

Urban green and vegetation growth in Kosice – Case study

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Abstract:

The need to house population in urban areas is expected to rise to 66% in 2050, according to United Nations. The replacement of natural permeable green areas with concrete constructions and hard surfaces will be noticed. The densification of existing built-up areas is responsible for the decreasing vegetation, which results in the lack of evapotranspiration cooling the air. Such decreasing vegetation causes urban heat islands. Since roofs and pavements have a very low albedo, they absorb a lot of sunlight. Environmental justice is still an emerging topic in postsocialist cities, constrained by market-orientation and neoliberal trends within society, privatization, and the primacy of private interests. The respective situation in postsocialist cities provides insights into the international debate on environmental justice, by highlighting some extremes related to neoliberal and populist governments and very rapid processes that lack long-term democratic consensus within societies. The findings of this study are discussed in the context of a postsocialist legacy, which includes broad tolerance for inequalities, a lack of solidarity in society, a lack of responsibility for the public interest, and extreme individualization and disregard for social interests. This has gradually led to the corporatization of local authorities and various business-government coalitions. This setting is more likely to favor business models related to the use and management of urban green and blue spaces than the environmental justice discourse.

Methodology & Theoretical Orientation:

The ideal way to measure any city's heat island would be to examine regional weather patterns with and without the city in the place. Measuring heat island's effects on regional climate is useful, but it cannot tell how effective mitigation measures would be at reducing a heat island's effect. This is where modeling becomes necessary. Models are used to predict how well mitigation measures can reduce urban temperatures, energy use, air pollution and retain water. The simplest and the most common way to analyze a heat island is to compare existing weather data from two or more fixed locations. The socialist system claimed to promote an egalitarian social mix, with a strong focus on society and social needs. After the fall of socialism, researchers were concerned that there was no alternative "comprehensive progressive vision of a just social order to take socialism's place". Environmental justice, a concept that highlights the differential exposure to environmental burdens and access to environmental goods experienced by different socioeconomic groups provides an example of such an

alternative vision. The understanding of EJ is clearly broader than the above most highlighted distributive or distributional approach that focuses on fair or allocation of access to benefits for all social groups. The criteria for the selection of case studies included representativeness for the broader issues observed in post socialist countries but also including the specific local context. The case studies serve as confirmation of our earlier generalizations and are used for additional illustration only. They mostly represent our own ongoing research, most of which has not been published yet.

Findings:

Several studies have shown that natural and permeable surfaces, as in the case of green roofs, can play crucial role in mitigating this negative climate phenomenon and providing higher efficiency for the building, leading to savings. Such as water saving, what is the main idea of this research. Green roof advantages concerning water management include the attenuation of flood peaks in extreme rain events due to storm water runoff delay, acting like a meanders of the river through water storage in the layers of the green roof, and reduction into the public drainage system. Water distress is an issue, which has brought an attention on the possibility using green roof structures to manage storm water and allow their storage for later reuse. In Portugal, ANQIP has developed a Technical Specification: ETA 701 for rainwater harvesting in buildings, being a valuable tool to couple with the green roof technology. The neglect of the EJ context resembles similar problems with other useful frameworks for analyzing and planning UGBS. For example, the ecosystem services framework is used to a very limited extent, and only among experts involved in planning. In short, the lack of availability prevents all ecosystem services, while reduced accessibility only prevents some, and attractiveness refers primarily to trade-offs between different ecosystem services. This is particularly the case in the context of issues such as climate change adaptation. Biernacka and Kronenberg studied how the different barriers that prevent UGBS provisioning at the three levels affect the delivery of ecosystem services. A few more nuanced studies linked the availability of UGBS with specific ecosystem services, such as noise mitigation, and they discussed the findings in the context of EJ. However, although the problems mentioned in Section 4 clearly translate into the reduced ability of urban ecosystems to provide their services, this has not been part of the public debate in postsocialist countries. Again, the prioritization of private, commercial, and business activities, and ongoing construction, are the most prominent challenges. Meanwhile, the

most relevant ecosystem services to be considered in this context include recreation, along with physical and mental health, climate adaptation, water overflow regulation, and local microclimate regulation, including the heat island effect. In Russia, in particular, another important ecosystem service that is affected by new developments is food provisioning. It is related to dachas, which first appeared in pre-revolutionary Russia but which remained important during the socialist period, primarily for the purpose of growing vegetables and fruit to supplement poor diets.

Conclusion:

Green roofs have the potential to be the most common type of green structures in the city due to their characteristics, low maintenance and low weight to the buildings. While postsocialist countries differ in relation to how the issues of EJ have been addressed in the context of UGBS provision, among others they also share many similarities. Interestingly, the respective situation in postsocialist cities provides interesting insights into the international debate on EJ by highlighting extremes related to neoliberal and populist governments. Note that eastern Germany is an outstanding case compared to the rest of postsocialist Europe due

to German reunification and funding. There is still a long way to go before distributive/distributional, procedural/participatory, and interactional/recognition justice are accepted as guiding principles for shaping and managing UGBS in most postsocialist countries. This is closely linked to the abovementioned lack of solidarity and responsibility, which is still inherent in postsocialist societies, an issue that also affects expert and decision-making spheres. Nevertheless, the scientific discourse has slowly started to address those issues and to relate empirical evidence to EJ theory. Meanwhile, civil societies show an increased general interest in equity and justice issues. The new generation of planners in postsocialist countries may not only draw on good examples from western countries, but also on the legacy of the relatively high weight that evenly distributed UGBS had in the socialist planning agenda, and seek to recuperate some of these planning practices.