human influence. Threats, which are developed under anthropogenic pressure, will be demonstrated in the next chapter. It should be stressed now, however, that changeability of social, economic and cultural conditions, so specific to Poland during 20th century is the conducive factor for the degradation of space, the process understood in its very broad sense.

Anthropogenic hazards to urban greenery

Human impact on urban greenery and on the green areas' system is a very complex concern and results in numerous forms of degradation. Generally, the impact on a plant cover is combined and can take part in two ways: direct and indirect influence.

Direct degradation

Depreciation of urban greenery may occur as a result of a direct impact mainly in the forms of destructive acts committed by individuals and owing to rapid land use changes. Noteworthy that the last century brought many processes of degradation with it and that deterioration in natural elements of towns and cities spread widely. The most important factors in the post-war period in Poland embrace tremendous war-damage of the state and then accelerated urbanisation and industrialisation. Nowadays effects of direct influence encompass additionally common vandalism, improper maintenance and protection of greenery and a far-reaching factor: abrupt changes of functions within areas still carrying on ecological functions.

Urbanisation leads to absorption of neighbouring territories. On the one hand, it can lead to incorporation of areas presenting

high ecological values into cities' administrative boundaries, such as forests, woodlands, and some open areas. On the other hand, it leads to expansion of a chaotic sub-urban zone and to depreciation of ecological and recreation values of the area, which used to serve as a city's buffer zone. Simultaneously the pressure on internal structure of a city leads to disappearance of space resources, which is usually caused by intensive search for new development sites- frequently at the cost of an ecological network. This may result in fragmentation of biologically active areas, in consequence, spatial isolation of some green spaces and discontinuity of a green areas' system appear. The total surface of biologically active land shrinks, valuable green forms are frequently liquidated, hence a shape, structure and functions of the system change.

Therefore, among factors responsible for serious threats to urban greenery, investment pressure, specific to fast economic development during last two decades, should be highlighted. Conflicts between the need to preserve green spaces and the necessity to offer investment lands are very often resolved with causing damage to ecological areas. Green spaces in this case are commonly transformed into housing, trade or communication areas. These actions obviously must be preceded by suitable changes in local law and spatial planning acts. Adverse changes in land functions are observed in many Polish towns, the situation in Gdańsk was described by MIESZKOWSKA (2005), in Cracow by MALINOWSKA (2006). Demand for investment areas causes not only the final retraining of a given land/object, but also leads to considerable changes of habitat conditions and in result, to changes in functions of a neighbouring land.

Relations between the quantity (and quality as well) of disappearing and new objects allow to approach a concern of a system dynamics. If former green objects vanish and new objects are not being established, a highly awkward situation is created. An analysis of quantity relations between the loss and rise in plantings of high-growing vegetation in the period 2000-2007 undertaken by the author (BOŻĘTKA 2008) can contribute here. The results provide evidence that a great loss in greenery in numerous Polish cities occurs. The amount of trees destined to cuts (according to official data obtained from municipalities, in

the case of Gdańsk also from the Regional Conservator of Monuments; tab. 1) reaches from about a dozen of thousand (Gdynia, Kielce, Poznań) to several dozen thousand (Gdańsk, Katowice, Kraków, Łódź and Wrocław) in the last few years. The amount of new plantings, as data demonstrates is usually smaller. Only Katowice and Kielce have planted more trees than have cut (Katowice: 64 000 more, Kielce: above 133 000, Poznań has noted a rather slight difference: 347 trees less). We should add that this is the official data and it is not able to fully demonstrate the range of damage. The devastation is usually very serious; many trees are removed without any legal permission.

Table 1

The amount of cut and planted trees in selected Polish large towns
in the period 2000- 2007
(an irregular time interval; n.d.- no data)

| Town | Trees cut | Trees planted | Difference | Predominance of: loss (L) plantings (P) |
|---------------------|-----------|---------------|------------|---|
| 1. Bydgoszcz | n.d. | 2 000 | n.d. | n.d. |
| 2. Gdańsk | 31 743 | 13 547 | 18 196 | L |
| 3. Gdynia | 13 209 | 5 387 | 7 822 | L |
| 4. Katowice | 56 000 | 120 000 | 64 000 | P |
| 5. Kielce | 15 878 | 149 262 | 133 384 | P |
| 6. Kraków | 67 059 | 25 684 | 41 375 | L |
| 7. Łódź | 39 030 | 2 479 | 36 551 | L |
| 8. Poznań | 11 145 | 10 798 | 347 | L |
| 9. Wrocław | 36 702 | 16 367 | 20 335 | L |

Source: Bożętka (2008), widened

The findings (*ibidem*) provide also information about the number of new garden ensembles in the examined nine towns. Indeed, most of the towns have established new objects, but they are not numerous. The best situation is found in Poznań, where several new parks have appeared lately (mostly residential complex gardens).

Proper management of the urban green areas' system should take into account the balance between prolongation of function within old objects and forming new elements. Sadly, activities

involved in maintenance historic green ensembles (parks and gardens particularly) have been connected with many mistakes throughout the post-war period. This problem was frequently approached by BOGDANOWSKI (*e.g.* 2000), who criticised a utilitarian direction of greenery management for simplified greening of towns and for undertaking actions without any concern to a proper landscape composition. Bogdanowski and many other authors pointed at latent potential of urban greenery in Poland; for instance, according to MALINOWSKI (2006) a great, though almost unknown ecological resource in Cracow consist in 'unofficial' courtyard greenery and private gardens.

Trying to sum up the issue of relations between old and new in urban greenery, we should note deterioration in historic objects with simultaneously occurring deficiencies in new parks and gardens. Additionally, new objects usually do not demonstrate proper composition and high ecological and aesthetic values. Both phenomena express very negative tendencies in urban greenery development.

Greenery maintenance is a powerful factor of proper management of green areas. Regrettably, the tending measures being employed Poland are very often not able to help the plants, more, they are very harmful and lead to further degradation of greenery. We can observe routine actions involved in 'tending the greenery' which consist in such controversial operations like mass removing of high-growing vegetation, too intensive cuts of large branches, common tree pollarding. The consequent loss of trees and bushes is severe, excessive cutting is experienced by all tree species, even those, which tolerate only light interference, for instance horse- chestnuts or coniferous trees. It is observed that the most destructive cutting and tree-top regulation are used in the case of poplars and willows. Recovery of so heavily mutilated plants is rarely possible, many die out. As a result, tree degradation becomes advanced and this obviously influences landscape quality.

Depreciation is clearly reflected in aesthetic values. Landscape harmony is disturbed and regrettably, the notion of picturesque urban landscape is but a background topic. Against many protests staged by ecological organisations and local communities, drastic scenes of damaged greenery within

residential areas and roads became common views in Poland last years. The reasons lie in some factors. Incompetence is accompanied by the lack of efficient fund expenditure and by the willingness to make financial profits by selling the materials, particularly wood. Additionally, as MALINOWSKA confirmed (2006) exaggerated care for the safety of town dwellers is often associated in Poland with a need to remove vegetation.

Paradoxical the situation is when the damage caused by greenery maintenance becomes greater than mechanical injuries caused by moving vehicles or construction and repair works. There is also vandalism bringing great loss in plant cover with it-peeling barks, devastation of branches and leaves accompanies deterioration in other elements of green areas. We should agree with the opinion of ZACHARIASZ (2006) stating that prevention of anti-social behaviour in urban parks is highly required nowadays.

All construction works pose hazards for plants growing in built areas or in their vicinities. Serious impact affects soil conditions; changes within a soil profile have often a rapid character. Further, fast change of water level can lead to a death of roots. Underground plant elements are injured during excavation and armouring of the building areas. Pipelines of thermoelectric power stations running closely to green areas or individual plants are dangerous as well, mostly owing to thermal changes of the ground.

Urban growth is usually connected with greater intensity of built-up areas and with increase in congestion of transport routes. The share in hard, impermeable covers grows and this causes very unfavourable conditions to the organic world. Additionally, investment pressure influences surfaces neighbouring to areas of building works. Construction projects conducted close to parks and gardens usually worsen ground- water conditions. KIELSZNIA (2006) describes the case of constructing the Wilanów Town (Miasteczko Wilanów) in Warsaw. The initial phase of works resulted in lowering the level of a ground water-table of around 1m and this led to drying out of trees in the Wilanów's historic park; old trees coped with the most dangerous situation. Almost all actions connected with maintenance of roads and roadsides constitute a threat for vegetation, removing of ice-covered

surfaces with saline solution and oil leakage belongs to the most dangerous.

Factors negatively influencing the state and functions of urban greenery embrace also strong recreation pressure. Overcrowding and concentration of many leisure types or providing inappropriate leisure activities bring many hazards with it. Nevertheless, we should admit that restoration of biological and psychological powers of towns' residents belongs to the most essential roles of urban greenery. Therefore, proper building up of the relations between recreation and protection of greenery constitutes one of the main tasks of urban greenery management.

As outlined earlier, large, individual greenery objects have been seldom established lately. However, interesting new forms, modern design solutions and increase in care for 'green infrastructure' appear within new green spaces accompanying communication routes, in spaces located within modern residential areas and in relatively tiny objects of greenery organized as an element of 'small architecture'. Although these elements usually raise visual attractiveness of the environment, their aesthetic amenities tend to prevail over ecological functions. Alien species and alien breeding varieties featuring low requirements for the habitat and maintenance are preferred. These plants usually have an interesting habit and colours, but they are not able to provide local animals with needed benefits. Apart from that, they often form an impression of artificiality. No doubt that omission of ecological roles and presence of advanced formalism are not advantageous to the notion of naturalness (photo 1). Reduction in biodiversity values and a situation when some parts of towns demonstrate a great share in biologically active areas, but at the same time, they are featured by high monotony and low quality of ecological functions occur. Simultaneously areas demonstrating great natural values, such as littoral zones, parts of forests and natural grass are often neglected in Polish towns, their ecological significance, recreational potential and aesthetic amenities are underestimated. We should add that discrepancy between aesthetic and ecological qualities is not a necessity, the art of gardening elaborated valuable concepts and practical solutions that wonderfully link the need to strengthen environmental functions with the demand for high

aesthetic attractiveness. They are very close to the movement of naturalness, in which contemporary concepts of natural gardens originated.

Indirect degradation

Indirect degradation of urban greenery is the effect of negative transformation of natural environment; influences caused by these changes are unusually complex. Main effects embrace the change of habitat conditions, presence and accumulation of air, water and soil pollution. Worsening of environmental conditions, which generally are poor in towns and cities, must pose serious threats for many organisms and in consequence, for numerous elements of a green areas' system.

Widespread contamination of urban environments arise many problems connected with formation and management of a vegetation cover. This article cannot develop extensively the theme, however, we should mention interesting studies devoted to a selection of plants for worsened environmental conditions in urban areas published by *e.g.* BIAŁOBOK, RACHWAŁ (1981), ŁUKASIEWICZ (1989, 1995), METERA (1986). A post-war state's industrialisation was linked with a huge environmental pollutant input. Vegetation in towns, particularly in large centres, where industry was concentrated, was exposed to extreme life conditions. Although the tendency of decline in emission of industrial pollution has been observed since 1990s, large amounts of hazardous substances had been accumulated in the soil, in living organisms and within bottom sediments. Simultaneously the increase in emissions of traffic pollution takes part. Strong influence of unfavourable environmental conditions on soils is noted; high congestion of soil particles, deficit of water-saturation and oxygen, mixing of soil layers, concentration of huge amounts of harmful substances belong to basic features of soils in urban areas.

A particular sign of depreciation of urban greenery is undervaluation of its aesthetic assets and roles for landscape composition. Unprofessional treatment of vegetation and the lack of respect for immaterial values of a landscape, so typical for the post-war period, lead not only to lower quality of a green object,



Phot. 1. A part of greenery in one of residential areas in Zielona Góra. A formal set of plants (mainly of thuja and dense ornamental shrubs) replaced semi-natural forest community- two lonely oaks as remnants, (2009). *Author: B. Bożętka*



Phot. 2. Difficult life conditions of road greenery. Covered soil surface, threats made by traffic, drastic plant tending (for deciduous trees, a spruce has not been changed so far); Ostrów Wielkopolski, Królowej Jadwigi Street, 2009. *Author: B. Bożętka*

but also to the total transformation of urban landscape physiognomy. Considerably, appropriate shaping of aesthetic values is not an easy task to cope with; each Polish town can provide many examples of inappropriate solutions within green areas' design and composition. These negative examples are seen even nowadays and even in the case of sites fulfilling representative functions.

Importantly, processes of direct and indirect degradation are interconnected and they influence the greenery in a synergistic way (phot. 2). The most significant effects of greenery degradation embrace following phenomena typical for the whole country:

- (1). Reduction of the total area of a green areas' system owing to the loss of spaces destined for other spatial functions.
- (2). Worsening of the state of historic green ensembles.
- (3). Heavy loss of high-growing vegetation not compensated by plantings demonstrating adequate ecological qualities.
- (4). A very modest share of new green forms, particularly when parks and gardens are considered.
- (5). Stable depreciation of landscape aesthetic values.

Intensity and complexity of degradation processes, variety of their forms and a large- scale character of changes are entangled in a complicated situation. Urban greenery degradation in Poland is not only linked with individual objects, but it also affects the total green system in the country seen at a high, national level. Therefore, an important question arises: Are the reasons for degradation featured by a system character as well?

Conditions of anthropogenic degradation

Though increase in the total area of a biologically active surface in Polish towns has been noted throughout the post-war period (the tendency is illustrated by statistics, *e.g. Ochrona Środowiska, 2008*), green areas were threatened by numerous negative changes. Precise determination of the degree of damage is nowadays impossible; however, it can be supposed that in some cases, especially within industrial zones the degradation has been very severe. General features of urban greenery degradation were

mentioned before, the former chapter has shown multidirectional character of negative changes. What underlies so advanced destructive processes?

Phenomena, which have been specific to management and shaping of greenery in Poland in the post-war period, should be regarded mostly as an indirect consequence of socio-economic transformation. A main factor responsible for the state of urban greenery is, obviously, the condition of natural environment and in our latitude it is determined by a man-made impact. Economy practiced during a former political regime caused so dramatic changes of environment that huge parts of the country have been termed as 'areas of ecological disaster'. Majority of large Polish towns were (or still are) in their influence zones. As a matter of fact, the ecological crisis is connected with the total spatial crisis.

A development model of urban greenery, which dominated until 1990s, had a strong impact on its contemporary quality. Large increase in a total green surface was accompanied by the lack of artistic achievements and low artistic values. Limited financial support, depreciation both of a gardener profession and of the art of gardening and additionally, a sort of a chase in pursuit of formal statistic measures decided about low quality of green ensembles. Compositional values, the role of view connections and place tradition were the absent concerns or they were eradicated from the landscape. False operations of green areas' reconstruction were frequently conducted, as well as 'greening actions', which collided with landscape values (BOGDANOWSKI 2000). A lack of appropriate conceptions connected with inefficient care and with low respect for green spaces has led to continual depreciation of urban greenery. Additionally, a centralized system of spatial planning gave rare opportunities to regard local character, not mention such an abstract idea as the sense of place. Furthermore, a tendency to undervalue the public space was thoroughly represented during the post-war history in Poland; as a result, little significance of public space in social awareness has been encountered until now.

The period of transition into capitalism brought additional destructive processes with it which overlap the former one and strengthen the net of negative conditions for greenery development. Spatial management in Poland is currently in a very

difficult situation, according to DYLEWSKI (2004) planning is not featured by a first-rate performance and the premise for spatial order is actually only a theoretical concern. Public goods still are not appreciated, contrary to private property. MIESZKOWSKA (2005) when examining the system of biologically active areas in Gdańsk writes about strong defence of private affairs and a ruthless drive of investors to make enormous profits, of course, very often with no regard for green spaces and landscape values. Besides that, limited local spatial policy in Poland must be reflected in management of urban greenery. This is influenced by many formal factors. Complicated legal regulations can lead to abuse; inefficiencies in spatial planning are followed by frequent exceeding of protection requirements imposed on green areas. Additionally, splitting the management of greenery among many entities and a lack of their coordination must settle a serious difficulty.

Moreover, strong and various factors of local, regional and national origins are widened with global processes. For instance, urban sprawl and decrease in the quality of urban spatio-functional structures is commonly experienced. Above all, a very dynamic expansion of technosphere became a characteristic feature of our epoch. However, limiting the role of a natural component, which vegetation is, to a modest additive to the technical infrastructure would be a mistake.

Summary

Greenery belongs to fundamental elements of urban structure. Importance of natural systems for functioning of urban areas implies the theme of greenery degradation and its influence on other spheres of the urban environment. Vegetation is an element, which cannot be replaced by anything else as far as environmental conditions and a landscape are considered.

Reflections presented in this article show that processes of urban greenery degradation in Poland are advanced and highly depend on human activities. Numerous negative phenomena affect natural, socio-cultural, economic and spatio-structural values. A special attention should be paid at spatio-structural values since they are associated with a crucial role of greenery for forming a spatial structure, which in most Polish towns demands

improvements. It should be highlighted at the same time, that changes within green spaces produce consequences for higher-level systems: the urban green areas' system, the urban natural system and for the urban landscape. Further, negative changes may have impact on adjacent areas and a regional ecological network.

One of general conclusions coming from a presented study is a statement that analysed changes demonstrate a system character, but they are not followed by system improvements. Unfortunately, undertaken actions aimed at greenery maintenance frequently show local character, short-term horizons they are often improperly conducted. Polish towns suffer from a lack of coherent conceptions, which would link a green areas' system to ecological and compositional networks. Of course, this is a challenge to undertake such a very complicated task, but it is not an impossible operation. Certain large cities (for instance Berlin and London) have been integrating their own green areas' system with areas located in the neighbourhood- coherent systems exceeding a local level have emerged.

However, positive comments on contemporary concerns of urban green areas' system in Poland should be expressed, too. Tendencies towards increase in ecological and social qualities in urban greenery are appearing and conceptions of forming urban greenery that demonstrate a holistic perspective are developing. Bydgoszcz, where an interesting 'Strategy of green areas' development' (*Strategia rozwoju...*, 2007) was introduced, provides a good example.

Hopefully, increase in demands for a better life quality should correspond with higher importance of green spaces in social awareness and should lead to their more pronounced position in spatial management. Growing requirements for the quality of natural environment may be considered as a beneficial tendency for improvements in urban greenery in Poland. However, reparation of damage taking place for dozens of years is a long-lasting process. Perhaps, two issues will be the key concerns here-first, reduction in depletion in a town ecological system and second, linking visual qualities with ecological values. If a green areas 'system corresponds with an ecological potential of

surroundings and if it regards local and regional traditions, landscape values will certainly increase.

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